

Health Policy and Systems Research

A Methodology Reader

Edited by Lucy Gilson



Alliance for
Health Policy and
Systems Research



World Health
Organization

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WHO Library Cataloguing-in-Publication Data

Health policy and systems research: a methodology reader / edited by Lucy Gilson.

1.Health policy. 2.Health services research. 3.Delivery of health care. 4.Research. 5.Review literature. I.Gilson, Lucy.
II.Alliance for Health Policy and Systems Research. III.World Health Organization.

ISBN 978 92 4 150313 6

(NLM classification: W 84.3)

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About this Reader

About this Reader

What does this Reader offer?

Health Policy and Systems Research (HPSR) is often criticized for lacking rigour, providing a weak basis for generalization of its findings and, therefore, offering limited value for policy-makers. This Reader aims to address these concerns through supporting action to strengthen the quality of HPSR.

The Reader is primarily for researchers and research users, teachers and students, particularly those working in low- and middle-income countries (LMICs). It provides guidance on the defining features of HPSR and the critical steps in conducting research in this field. It showcases the diverse range of research strategies and methods encompassed by HPSR, and it provides examples of good quality and innovative HPSR papers.

The production of the Reader was commissioned by the Alliance for Health Policy and Systems Research (the Alliance) and it will complement its other investments in methodology development and postgraduate training.

Why is the Reader needed?

Health systems are widely recognized to be vital elements of the social fabric of every society. They are not only critical for the treatment and prevention of ill-health but are central strategies for addressing health inequity and wider social injustice (Commission on the Social Determinants of Health, 2008). Health systems also provide the platform from which to launch dedicated efforts to address major diseases and health conditions that burden low-income populations, such as HIV/AIDS, tuberculosis and malaria. Given these roles, the early 2000s saw a significant expansion of international and national interest in health systems as one component of sustainable development in LMICs. Health system strengthening is now seen to be essential for the achievement of the Millennium Development Goals (Travis et al., 2004).

However, the knowledge base to support health system strengthening and policy change in LMICs is surprisingly weak (World Health Organization, 2009). The body of available work is quite limited compared to other areas of health research and suffers from various weaknesses. Thus, HPSR is criticized as being unclear in its scope and nature, lacking rigour in the methods it employs and presenting difficulties in generalizing conclusions from one country context to another (Mills, 2012). Review of health policy analysis work, in particular, also shows that research in this area is often weakly contextualized and quite descriptive, and offers relatively limited insights into its core questions of how and why policies are developed and implemented effectively over time (Gilson & Raphaely, 2008). As HPSR remains a 'cinderella', or marginal, field in health research these weaknesses are not particularly surprising. Within LMICs there are very few national researchers working on health policy and systems issues, and there is a lack of relevant training courses (Bennett et al., 2011). Yet the need is clear – as Julio Frenk, Dean of the Harvard School of Public Health, stated at the First Global Symposium on Health Systems Research held in Montreux, Switzerland, in 2010:

we need to mobilise the power of ideas in order to influence the ideas of power, that is to say, the ideas of those with the power to make decisions.

What does the Reader aim to do?

This Reader aims to support the development of the field of HPSR, particularly in LMICs. It complements the range of relevant texts that are already available (see examples at the end of this section) by providing a particular focus on methodological issues for primary empirical health policy and systems research.

More specifically, the Reader aims to support the practice of, and training in, HPSR by:

- encouraging researchers to value a multidisciplinary approach, recognizing its importance in addressing the complexity of health policy and systems challenges;
- stimulating wider discussion about the field and relevant research questions;
- demonstrating the breadth of the field in terms of study approaches, disciplinary perspectives, analytical approaches and methods;
- highlighting newer or relatively little-used methods and approaches that could be further developed.

The Reader is mainly for use by:

- researchers and health system managers who wish to understand and apply the multidisciplinary approaches of HPSR in order to identify comprehensive strategies that address the complex challenges of health system development;
- teachers and facilitators involved in HPSR training;
- students, from any discipline or background, who are new to the field of HPSR.

How is the Reader structured?

There are four main sections in the Reader:

Part 1 provides an overview of the field of HPSR in LMICs and some of the key challenges of this kind of research.

Part 2 outlines key steps to follow when conducting HPSR studies.

Part 3 presents some key references of papers which provide overarching conceptual frameworks for understanding health policy and health systems.

Part 4 is the main body of the Reader and presents a set of empirical papers drawn exclusively from LMICs. The papers were selected because they:

- together demonstrate the breadth and scope of HPSR work
- provide good examples of different forms of research strategy relevant to HPSR
- are high quality and innovative.

Part 5 presents a set of references for papers that reflect on specific concepts or methods relevant to HPSR as well as some of the particular challenges of working in this field.

Doing HPSR: from research questions to research strategy

The defining feature of primary HPSR is that it is problem- or question-driven, rather than, as with epidemiology, method-driven. Therefore, as outlined in Part 2, the first step in doing rigorous and good quality research is to clarify the purpose of the research, what the study is trying to achieve, and to identify and develop relevant and well-framed research questions.

Good quality work then demands an understanding of the research strategy that is appropriate to the questions of focus. The strategy is neither primarily a study design nor a method, but instead represents an overarching approach to conducting the research; it considers the most appropriate methods of data collection and sampling procedure in terms of the research purpose and questions. The art of study design in HPSR, as with all 'real world research', is about turning research questions into valid, feasible and useful projects (Robson, 2002).

The papers in Part 4 are grouped by research strategy in order to encourage critical and creative thinking about the nature and approach of HPSR, and to stimulate research that goes beyond the often quite descriptive cross-sectional analyses that form the bulk of currently published work in the field. The research strategies were chosen to demonstrate the breadth of HPSR work, covering both dominant and emerging approaches in the field.

They are:

1. Cross-sectional perspectives
2. The case study approach
3. The ethnographic lens
4. Advances in impact evaluation
5. Investigating policy and system change over time
6. Cross-national analysis
7. Action research

Each of the sections in Part 4 includes: a brief overview of the relevance of the research strategy to HPSR; critical elements of the strategy that must be considered in conducting rigorous work; and an introduction to the selected papers.

We note that secondary research or synthesis methods are not addressed here, and readers interested in that particular research area are encouraged to use relevant supporting materials. These include, for example, a Handbook developed with the Alliance support and downloadable from:

http://www.who.int/alliance-hpsr/projects/alliancehpsr_handbook_systematicreviewschile.pdf

Three broader texts of use to those doing HPSR are:

Fulop N et al., eds (2001). *Issues in studying the organisation and delivery of health services*. In: Fulop N et al., eds. *Studying the organisation and delivery of health services: research methods*. London, Routledge.

Robson C (2011). *Real world research: a resource for social scientists and practitioner-researchers*, 3rd ed. Oxford, Blackwell Publishing.

Thomas A, Chataway J, Wuyts M, eds (1998). *Finding out fast: investigative skills for policy and development*. London, Sage Publications.

How was the Reader developed?

The Reader was developed through a process of five steps:

1. engagement with relevant researchers across the world to identify potential papers for inclusion and comment on an initial draft of Part 2;
2. development and teaching of a new course, “introduction to Health Systems Research and Evaluation” as part of the University of Cape Town’s Master’s in Public Health (health systems) degree programme;
3. review of papers and selection of an initial “long list” for possible inclusion in the Reader;
4. presentation and discussion of the initial ideas for the Reader and the long list of papers, at the 2010 Montreux, First Global Symposium on Health Systems Research;
5. final selection of papers and finalization of the section introductions.

The team

A multidisciplinary group of researchers, with a range of relevant experience and organizational bases, supported the Reader’s development process. The team was led by:

- Lucy Gilson (health policy/health economics, South Africa/United Kingdom of Great Britain and Northern Ireland)

and included:

- Sara Bennett (health policy/health economics, United States of America)
- Kara Hanson (health economics, United Kingdom of Great Britain and Northern Ireland)
- Karina Kielmann (medical anthropology, United Kingdom of Great Britain and Northern Ireland)
- Marsha Orgill (health policy/health systems, South Africa)
- Helen Schneider (public health/health policy, South Africa).

Irene Agyepong (public health manager/health policy, Ghana), Kabir Sheikh (health policy/public health, India) and Freddie Ssengooba (health systems/health policy, Uganda), also contributed greatly to conceptualizing Part 2, in part through their collaboration with Sara Bennett, Lucy Gilson and Kara Hanson in a set of parallel papers published in PLoS Medicine (Bennett et al., 2011; Gilson et al., 2011; Sheikh et al., 2011).

A range of inputs or comments on the Reader’s development were also received from a broader group of colleagues who deserve a special note of thanks (see below).

Ultimately, however, the selection of papers in this Reader reflects the particular perspectives of those most closely involved in its development – both on the nature of the field and on what constitutes a good quality or unusual study and paper. The Reader is, therefore, a starting point for reflection on HPSR, not an end point. It must be seen as a living document that will develop over time.

Please note that this Reader is mostly available online at: <http://www.who.int/alliance-hpsr/resources/reader/en>.

For their comments and ideas, particular thanks to:

Virginia Berridge	Prasanta Mahapatra	Steven Russell
Thomas Bossert	Martin Mckee	William Savedoff
Susan Cleary	Barbara McPake	Jeremy Shiffman
Don de Savigny	Anne Mills	Sameen Siddiqi
Mike English	Sassy Molyneux	Barbara Starfield
Abdul Ghaffar	Susan Fairley Murray	Viroj Tangcharoensathien
Miguel Angel González Block	Piroska Östlin	Sally Theobald
Felicia Knaul	Weerasak Putthasri	Stephen Tollman
Mylene Lagarde	Kent Ranson	Wim Van Damme
Asa Cristina Laurell	Michael Reich	Frank Wafula
John Lavis	Valéry Ridde	Gill Walt
Bruno Marchal	John-Arne Röttingen	

Thanks also to all those who participated in the special session to discuss ideas about the Reader that was held as part of the First Global Symposium on Health Systems Research, Montreux, November 2010.

Lydia Bendib managed the overall production of the Reader.

Publishers acknowledgement

Grateful acknowledgement is made to the various publishers for permission to reproduce in this Reader, the full text articles included in Part 4.

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Part 1

Introduction to Health Policy and Systems Research

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1. What is Health Policy and Systems Research?

This part of the Reader provides an overview of Health Policy and Systems Research (HPSR) and the key elements and issues with which it is concerned. It includes an outline of the main knowledge paradigms that are encompassed within this field of research.

Key points from this section

Features that define HPSR are:

- the types of issues it addresses
- the fact that it seeks to address real-world situations and issues
- it is multidisciplinary, drawing on methods and perspectives from a range of disciplines.

HPSR investigates issues such as: how health care is financed, organized, delivered and used; how health policies are prioritized, developed and implemented; and how and why health systems do or do not generate health and wider social goals.

It brings together health policy and health systems work into one integrated field. This combined focus on health policy and health systems issues provides a strong basis for identifying what can be done to:

1. strengthen health systems so they can better achieve their health and broader social goals; and
2. ensure that the related research is applied research that has the potential to support the implementation of health policies and health system development.

Key characteristics of HPSR

Health policy and systems research (HPSR) is defined as a field:

... that seeks to understand and improve how societies organize themselves in achieving collective health goals, and how different actors interact in the policy and implementation processes to contribute to policy outcomes. By nature, it is interdisciplinary, a blend of economics, sociology, anthropology, political science, public health and epidemiology that together draw a comprehensive picture of how health systems respond and adapt to health policies, and how health policies can shape – and be shaped by – health systems and the broader determinants of health. (Alliance for Health Policy and Systems Research, 2011.)

This definition also highlights its key characteristics (Alliance for Health Policy and Systems Research, 2007; Mills, 2012).

Health Policy and Systems Research:

- is a multidisciplinary research field, distinguished by the issues and questions addressed through the research rather than by a particular disciplinary base or set of methods;
- includes research that focuses on health services as well as on the promotion of health in general;
- includes concern for global and international issues as well as national and sub-national issues, as global forces and agencies have important influences over health systems in low- and middle-income countries;
- encompasses research on or of policy, which means that it is concerned with how policies are developed and implemented and the influence that policy actors have over policy outcomes – it addresses the politics of health systems and health system strengthening;
- promotes work that explicitly seeks to influence policy, that is, research for policy.

An integrated approach

Importantly, HPSR brings together health policy and health systems work into one research field, as there are four linkages between these apparently separate areas of work, as listed below.

1. Health policies can be seen as the purposeful and deliberate actions through which efforts are made to strengthen health systems in order to promote population health.
2. Health policy actions must not only be informed by an understanding of the current dynamics of health system functioning and performance, but are also sustained, or undermined, by whether and how they find expression in the health system.
3. A better understanding of the politics of health policy change, the actors and interests driving the processes through which policies are developed and implemented, contributes to understanding how to influence policy and take action to strengthen health systems.
4. A specific focus on policy implementation allows for and requires a better understanding of the organizational dynamics of health systems, which is a critical and often overlooked element of health system functioning.

In practice, therefore, the two apparently different areas of work – health policy and health systems – overlap. Together they provide the knowledge base relevant to strengthen health systems whilst also showing how knowledge and other forms of power together influence policy decision-making. In these ways, HPSR work always seeks to be policy relevant.

Key areas of HPSR

Each of the four central elements in HPSR are considered in the following sections. Some key definitions, concepts and frameworks are discussed. These provide a foundation for thinking about issues related to HPSR, defining appropriate research questions and analysing the findings of such research.

Key points from the following four sections

Four central elements in HPSR are:

- health systems
- health system development or strengthening
- health policy
- health policy analysis.

The issues related to each of these elements can be understood through a range of definitions, concepts and frameworks, which also help to generate relevant and appropriately framed research questions. Such frameworks allow us to understand the various elements, characteristics and dimensions of a health system; and to identify the different connections and interrelationships within a health system that need to be considered in order to strengthen them.

New health policies represent efforts to introduce deliberate and purposeful change within health systems. Ideas and concepts related to policy and the analysis of such policy are an important part of HPSR. In seeking to support better policy implementation, it is critical that we understand the factors that influence policy outcomes. Through understanding the nature of policy and the processes of policy change, we gain new insights that help to explain how health system actors, and the relationships of power and trust among them, influence health system performance.

2. Health systems

Health systems can be defined either by what they seek to do and achieve, or by the elements of which they are comprised.

Goals

The defining goal of health systems is generally seen as health improvement – achieved not only through the provision of curative and preventive health services but also through the protection and promotion of public health, emergency preparedness and intersectoral action (Mackintosh & Koivusalo, 2005).

However, health systems are also part of the social fabric in any country, offering value beyond health (Gilson, 2003; Mackintosh, 2001). Their wider goals include equity, or fairness, in the distribution of health and the costs of financing the health system as well as protection for households from the catastrophic costs associated with disease; responsiveness to the expectations of the population; and the promotion of respect for the dignity of persons (World Health Organization, 2007). These last two goals specifically require:

- ethical integrity, citizen's rights, participation and involvement of health system users in policy development, planning and accountability and respect of confidentiality as well as dignity in service provision (Mackintosh & Koivusalo, 2005);
- building and maintaining the social relations that support sustained resource redistribution, through strategies and activities that include, rather than exclude, socially marginalized population groups within all decision-making activities (Freedman et al., 2005).

Therefore, health systems, through both their service provision role and their influence over societal relations, are a critical field of action to address the social determinants of health and the related health inequities (Commission on the Social Determinants of Health, 2008; Gilson et al., 2008).

Elements and characteristics

In terms of the elements they comprise, health systems can be understood as:

1. Encompassing the population the system serves, as well as the supply or delivery of services, interventions and activities intended to promote health and wider value. Members of the population play five critical health-related roles. They are:
 - patients with health needs requiring care
 - consumers with expectations of how they will be treated
 - taxpayers who provide the main source of financing for the system
 - citizens who may have access to health care as a right
 - co-producers of health through their healthseeking and health-promoting behaviours (Frenk, 2010).
2. A set of six functions, or building blocks, some of which are clearly represented in the goals outlined above (World Health Organization, 2007):
 - service delivery
 - health workforce
 - information
 - medical products, vaccines and technologies
 - financing
 - leadership/governance.
3. Incorporating, within the service delivery function (Van Damme et al., 2010):
 - general curative and preventive health services and services aimed at specific health problems, including specific disease control programmes and personal and population-based services;
 - a range of modes or channels of service delivery including various levels of facility, other outlets for health goods (such as pharmacies or shops) and other strategies (such as community-based health workers and activities);
 - a complex mixture of service providers – public and private, for profit and not-for-profit, formal and informal, professional or non-professional, allopathic or traditional, remunerated and voluntary – the pluralistic health care system (Bloom, Standing & Lloyd, 2008).

Multi-levels of operation

Health systems operate at, and across, the macro, meso and micro levels (Fulop et al., 2001; Van Damme et al., 2010). This is illustrated in Figure 1.

As Figure 1 suggests, the macro level has traditionally focused mainly on the national, or domestic, health system whilst recognizing that this system is also influenced by a wider national and international context. Key system roles at the national level include:

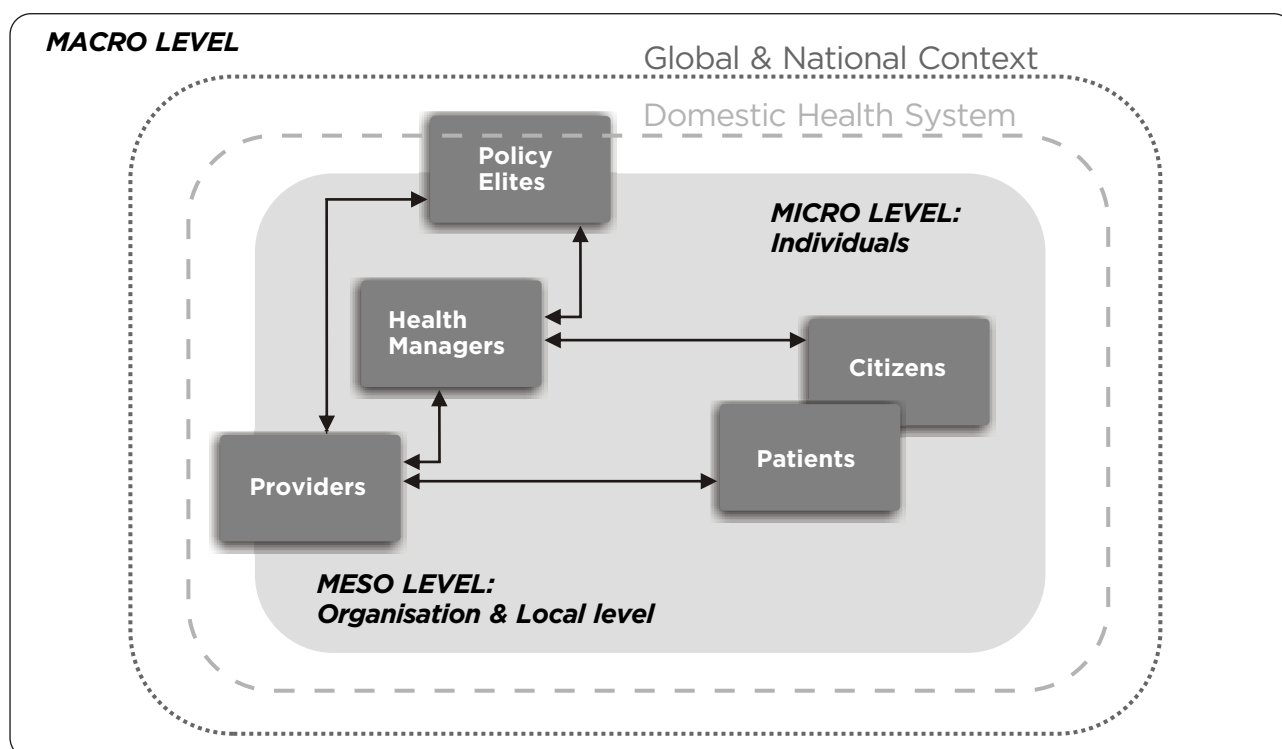
- balancing policies, strategies, resource allocation and health worker reward systems in line with overall system goals;
- coordination across functions and service delivery activities and interventions;
- the development of policy and regulations;
- engaging with health system actors, including citizens;
- interactions with other national agencies that influence health as well as international agencies and processes.

There has, however, been growing realization of the strong influence of the broader global context over population health and health care (Smith & Hanson, 2011). Critical influences include international trade, international aid and global changes, such as economic trends or climate change. There are also a range of very influential global organizations and actors, including multilateral and bilateral organizations, and global public-private initiatives. Therefore, the domestic health system must be understood as an open system within the global context, influenced by and influencing global forces.

The meso level comprises both the local health system, often called the district health system, and the organizational level, such as hospitals. System roles at this level include:

- responding to local needs and circumstances, in terms of provision of health services and wider health promoting activities;
- coordination among local actors;
- management of health services, activities and health workers;

Figure 1 The different levels of health systems



- supervision and training of service providers;
- adaptation of national policy and guidelines to local circumstances.

Finally, the micro-level is the level of the individuals in the system. It includes providers and patients as well as citizens, managers and policy elites – and the interactions between them. Critical roles of individuals at this level include:

- the search for care, compliance with health advice and broader health behaviours;
- the provision of health care and health promoting activities;
- the development of new forms of provider–patient interaction, such as the use of patient information for follow-up;
- the development of broader local relationships between health system agents and the population;
- managerial decision-making and leadership across the health system.

Interactions and interrelationships

Health systems encompass not only various elements but also the interactions and interrelationships between those elements and between the various individuals within the system (Frenk, 1994). These relationships not only support service delivery towards health improvement but are also central to the wider social value generated by the health system (Gilson, 2003).

The building blocks do not alone constitute a system, any more than a pile of bricks constitutes a functioning building. It is the multiple relationships and interactions among the blocks – how one affects and influences the others, and is in turn affected by them – that converts these blocks into a system (de Savigny & Adam, 2009:31; see Figure 2).

The relationships are, moreover, shaped and influenced by both the hardware and the software of the health system and, in turn, influence levels of system performance.

Figure 2 The interconnections among the health system building blocks

(Source: de Savigny & Adam, 2009:32.)



Health system hardware includes the particular organizational, policy, legal and financing frameworks that structure any health system, as well as its clinical and service delivery requirements. The software encompasses the institutions (norms, traditions, values, roles and procedures) embedded within the system.

These two health system dimensions are often tied together. For example, financing mechanisms not only influence the level of funding available for the health system, but also indicate what is valued by that system. Here is an example: the taxation-based elements of the system signal the extent to which society is prepared to take collective action to support redistribution; whilst the level of fee for service within the system signals the extent to which society values choice, allowing those who can afford to, to pay for health care to buy more or better services. The set of financing mechanisms, moreover, influence relationships between the state and its citizens as well as between providers and patients, and has a direct influence over levels and patterns of health care utilization, the extent to which the health system offers financial protection in times of health crisis and the contribution of the health system to generating social solidarity (Gilson et al., 2008).

The recent attention on systems thinking, therefore, encourages a focus on the nature of health system relationships and the synergies emerging from them, recognizing that the sum of the whole is more than the sum of the parts (de Savigny & Adam, 2009).

3. Health system development or strengthening

As explained in the previous section, health systems are shaped by both structural (hardware) components and social (software) elements. Therefore, in order to identify actions to develop or strengthen health systems, researchers need to consider:

- changes in the structures of the system that are likely to generate performance gains; as well as
- what can be done to influence the behaviour and practices of health system agents; and
- how to implement both sets of changes in ways that are most likely to secure intended effects (Roberts et al., 2008).

These system-level interventions sometimes focus on more than one of the building blocks, such as pay-for-performance systems that together address human resource and financing issues.

Alternatively, through the governance or information building blocks, such intervention can encompass processes and strategies that bring about change across the system as a whole – that is, across system building blocks, levels and/or dimensions (de Savigny & Adam, 2009). The hardware and software dimensions of health systems may together be addressed by, for example, new accountability mechanisms, or processes, and monitoring and evaluation strategies. There is also potential for new leadership and management approaches to focus on the deliberate development of the institutional and relational nature of the health system (Gilson, 2012).

Some disease or programme-specific interventions also have system-wide effects, such as scaling up anti-retroviral therapy or integrating vouchers for malaria-preventing bednets into ante natal care (de Savigny & Adam, 2009). However, most disease programme or service-specific strategies are unlikely by themselves to bring about improvements across the health system. Such strategies suffer one or more of the following weaknesses (Travis et al., 2004).

They may:

- limit the policy options considered in system improvement by focusing more on actions at the micro level (individual) rather than meso level (local and organizational) or macro levels (national and global);
- crowd-out routine activities (as when a number of training activities occurs at the expense of service delivery);

- achieve short-term goals but prevent the development of long-term strategies to sustain those goals (as when donor-funded financial incentives encourage performance gains in one programme that cannot be sustained over time or do not benefit all services due to resource constraints).

In contrast, Table 1 shows that system-level responses to the common constraints that particular services or programmes may face are broad in focus and aim to tackle the root causes of the problems. However, such responses generally take longer to have effect and their implementation is likely to be more difficult to manage.

Table 1 Typical system constraints and possible disease-specific and health-system responses
(Source: Travis et al., 2004)

Constraint	Disease-specific response	Health-system response
Financial inaccessibility: inability to pay, informal fees	Exemptions/reduced prices for focal diseases	Development of risk-pooling strategies
Physical inaccessibility: distance to facility	Outreach for focal diseases	Reconsideration of long-term plan for capital investment and siting of facilities
Inappropriately skilled staff	Continuous education and training workshops to develop skills in focal diseases	Review of basic medical and nursing training curricula to ensure that appropriate skills included in basic training
Poorly motivated staff	Financial incentives to reward delivery of particular priority services	Institution of proper performance review systems, creating greater clarity of roles and expectations regarding performance of roles, review of salary structures and promotion procedures
Weak planning and management	Continuous education and training workshops to develop skills in planning and management	Restructuring ministries of health, recruitment and development of cadre of dedicated managers
Lack of inter sectoral action and partnership	Creation of special disease-focused cross-sectoral committees and task forces at national level	Building systems of local government that incorporate representatives from health, education, agriculture, and promote accountability of local governance structures to the people
Poor quality care amongst private sector providers	Training for private sector providers	Development of accreditation and regulation systems

4. Health policy

Health policy can be understood as the:

...courses of action (and inaction) that affect the sets of institutions, organizations, services and funding arrangements of the health system. It includes policy made in the public sector (by government) as well as policies in the private sector. But because health is influenced by many determinants outside the health system, health policy analysts are also interested in the actions and intended actions of organizations external to the health system which has an impact on health (for example, the food, tobacco or pharmaceutical industries (Buse, Mays & Walt, 2005:6)).

Commonly, health policies are understood as the formal, written documents, rules and guidelines that present policy-makers' decisions about what actions are deemed legitimate and necessary to strengthen the health system and improve health. However, these formal documents are translated through the decision-making of policy actors (such as middle managers, health workers, patients and citizens) into their daily practices (for example, management, service delivery, interactions with others). Ultimately, these daily practices become health policy as it is experienced, which may differ from the intentions of the formal documents (Lipksy, 1980). Therefore, policy can be seen not only as the formal statements of intent but also as the informal, unwritten practices (Buse, Mays & Walt, 2005).

5. Health policy analysis

Health policy analysis is a central strand of HPSR. It is sometimes understood as the technical work that underpins the development of new policies or the central element of their evaluation. It includes, for example, epidemiological analysis that identifies risk factors for particular diseases and the important targets for health interventions; or cost-effectiveness analysis that identifies which of several possible interventions to address a particular health problem provides the best value for money. However, a more political and organizational approach to policy analysis sees policy itself as a process, the process of decision-making, rather than focusing only on policy as the output of that process or as a management input (Harrison, 2001; Thomas, 1998).

Technical analysts often conceive of policy analysis as including several stages, such as getting a problem or issue prioritized for policy action, defining what the problem is and what objectives would represent an improvement to it, identifying the causes of the problem and how they are inter linked, identifying possible interventions that would address the factors causing the problem, considering options for intervention, implementing selected options, evaluation and feedback (Harrison, 2001).

However, analysts adopting a political and organizational approach to policy analysis do not assume that these stages are sequential or that they always occur in every decision-making process. Indeed, these policy analysts often describe the policy process as a mess, a set of incremental decisions:

not only is policy designed to change a given situation but the situation is changing anyway and giving rise to changing pressures for changes in policy. The fact that policy is constantly developing in this way makes it useful to think of policy itself as a process. (Thomas, 1998:5.)

The focus of this form of policy analysis goes beyond the content of particular policies and gives greater attention to the behaviour of health policy actors: their processes of decision-making and the actions they take; their lack of action and unintended actions; the influence of content on those actions; and the context that influences and is influenced by these behaviours (Walt & Gilson, 1994). Such analysis offers insights that can be well combined with those of systems thinking (Gilson, 2012).

For some, health policy is “synonymous with politics and deals explicitly with who influences policy-making, how they exercise that influence, and under what conditions” (Buse, Mays & Walt, 2005:6).

Policy actors

Within national settings, policy actors include those who:

- have specific responsibility for developing formal policies in the public or private sectors, including those outside the health sector working on health-influencing policies, and international agencies and organizations;
- influence how policies are translated into practice (such as middle managers, health workers, patients and citizens);
- seek to influence the formal policy process (such as civil society groups or interest groups at national and international levels).

At global level, policy actors include the range of multi-lateral and bilateral organizations engaged in activities that are likely to influence health, as well as the newly powerful global public–private initiatives (such as the Gates Foundation), and transnational civil society movements.

The focus and forms of policy analysis

Policy analysis specifically considers: (a) the roles of actors who influence policy change at different levels – from individual, organizational, national to global – and their interests; (b) the influence of power relations, institutions (the rules, laws, norms and customs that shape human behaviour) and ideas (arguments and evidence), over health system operations and policy change within them; and (c) global political economy issues. It also seeks to understand the forces influencing why and how policies are initiated, developed or formulated, negotiated, communicated, implemented and evaluated, including how researchers influence policy-making (Overseas Development Institute, 2007). The latter includes considering whether and why routine practices differ from, and may even contradict, formal policies, and generate an implementation gap between policy intentions and routine practice.

Finally, although policy analysis may be conducted retrospectively, to understand past experience, it can also be used prospectively to support health policy change and health system strengthening. Prospective policy analysis has been proposed as an important support for advocacy efforts (Buse, 2008) and as a key component of health system leadership and governance activities (Gilson, 2012).

A new approach to health system development, global health diplomacy (Smith & Hanson, 2011), also recognizes that health policy actors must increasingly negotiate and engage with a range of actors at national and international levels, and outside the national health system. Examples of global health diplomacy include action to influence the global tobacco trade or to develop the World Health Organization Code on the Ethical Recruitment of Health Personnel; and, at national level, efforts to secure increased health budgets in African countries – in line with the Abuja target of 15% of total government budget.

6. The boundaries of HPSR

This section focuses on the types of issues addressed through HPSR. As HPSR is a new and emerging field, the issues it addresses and how it differs from other related areas of health research are not always understood. The four elements outlined in the previous section – health systems and their development, health policy and policy analysis – provide the basis for the ideas presented in this section. Figure 3 illustrates key elements of the field of HPSR.

Key points from this section

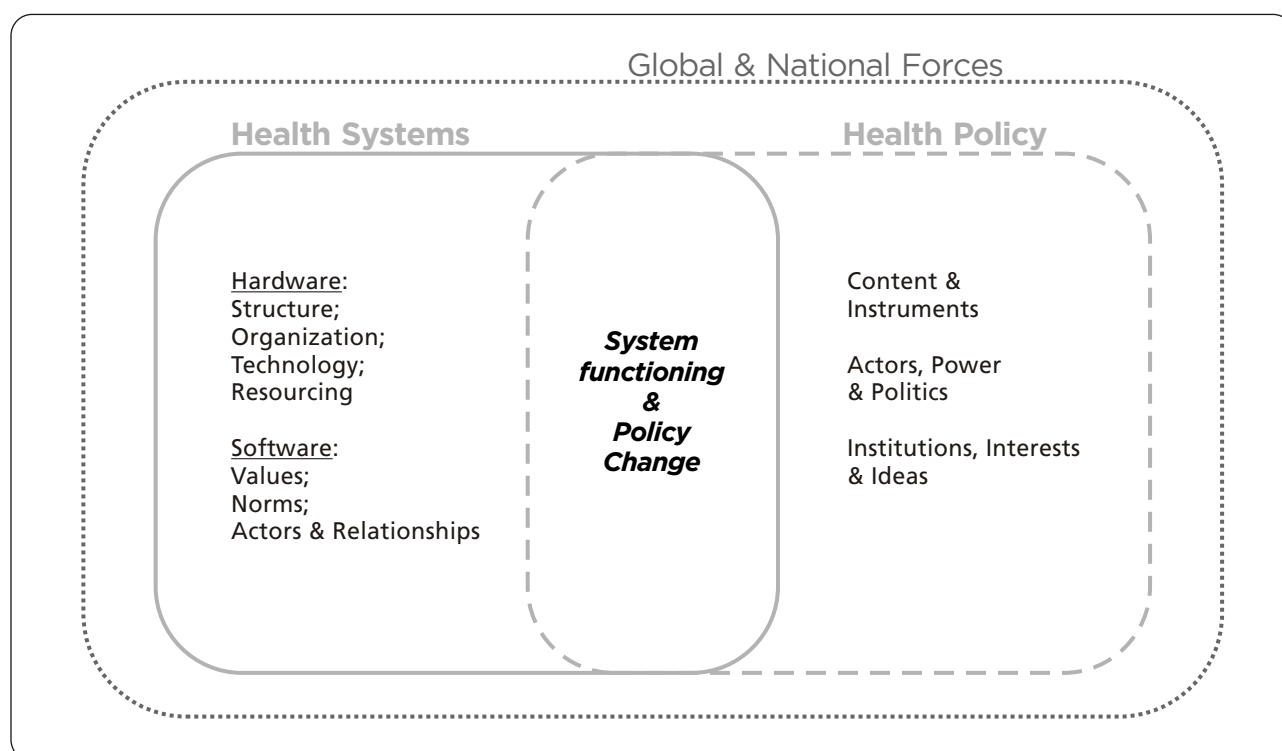
HPSR is an emerging area of health research. It focuses on health policies and health systems – what they are; how policies are implemented; how health systems work; and what can be done to improve policy implementation and the functioning of health systems.

Issues relevant to HPSR are wide ranging, include a variety of actors, and may be studied at local, national and global levels.

HPSR can be distinguished from research focused on specific health programmes, for example those relating to malaria or HIV/AIDS, by its focus on the broader setting in which such programmes are implemented. HPSR includes, for example, work on the financing, human resource or governance elements of the health system that underpin all service provision.

However, HPSR has fuzzy boundaries – it has overlaps with health services research and operational research, and there are some grey areas between HPSR and aspects of management and some discipline-specific research.

Figure 3 The terrain of HPSR



What HPSR is

HPSR encompasses research on the policies, organizations, programmes and people that make up health systems, as well as how the interactions amongst these elements, and the broader influences over decision-making practices within the health system, influence system performance.

HPSR seeks to understand:

- *what* health systems are and how they operate
- *what* needs to be done to strengthen health systems in order to improve performance in terms of health gain and wider social value
- *how* to influence policy agendas to embrace actions to strengthen health systems
- *how* to develop and implement such actions in ways that enhance their chances of achieving performance gains

The scope of HPSR covers work implemented across the various elements and dimensions of the health system (see Figures 1 and 3). An HPSR study may involve considering one or more of the following aspects:

- the wider arena in which policy is made (macro level analysis);

- the processes and institutional arrangements within which policy change is developed and implemented (meso level analysis);
- the impact of specific people on policy change and its impacts (micro level analysis) – the balance of structure (institutional influences) and agency (autonomy) that shapes such actions (Hudson & Lowe, 2004).

HPSR considers the full range of policy actors, not only those with formal policy influence, or in formal policy-making positions at the top or centre of the system. As important are the patients, citizens, front line providers and managers at the bottom or periphery of the system. Their actions and interactions represent the practices that are ultimately experienced not only as health policy but also as the health system (see, for example, Ssengooba et al., 2007; Walker & Gilson, 2004), and through which health improvement and wider social value is achieved.

HPSR may also be undertaken through studies implemented at national or sub-national levels, and through studies implemented in multiple countries.

The variety of issues that are relevant for HPSR is shown in Boxes 1 and 2.

Box 1: Suggested topics for health systems research

Financial and human resources:

- Community-based financing and national health insurance
- Human resources for health at the district level and below
- Human resources for health at the national level

Organization and delivery of health services:

- Community involvement
- Equitable, effective, and efficient health care
- Approaches to the organization of health services
- Drug and diagnostic policies

Governance, stewardship, and knowledge management:

- Governance and accountability
- Health information systems
- Priority-setting and evidence-informed policy-making
- Effective approaches for inter-sectoral engagement in health

Global influences:

- Effects of global initiatives and policies (including trade, donors, and international agencies) on health systems

Source: Sanders & Haines, 2006

Box 2: Topics addressed by existing empirical HPSR studies

HPSR has been undertaken to investigate a wide range of health policy and system issues, such as:

- describing and assessing particular system building blocks (such as decentralization; health financing);
- describing particular experiences of policy change in particular settings;
- explaining how multinational corporations influence transnational and national policies (for example tobacco companies);
- explaining the influences over aspects of particular policy actors' decision-making (such as health-seeking behaviour studies; health worker motivation studies);
- assessing whether new interventions generate performance gains, and of what level (conditional grant assessments), as well as the cost-effectiveness of alternative interventions;
- understanding stakeholder power and positions around specific new policies or actions, and assessing the likely implications for the acceptability of new policies or interventions;
- understanding particular experiences of policy implementation, or explaining variations between settings in the experience of implementing a particular policy;
- explaining overall health system performance impacts and their variation across health systems (for example cross-national analysis of catastrophic health expenditure levels).

What HPSR is not

Falling outside the definition of HPSR are more traditional medical and public health research issues, such as:

- basic scientific research on new pharmaceutical products or medical technologies;
- assessing the clinical efficacy and effectiveness of particular treatments or technologies;
- the measurement of population health profiles and patterns.

The distinction between HPSR and service delivery/disease programme research

HPSR is concerned with the system-level factors and forces that cut across actions dedicated to tackling particular health problems, as well as those that underpin and shape the performance of health programmes that target specific health conditions. From a service delivery perspective this includes, for example, assessing new organizational models of care or new roles for different types of health-care providers. However, much HPSR broadens the focus, or goes

upstream, from particular health conditions, services or programmes to consider their health system and policy context. This context has critical influence over sustained action to tackle particular health conditions and sustained delivery of particular services or programmes (Travis et al., 2004).

HPSR, therefore, addresses the full range of health system building blocks rather than being primarily concerned with aspects of the service delivery block. HPSR has particular concern for the horizontal dimensions of the health system (for example, planning, management, organizational functioning). Nonetheless, it may involve research within certain programme areas (which are often called the vertical elements of the system) in order to understand the systemic challenges of responding to different health conditions and of sustaining different types of health programmes. In HPSR, the health problems or programmes of focus are selected because they have system-wide demands (as with anti-retroviral therapy for HIV/AIDS) or because they serve as tracers for understanding and/or influencing health policy and system dynamics (Alliance for Health Policy and Systems Research, 2007).

Fuzzy boundaries

A range of terms are used by different groups of people to address slightly different aspects of HPSR.

The older term 'health services research' is perhaps more commonly used in higher income countries, and its starting point is the service delivery function of health systems, sometimes in relation to other functions. Health services research may, for example, study the patient–provider relationship and interventions to improve uptake of clinical guidelines by health-care practitioners. The term 'health policy and systems research' was introduced by the Alliance for Health Policy and Systems Research to cover a broader terrain of work, and although the Alliance has particular concern for work in low- and middle-income countries, the term HPSR is now being more widely embraced. HPSR may start from any of the health system building blocks, and includes concern for the policy process as well as global influences. Other areas of research related to HPSR include implementation and operational research – and there is some degree of overlap between these particular forms of research and management activities. Rather than trying to establish explicit and clear boundaries between these different areas of work it might be better to see most of them as, essentially, sets of overlapping areas with fuzzy boundaries.

However, the differences between HPSR and the emerging field of *implementation science* illuminate some key differences in perspective (Sheikh et al., 2011). As currently discussed in international health debates, implementation science can be seen to be primarily concerned with improving the delivery of particular services or treatment interventions that have already been proven to be clinically effective. For example:

Implementation research is the scientific study of methods to promote the systematic uptake of clinical research findings and other evidence-based practices into routine practice, and hence to improve the quality and effectiveness of health care. It includes the study of influences on health-care professional

and organisational behaviour.

(<http://www.implementationscience.com/about>, accessed 13 January 2011)

In contrast, HPSR adopts a broader approach to implementation research that is rooted in the decades-old and rich body of policy implementation theory (Hill & Hupe, 2009), among other research traditions. It sees research on implementation as being both central to the study of governance in health systems and focused on understanding how change is driven or shaped. Asking 'What actually happens and why?' rather than 'Why is there an implementation gap?', this approach sees implementation as an organizational, social and political process to be enabled rather than as a centrally controlled and almost mechanical process. It considers, therefore, the practices of management and communication that support the scale-up of a new idea or intervention within a health system, rather than focusing more exclusively on, for example, new ways of shaping provider behaviours. It also acknowledges the practices of power or relationships of trust that shape implementation experience.

As HPSR draws insights from a range of disciplines, a second set of fuzzy boundaries are those between more specialist disciplinary work and HPSR. For example, most epidemiological work would not fall within HPSR, but those analyses which shed light on health system performance and change over time are relevant (see Masanja et al., 2008, in Part 4 of this Reader). Similarly, the anthropological work that sheds light on health system functioning and performance includes, for example, research focused on relationships among health system actors (George, 2009, later) or on policy itself (Behague & Storeng, 2008, see Part 4). More classical anthropological work, perhaps addressing lay perspectives around particular health programmes, is less directly relevant to HPSR. Political science and sociology also have much to offer HPSR (for example, Shiffman et al., 2004 and Murray & Elston, 2005, see Part 4), although not all work from these disciplinary perspectives would fall squarely into the field of HPSR.

Finally, whilst health economics is a central discipline of HPSR, the analyses most centrally falling within HPSR include work focussed on financing (for example O'Donnell et al., 2007, see Part 4), and human resource issues (for example Blaauw et al., 2010, see Part 4), rather than, for example, cost-effectiveness analysis of specific disease technologies.

Ultimately, by definition, studies falling within the field of HPSR must address health policy and systems issues, as defined here, and offer insights that have fairly clear policy relevance.

7. Understanding the nature of social and political reality

This section outlines different ways of understanding researchers' views of the world they investigate, views which influence the type of research they choose to do. Discussion of these issues is a common feature of wider social and development research but is more rare in health research.

Key points from this section

All research is influenced by the researcher's understanding of what reality and knowledge mean.

As a researcher, it is always important to acknowledge the way you understand the world – as this influences the types of question you ask, and the types of research strategy you choose.

Positivism, relativism and critical realism are terms describing three key ways of looking at the world and finding out about it.

Because HPSR draws on a range of disciplinary perspectives it embraces a wider range of understandings of social and political reality than most health research. This also influences the understandings of causality, generalizability and learning accepted within the field. More specifically, HPSR seeks to investigate complex causality; draws on comparative analysis to generate conclusions that are relevant in various settings; and takes a fairly engaged approach to promoting learning from research.

A fundamental difference between HPSR and wider health research lies in their different understandings of the nature of reality, what is out there to know, and how to gather knowledge about that 'reality'. Biomedical and clinical research, and some epidemiological and economics research, is founded on the same positivist understandings as natural and physical sciences.

However, unlike the dominant health research traditions HPSR draws strongly on social science perspectives, embracing not only the critical realist but also the relativist paradigm of knowledge – and related sets of research

questions and approaches (see Table 2). The differences between these paradigms underlie some of the common criticisms of HPSR, as well as the different research strategies used compared to biomedical and epidemiological research (Gilson et al., 2011). The following brief overview of these differences draws particularly on Grix, 2004; Harrison, 2001; Robson, 2002.

Table 2 Key elements of knowledge paradigms as applied in HPSR

Knowledge paradigm	←-----→		
	Positivism	Critical Realism	Relativism (interpretivism / social constructionism)
Types of questions addressed	Is the policy or intervention (cost)-effective?	What works for whom under which conditions?	How do actors experience and understand different types of interventions or policies? What are the social processes, including power relations, influencing actors' understandings and experiences?
Related disciplinary perspectives	Epidemiology Welfare economics Political science (rational choice theory)	Policy analysis Organizational studies	Anthropology Sociology Political science (sociological institutionalism)
Key research approaches and methods	Deductive: Hypothesis driven Measurement through surveys, use of archival and other data records Statistical analysis Qualitative data collected through, for example, semi-structured interviews and interviewing procedures	Deductive and inductive (theory testing and building) Multiple data collection methods including review of documents, range of interviewing methods, observation	Inductive (maybe theory building and/or testing) Multiple data collection methods including in-depth interviewing (individuals and groups), documentary review but also participant observation or life histories, for example.
HPSR articles that illustrate the paradigm (see Part 4)	Björkman & Svensson, 2009	Marchal, Dedzo & Kegels, 2010	Riewpaiboon et al., 2005 Shiffman, 2009 Sheikh & Porter, 2010

Positivism

Positivist research, such as biomedical or epidemiological research, starts from the position that the phenomena or issues of investigation exist independently of how they are understood and seen by people. Research in this tradition works with the understanding that these phenomena comprise a set of facts that can be observed and measured by the researcher, without disturbing them, and that there are patterns and regularities within them, causes and consequences, that can be identified through empirical research. Indeed, the central task of such research is considered to be to detect the laws of cause and effect that operate in reality and that remain 'true' in different contexts and times, by describing them and testing hypotheses (or predictions) against the

evidence. HPSR rooted in this paradigm has a central focus on identifying what interventions work best and have most impact.

Relativism

The social sciences, however, encompass the understanding that the phenomena being investigated (such as health policies and systems) are produced through interaction among social actors. Such phenomena do not, therefore, exist independently of these actors but are, in essence, constructed through the way the actors interpret or make meaning of their experience, and these interpretations change over time.

From this perspective, facts are not clearly distinct from the values people hold, and searching for laws of cause and effect is an almost irrelevant task. Instead, research grounded in this tradition focuses on people's intentions, beliefs, values, reasons and how they make meaning. It acknowledges that the researcher also constructs knowledge through how they interpret what they hear and observe. The central task of HPSR in this tradition is, thus, not to explain but rather to understand the meanings given by actors to social phenomena, including the language used to construct reality.

Critical realism

A third perspective, critical realism, can be seen as placed somewhere between the other two perspectives. Like positivism, this perspective understands social reality to exist independently of social actors, although it accepts that actors' interpretations of that reality have influence over the nature of social change. The pre-existing structures and processes of society therefore affect, and are affected by, actors; and human action is influenced by a range of individual, group, organizational and societal processes and structures.

Like positivists, critical realists seek to identify the causal mechanisms underpinning social phenomena (such as health policies and systems), but they also adopt an interpretive understanding. In other words, they do not accept that cause and effect mechanisms hold across context and times, but believe that there are a range of mechanisms mediating between cause and effect, including those linked to actors and to contexts.

For critical realists, therefore, the task of research and evaluation is to generate theories that explain the social world and, in particular, to identify the mechanisms that explain the outcomes of interventions. The dominant HPSR question from this perspective is 'What works for whom in which conditions?' (Pawson & Tilley, 1997).

HPSR perspectives on causality, generalizability and learning

The broader understandings of knowledge and social reality incorporated within HPSR, as compared to positivist research, underpin its recognition of the socio-political and ideological influences over health policies and health systems. It also leads to important differences in perspectives on causality, generalizability and learning between these research fields.

Causality

HPSR embraces complex causality – the understanding that an effect is not linked by a linear and predictable path to a cause, but that there are multiple-interacting causes generating a set of often unpredictable effects. Such complex causality can be seen as a result of the influence of actors and their interpretations over how problems are defined, which form interventions or policies take in implementation, how health systems work and how interventions or policies play out through health systems (Pawson & Tilley, 1997).

Complex causality also results from the open nature of health systems – there are multiple, interacting influences over them and embedded in them. Therefore, interventions and policies often do not generate the same impacts over time and in different places (de Savigny & Adam, 2009). In addition, research takes place within the health system, even as it changes in ways that may have nothing to do with the particular focus of inquiry (Robson, 2002). HPSR must therefore adopt research strategies that allow investigation of complex causality. In particular, systems thinking is increasingly seen to offer insights and perspectives of relevance to HPSR (Atun & Menabde, 2008; de Savigny & Adam, 2009).

Generalization

HPSR recognizes various approaches to generalization. Research from the positivist tradition looks for conclusions that have external validity and that can be statistically generalized beyond the initial study setting and population. In evaluation work, randomized control trials have become the gold standard study design because they allow such generalizations. However, HPSR also embraces analytic or theoretical generalizability, as commonly applied in case study research. General insights derived from one or a few experiences, or cases, through a careful process of analysis, are judged to hold a sufficient degree of universality to be projected to other settings (Robson, 2002).

The process of analysis involves the development of conclusions from detailed findings about context, processes and outcomes in one or more settings; conclusions that are lifted to a sufficient level of abstraction or generality to have resonance in a different context. Comparisons across similar cases also allow such middle range theory ("ideas about how the world works, comprising concepts derived from analysis and ideas about how these concepts are linked together", Gilson et al., 2011:2) to be tested and revised in repeated cycles of theory-building and theory-testing.

In comparative case study analysis, generalization is not grounded in the representativeness of the population sampled but instead in a process of abstracting from the specifics of one case to ideas that encompass several cases. There is, therefore, growing interest in comparative case study analysis among health policy and systems researchers interested in explanation (Gilson & Raphaely, 2008; Marchal, Dedzo and Kegels, 2010). Nonetheless, it should also be noted that HPSR encompasses research that does not seek to generalize (for example about actors and their meaning-making) but works instead with the particular and specific, aiming to illuminate and understand these experiences (for example, George, 2009; Sheikh & Porter, 2010).

Knowledge generation and learning

Finally, HPSR embraces different understandings of knowledge generation and learning to that of biomedical and epidemiological work. Research in the positivist tradition tends to see learning as an act of engineering – the transfer of knowledge from one setting to another – whereas the relativist perspective of social science sees learning as an integral part of the process of policy development and implementation (Freeman, 2006). As Rose (2005), for example, has argued, policy lessons are not just direct copies of interventions implemented in one setting. Instead, they are ideas drawn from observations of interventions in other settings, observations that are abstracted, generalized and then re-contextualized in a new setting.

In the positivist tradition, the researcher's job is to identify the causal mechanisms that can be transplanted from one setting to another. In the relativist tradition the researcher's job is to assist in the process of understanding and promoting change – including through understanding how social actors interpret and make meaning of their realities and through helping policy actors to negotiate mutually acceptable solutions to problems (Harrison, 2001).

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Part 2

Doing Health Policy and Systems Research: Key steps in the process

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This part of the Reader outlines the four critical steps in developing a primary Health Policy and Systems Research (HPSR) study that should be addressed by all researchers:

1. identify the research focus and questions
2. design the study
3. ensure research quality and rigour
4. apply ethical principles.

When assessing the quality of empirical HPSR work, it is important to consider all steps, not only Step 3.

Step 1: Identify the research focus and questions

The process of developing an HPSR study begins with identifying the topic of focus – the issue or problem you want to investigate – and the related questions. There are two main reasons for this:

1. HPSR is defined by the topics and questions it addresses rather than the disciplinary perspective or the particular approach to data collection and analysis it adopts.
2. HPSR always aims to be policy relevant and to inform the decisions taken by those who influence how health systems evolve and perform – the policy actors, from household to global levels. (Note that policy relevance is a key criterion used to assess the ethical value of HPSR research, Henning, 2004).

As policy relevance is always important to HPSR, those working in the field have paid increasing attention to the process of setting research priorities. A particular concern has been the influence of global actors (conventional multilateral and bilateral research funders as well as global public–private initiatives) over priority-setting within low- and middle-income countries. The priorities of these global actors have often emphasized upstream health research or commodity procurement, rather than systems strengthening questions and initiatives. Even amongst national research communities, HPSR questions may receive less attention than other research questions

due to the influence of other health researchers or specific interest groups. National research priority-setting processes are, therefore, important as a means of ensuring dialogue and engagement between researchers and health policy-makers and managers. The aims of such engagement are to turn health system and policy problems into researchable questions, identify priorities among them and, ultimately, support the uptake of research findings. Greater national funding for HPSR may be a further consequence (Green & Bennett, 2007).

Examples of international research priority-setting processes include those convened by the Alliance for Health Policy and Systems Research in 2007–2008 which identified priority topics for research in human resources, financing and the role of the non-state sector (see Table 3). At national level, the Essential National Health Research approach has provided a framework for priority-setting that has been applied in various countries (Green & Bennett, 2007; Alliance for Health Policy and Systems Research, 2009). See also the work of the Council on Health Research for Development at <http://www.cohred.org>.

Beyond networking with policy actors and other researchers, identifying an HPSR topic and related research questions should involve:

- thinking creatively, for example to identify new areas of work or different approaches to an investigation;
- exploring theory and conceptual understandings relevant to HPSR generally, and the topic of focus;
- conducting a literature search to identify relevant publications and research studies.

Finally, pragmatism is important when identifying a research question. The research needs to be feasible, for example, the scope and size of the study must be considered relative to the resources and time available (Robson, 2002; Varkevisser, Pathmanathan & Brownlee, 2003).

Table 3 Priority research questions in three health policy and systems areas, results of international priority-setting processes (Source: Alliance for Health Policy and Systems Research, 2009)

	Human resources for health	Health system financing	Non-state sector
1st	To what extent do financial and non-financial incentives work in attracting and retaining qualified health workers to under-served areas?	How do we develop and implement universal financial protection?	How can the government create a better environment to foster non-state providers in the achievement of health systems outcomes?
2nd	What is the impact of dual practice (i.e. practice by a single health care worker in both the public and the private sectors) and multiple employment? Are regulations on dual practice required, and if so, how should they be designed and implemented?	What are the pros and cons of the different ways of identifying the poor?	What is the quality and/or coverage of health care services provided by the non-state sector for the poor?
3rd	How can financial and non-financial incentives be used to optimize efficiency and quality of health care?	To what extent do health benefits reach the poor?	What types of regulation can improve health systems outcomes, and under what conditions?
4th	What is the optimal mix of financial, regulatory and non-financial policies to improve distribution and retention of health workers?	What are the pros and cons of implementing demand-side subsidies?	How best to capture data and trends about private sector providers on a routine basis?
5th	What are the extent and effects of the out-migration of health workers and what can be done to mitigate problems of out-migration?	What is the equity impact of social health insurance and how can it be improved?	What are the costs and affordability of the non-state sector goods and services relative to the state sector? And to whom?

Networking and creative thinking

Engaging with policy actors and other researchers helps to ensure that the topic and research questions are policy relevant. Both groups, through their experience in different settings, will have insights into the challenges and opportunities that face health systems. The types of questions that may interest national policy-makers are shown in Box 3. Such questions focus on both policy content and policy processes.

Networking can also help to stimulate creative thinking. In addition, exploring conceptual understandings and theory can highlight new areas of work rarely considered in the past, or new ways of understanding how to investigate a topic on which there is already some research.

Box 3: Broad research questions of interest to national policy-makers

Policy formulation

- What is the nature and extent of problem X?
- What happened before in response to problem X, and what were the consequences? What were the unexpected consequences?
- What are cost-effective responses to the problem?
- How long will it be before the impacts of response Y are seen? How can popular and political support be sustained until the impacts are seen?

Policy implementation

- What happens in practice when policy Y is implemented, and why?
- Do policy implementors have the same understanding of the problem that the policy aims to address, and the same policy goals, as the policy-makers? If not, how does that difference affect policy implementation?
- Is the organizational response adequate/sustained?

Policy evaluation

- Were the policy, or programme, objectives met?
- What were the unexpected outcomes?
- Did the policy objectives remain the same over time?
- Did the condition being addressed change over time?
- Was the programme[or policy?] implemented effectively?

Source: Rist 1998

Literature search

It is important to find out what relevant research has already been conducted in order to avoid unnecessary duplication and to build on existing research.

Although researchers can draw on their own knowledge of a particular setting, it is always important that they conduct more formal literature reviews of research previously conducted in other settings and not only in the area with which they are familiar. While there is value in *replication studies* (deliberately replicating work previously conducted in one setting in a new setting to generate new insights, for example (Robson, 2002)), the *duplication* of a research study simply because of limited knowledge about existing research is a waste of resources and so unethical (Emanuel et al., 2004).

New studies must always offer value, that is they must build on existing work, for example by addressing a question not previously considered in a particular setting,

or developing new ideas on topics that have already been considered.

The growth of interest in systematic reviews and syntheses of existing research reflects, in part, the concern that existing primary research is frequently not used as a basis for changing policy and practice, or for developing new research work. An important resource for health policy and systems researchers is, therefore, the Health Systems Evidence web site at <http://www.healthsystemsevidence.org>.

This is a continuously updated and searchable repository of syntheses of research evidence about governance, financial and delivery arrangements within health systems, and about implementation strategies that can support change in health systems.

Key challenges

Two key challenges related to identifying appropriate research questions are discussed below.

1. *Framing policy relevant and valuable HPSR questions through networking with research users.*

A challenge of generating new research ideas through networking with policy actors is that the types of topics and questions identified as important will vary between policy actors, depending on their roles and responsibilities within the health system (as illustrated in Box 4). For example, policy actors working at lower levels of the health system have particular operational needs which, while important, might limit the wider application of the work if other policy actors do not see its relevance to them or if it requires the duplication of research already

conducted elsewhere. Similarly, managers of a particular health programme, be it HIV/AIDS, nutrition or school health, tend to be most interested in research about how to strengthen their particular programme and less interested in the systemic support needs across programmes. Yet, as discussed earlier (see Part 1, Section 6), HPSR focuses on such systemic needs rather than on programme-specific needs.

Therefore, health policy and systems researchers need to think carefully about the fuzzy boundary between HPSR and management (see Part 1, Section 6) and seek either to support managers to conduct their own operational research, or to identify the wider value of the particular research question.

Box 4: The HPSR questions of different health policy and systems actors

National policy-makers might ask:

- How can we prevent the HIV/AIDS programme from draining resources (time and staff) from other equally important programmes?
- How can HIV/AIDS resources be used in ways that strengthen other areas of the health system?
- Should antiretrovirals be prescribed only by doctors or is prescription by nurses more cost-effective?

District managers might ask:

- Why are there more patient complaints about facility X than others in my district?
- Why are patient waiting times at clinics still very long, although we have already tried to reorganize services to address the problem?
- How can we develop an integrated HIV/AIDS and tuberculosis service, in line with national policy?

Hospital managers might ask:

- How can we decrease the pharmacy waiting time?
- How can we reduce the average length of stay for chronically ill patients?
- Are ambulatory services available and adequate?
- Are patients coming late for treatment and why?

Patient groups might ask:

- Why do we have to wait so long to get care?
- Why do health workers treat us so rudely?

2. *Identifying research questions that are relevant to a range of policy actors and that add to the existing knowledge base.*

The challenge for the health policy and systems researcher is to identify policy-relevant and valuable research questions that not only directly address the concerns of the main group of policy actors with whom they seek to work and influence, but also have relevance to a wider range of actors and add to the existing HPSR knowledge base.

For example, how can work on reducing a particular hospital's pharmacy waiting time have relevance to other hospitals or to national managers concerned with supporting all hospitals to reduce waiting times? Similarly, how can research linked to a particular disease programme be undertaken in ways that offer policy and systems lessons that benefit other programmes as well? In both cases, it is important to see the specific focus of the research as an entry point for considering an issue of relevance to a broader range of actors and settings.

In terms of pharmacy waiting times, there could be value in seeing the work in one hospital as a case study of how to tackle such a problem. The case study could generate ideas on processes and strategies that can initially be tested in other hospitals. Then, drawing on several experiences, this can become the basis for compiling general insights into ways to address the common problem of waiting times. This is an example of the process of analytic generalization and it provides the basis for the sort of policy learning in implementation discussed in Part 1, Section 7.

Another approach would be to see how work in a particular programmatic area offers insights into a broader systems' question of relevance across programmes. For example, work on task shifting within an HIV/AIDS programme offers insights on the types of human resource development and management needs that must be addressed in any new policy initiative that involves an expansion of the scope of work of lower-level cadres; it also highlights the possible challenges to the political feasibility of such an initiative and ways of managing those

challenges. Therefore, the health policy and systems researcher can see the particular programme issue as a case study of policy implementation.

All these approaches show how research around one programme can represent a tracer for understanding and/or influencing health policy and system dynamics, as discussed earlier.

Overall, compared with research focused on a particular disease programme, service area or clinical treatment, HPSR requires the researcher to consider the system within which the specific service or treatment is nested. This means thinking:

- broad – beyond the disease or treatment of focus;
- up – above the programme or service to the facility, district, province etc.; and
- about the cross-cutting functions that underlie service and programme delivery – the system building blocks and interactions among them (Schneider, 2011).

Identifying the purpose of the research

In developing research questions that will be policy relevant and valuable, it is also important to think about the overall purpose of the research, in particular:

- What is the research trying to achieve? or Why is it being done?
- To whom will it be useful?
- How will it be useful?
- How will it add to the existing knowledge base?

Thinking about such questions will also inform the design of the research study (see Step 2).

As research questions are developed, four dimensions can be considered:

1. Whole field or specific policy: Will the research seek to focus on the field as a whole, and so expand knowledge of the nature and functioning of the key elements of health policy and systems, or will it seek to focus on a particular policy and support its implementation?

2. Normative/evaluative or descriptive/explanatory research questions: Will the research address normative or evaluative questions (which may involve value judgements) or descriptive or explanatory questions?

Table 4 provides some examples of HPSR questions across dimensions 1 and 2.

3. Analysis 'for' or 'of' policy (Parsons, 1995) – where focused on a particular policy:
 - Will the research aim to support policy implementation in real time (*analysis for policy*)? (Whether considering the technical content of the policy or experience of the actors and processes engaged in its implementation.) If so, this may demand shorter time frames and is likely to be focused on narrower research questions; or
 - Will the research aim to generate, from that policy's experience, a broader understanding that

can add to our general knowledge of policy development and implementation (*analysis of policy*)? If so, this will generally demand longer time frames, with a focus on the broader research questions through which the complex and dynamic trajectories of policy experience, for example, are more amenable to investigation.

4. Primary research purpose: Will the research primarily seek to explore an issue or phenomena in order to describe it or to explain it? Or will it adopt a more critical stance in generating understanding, perhaps working with other people to bring about change rather than focusing only on generating knowledge? Although these research purposes often overlap in practice, Robson (2002) identifies their different aims, see Box 5.

Table 4 Examples of HPSR questions (Source: Adapted from Potter and Subrahmanian, 1998)

	Normative/evaluative questions	Descriptive/explanatory questions
Questions about the policy itself	<i>Cell 1</i> Should this policy be adopted? How does policy X impact on health seeking behaviour? Which actor management strategies are likely to be most useful in supporting implementation of policy x?	<i>Cell 3</i> Which agencies are stakeholders in this policy, what positions do they take on the policy and why? How did policy X come about? Is there capacity to implement policy X? How do front line providers understand policy X?
Questions about the field	<i>Cell 2</i> Which type of health system performs best? What are the different approaches to actor management that can be considered by those seeking to manage policy change?	<i>Cell 4</i> What are patterns of health seeking behaviour and what influences that behaviour? How is the health system organized at present? What if a new provider was available, how would health seeking behaviour change and how would it affect the performance of the system overall? What influences how front line providers understand policies, and how does their understanding influence their implementation of the policy?

Note: The questions in Cell 1 are asked by those responsible for policy implementation, and essentially demand judgements, at least some of which are likely to be informed by work addressing the questions proposed in Cell 4. The questions in Cell 2, meanwhile, address what people should do, and may be informed by the 'what if' questions included in Cell 4. Finally, questions in Cell 3 encompass the areas of interest in health policy analysis, as outlined earlier: the context, history, interests and organizations that shape a particular policy.

Box 5: The purpose of different types of research

Exploratory research seeks to:

- find out what is happening, especially in little-understood situations
- generate new insights and ask questions
- assess phenomena in new light
- generate ideas and hypotheses for future research

Descriptive research seeks to:

- give an accurate profile of people, events, situations

Explanatory research seeks to:

- explain a situation or problem, traditionally, but not necessarily, in the form of a causal relationship (evaluative research)
- explain patterns relating to the phenomenon being researched
- identify and explain relationships between aspects of phenomenon/phenomena

Emancipatory research seeks to:

- create opportunities and the will to engage in social action
 - *Critical research*: Focuses on the lives and experiences of those traditionally marginalized, analysing how and why inequities are reflected in power imbalances and examining how research into inequities leads to political and social action
 - *Action research*: seeks improvements in practices, understandings of practice and situations of practice, and is undertaken by and with those who will take action

Source: Robson, 2002

The purpose of the research should reflect the current state of knowledge about the topic. Exploratory work, for example, is important when little is known about a topic or when theory suggests a new way of examining and understanding it; but descriptive research requires extensive knowledge of the situation in order to identify what is useful to investigate. However, in empirical work researchers often pursue more than one purpose at the same time (see Figure 4).

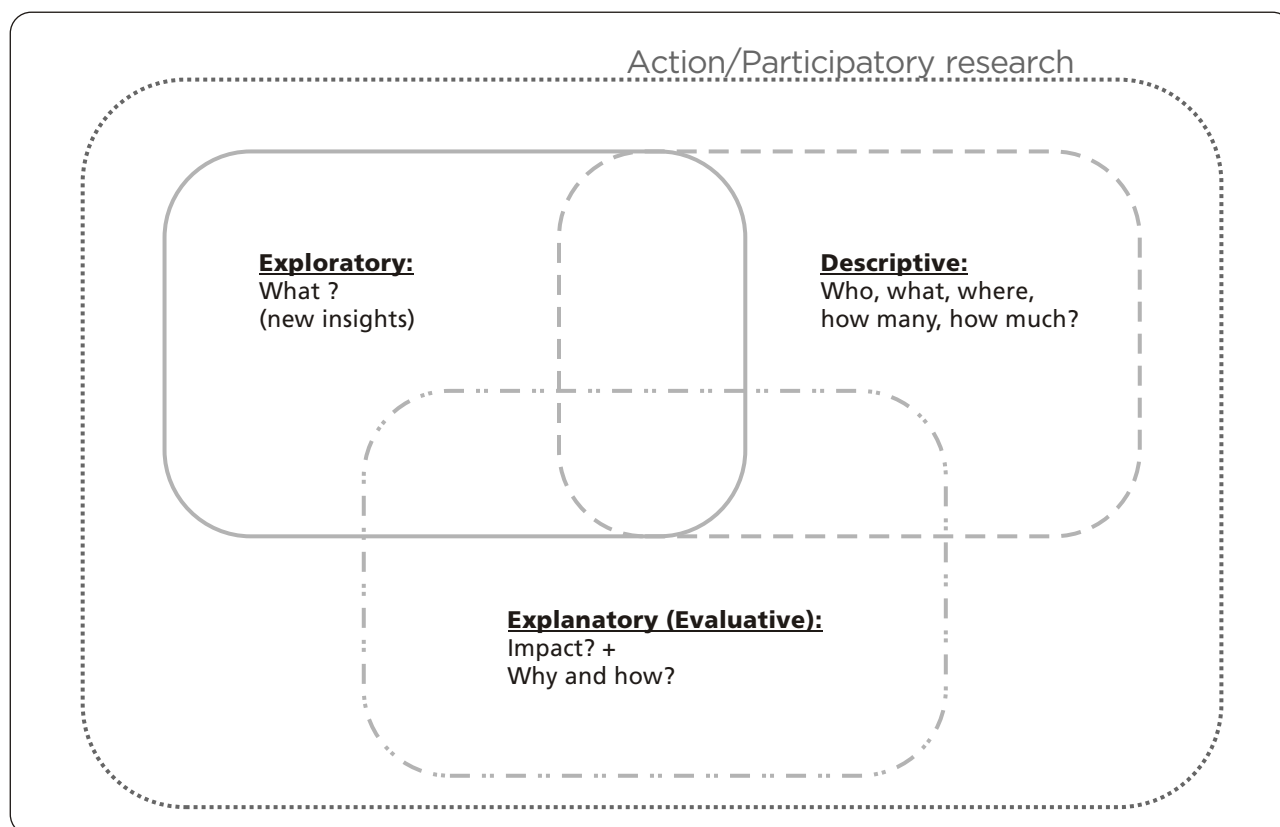
The purpose of the research will also reflect the researcher's understanding of social and political reality (see Part 1, Section 7). Positivists and critical realists tend to focus on evaluating causal relationships, based on particular forms of descriptive work. For them, therefore, explanatory questions are the same, more or less, as the evaluative questions outlined in Table 4, Cell 1; perhaps also entailing forms of descriptive work and preceded by exploratory pilot studies, or accompanied by exploratory work to support explanation.

Relativists, however, are more likely to conduct forms of exploratory, descriptive and/or explanatory research that aim to deepen our understanding of the phenomena of focus and the complex relationships among aspects of those phenomena. Sheikh et al. (2011:5) have specifically suggested that more HPSR work needs to adopt this perspective and address the “fundamental, exploratory and explanatory questions” that shape policy and provide a platform for further research. For relativists, emancipatory research also represents an important form of research – analysis for policy.

Box 6 shows how the different purposes of research translate into different basic forms of research questions.

Finally, across these different research purposes, research might address one or more of the different levels of the system (from micro, meso or macro level) and work with different (conceptual) units of analysis such as individual behaviour, patient–provider relationships, the primary health care system, the district hospital, etc.

Figure 4 Multiple research purposes



Box 6: Links between purpose and broad forms of research questions

Exploratory/descriptive questions

'What' or 'how many/much', or 'who' or 'where' questions

- What is the experience of patients with new programme x?
- What is the experience of health workers in training programme x?
- What is the understanding of patient groups or health workers about a problem or a new programme?
- To what extent are family members involved in the programme?
- Who is exposed to condition x or health risk y?

Explanatory questions

Evaluation questions

- Does programme x lead to reduced health problems from the condition addressed?
- Is programme x more effective than programme y in treating this condition?
- For which group of patients is programme x most effective?

How and why questions:

- How does programme x generate these impacts?
- Why is programme x more effective than programme y?
- Why do health workers act unexpectedly when implementing the programme?
- How do policy actors' values and beliefs influence their decision-making practices?
- Who supports and opposes new policy x, and why and how?

Taking account of multidisciplinary

Within HPSR, different disciplinary perspectives generate different research questions on the same topic and so generate varied policy-relevant insights on the issue of focus. Therefore, on the one hand, it is important to consider the disciplinary perspective that you as a researcher bring to the topic and the type of research questions you are likely to consider. On the other hand, it may be useful to think about how to draw on other disciplinary perspectives that address the same topic.

Work on human resources, for example, may draw on economics and sociological perspectives to understand motivation; alternatively political science or organizational management perspectives may be applied to understand the decision-making of front line providers; or the work may draw on clinical insights to understand skills needs. All have policy relevance.

Therefore, Part 4 of this Reader includes papers that address particular health system functions, or building blocks, from different disciplinary perspectives (see Part 4: Table 8). Financing issues, for example, are examined using:

- policy analysis and sociological perspectives in order to understand what influences why and how particular financing policies are prioritised, developed and implemented;
- the health economics lens in order to understand what cost burdens households experience in accessing care and how they cope with these costs, and what is the impact on health of community-based health insurance.

The papers addressing leadership and governance issues draw, moreover, on:

- policy analysis to understand the influences over various experiences of policy change;
- anthropology to generate in-depth insights about decentralisation experience and explore global discourses around maternal health care provision;
- management sciences to understand the use of information in district decision-making;

- health economics to understand the impacts achieved by a particular form of community accountability; and
- an historical perspective to track the changing roles of international organizations within global health policy.

Finalizing research questions

Ultimately, good research questions (Robson, 2002), i.e. those that will drive valuable and sound research, are:

- clear – unambiguous and easily understood;
- specific – sufficiently specific to be clear about what constitutes an answer;
- answerable – clearly indicate what type of data are needed to answer the question and how the data will be collected;
- interconnected – a set of questions are related in a meaningful way and form a coherent whole;
- substantively relevant – worthwhile, non-trivial questions, worthy of the effort to be expanded in the research.

Step 2: Design the study

Once you have the research question/s, the next step is to develop the overarching design of the study: to turn the questions into a project. The overarching study design is not just a set of data collection methods. The design is comprised of the:

- purpose of the study (see Step 1)
- particular questions to be addressed (see Step 1)
- strategy for data collection and analysis
- sampling strategy
- theory to be used within the study (Robson, 2002).

The research purpose and question/s shape the research strategy. Table 5 provides examples of the different overarching designs that are relevant for different purposes across the dominant paradigms of knowledge.

Table 5 A summary of broad study designs (Source: Adapted from Klopper, 2008; Potter and Subrahmanian, 1998; Yin, 2009.)

Paradigm of knowledge	Purpose	Research strategy	
		<i>Collection of new data</i>	<i>Analysis of existing data</i>
Positivist	Explanatory	Experimental and quasi-experimental design including, for example, before and after studies	Simple and multiple-variable modelling
	Descriptive	Survey designs: questionnaires, interviews and indirect observation; Repeated surveys to allow trend analysis over time	Secondary data analysis (census data, record data) Quantitative content analysis (newspaper reports, speeches, etc.)
	Exploratory	Survey designs (pilot studies)	
Relativist	Explanatory	Case study (theory building, longitudinal) Grounded theory (theory building)	Qualitative content analysis Discourse analysis Historical analysis
	Descriptive	Case study Ethnographic designs with the focus on unstructured direct and indirect observations, for example narrative inquiry, critical ethnography	
	Exploratory	Field designs or ethnographic designs with the emphasis on the use of informants, for example autho-ethnography, autobiography, life histories Case study (such as generating categorizations) Qualitative interviews and panels	

Research strategies can also be grouped into two main sets: fixed designs that are established before data collection and flexible designs that evolve during the study (Robson, 2002). Table 6 summarizes the key characteristics and forms of these two sets of strategies, and links them both to the standard forms of research questions for which they are appropriate and the

knowledge paradigms to which they are mostly linked. It also highlights examples of common data collection methods, key principles of sampling and the primary characteristics of analysis. Note that within either strategy set, multiple methods may be used in which qualitative and quantitative data collection approaches are combined.

Table 6 Key features of fixed and flexible research strategies (Source: adapted from Robson, 2002)

	Fixed strategy	Flexible strategy
Characteristics	Calls for tight pre-specification before data collection Data generally numbers Often called quantitative Rarely collect qualitative data	Design evolves during data collection Data often non-numerical Often called qualitative Quantitative data may also be collected (multi-method study)
Dominant knowledge paradigm	Positivist	Critical realist Interpretivist/Social constructivist
Overarching study design types	<u>Primary data collection methods</u> Experimental Quasi-experimental Non-experimental (for example cross-sectional, before and after studies, trend analyses) <u>Secondary data analysis</u> Modelling	<u>Primary data collection methods</u> Case study Grounded Theory Ethnography Life histories Phenomenological research (qualitative interviewing) <u>Secondary data analysis</u> Historical analysis Archive analysis Discourse analysis
Forms of research question	What is impact of x? How and why? (where investigator has control over events, and existing knowledge about mechanisms involved) What (how many, how much, who, where?)	How and why? (where investigator has little control over events, or limited knowledge about mechanism involved) What (what is going on here)?
Examples of dominant data collection methods	Structured and semi-structured interviews (including open-ended questions) Routine record review	Qualitative individual interviews Focus group discussions Observation Document review
Key sampling principles	Representative of sample population	Purposive sampling guided by theory, to ensure maximum variability across relevant units
Characteristics of data analysis	Statistical analysis following predetermined rules	Iterative Interpretative

There is also a third category of research strategy: mixed-method studies, which deliberately combine elements of fixed and flexible design “to expand the scope of, and deepen the insights from, their studies” (Sandelowski, 2000). This strategy is not linked to a particular knowledge paradigm or set of methods, nor does it reflect a mix of paradigms. Instead it purposefully combines different methods of inquiry in order to capture different dimensions of the central phenomenon of focus. Mixed-method studies, thus, entail various combinations of sampling and/or data collection and/or data analysis techniques in order to:

- allow triangulation across data sets;
- enable the elaboration of results, through complementary data and analyses;
- guide the development of an inquiry by identifying additional sampling, data collection and analysis needs.

Within a study different methods may be used sequentially (at different times) or concurrently (at the same time). Examples of what a mixed-method study could entail in practice are given below.

- The research could entail an initial small-scale intensive study using qualitative methods to develop detailed understanding of a phenomenon. This would be followed by a larger-scale structured survey undertaken to generate more extensive understanding of the same phenomenon, and that uses a tool developed with the detailed understanding generated from the initial study.
- An initial structured survey, using a random sampling approach to gather knowledge around a phenomenon within one population of respondents, could provide the basis for purposeful sampling of respondents within the same population to allow more detailed inquiry and gain a deeper understanding of the results of the initial survey.
- The mixing of methods might only occur in data analysis, perhaps by interpreting different sets of study results or through converting one type of data into the other in order to allow statistical analysis of qualitative data.

However, whichever approach is used, mixed-method studies involve a focus on a particular phenomenon and a purposeful combination of methods to achieve justified goals in the context of the particular inquiry.

Using theory and conceptual frameworks to inform the study

Given the complexity of the phenomena addressed by HPSR, theory should play an important role within every study design and within both fixed and flexible research strategies. In evaluation work, for example, there is increasing acknowledgement of the importance of theory-driven inquiry in adequately addressing complex causality (de Savigny & Adam, 2009) – in both experimental or quasi experimental designs and the case study work linked to critical realist evaluation (see Part 4, ‘Advances in impact evaluation’). However, currently, theory is too rarely used in HPSR and as a result policy analysis work, for example, is often quite descriptive. Opportunities for the theory-building and explanatory work that would better inform policy-making and implementation are ignored (Gilson & Raphaely, 2008; Walt et al., 2008).

In broad terms, theory provides a language for describing and explaining the social world being studied and represents a general explanation of what is going on in a situation. It offers the basis for generating hypotheses (predicted answers that can be statistically tested in fixed designs), as well as looser propositions of how different dimensions of a phenomena may be linked, which can be explored or considered in analysis (flexible designs). The ‘middle range theory’ represented by the latter can be captured in the form of a conceptual framework (a set of concepts and their inter-linkages) that may offer explanations or predictions of behaviour, or outcomes, but may also simply identify relevant elements and relationships.

A conceptual framework to guide study design can be developed from a review of relevant empirical and theoretical literature. The framework can help to identify relevant concepts and variables (fixed strategies) or issues (flexible strategies) for investigation, and to guide the selection of samples or cases (flexible strategies). In addition, a conceptual framework may be revised as the data collected are analysed. Alternatively, it may be generated as a result of the data analysis process.

In either case, the conceptual framework can be put back into the public domain to be questioned and perhaps used to support future research. Such theory building is a process of knowledge generation.

Therefore, HPSR is not solely concerned with generating empirical evidence to inform policy decisions. Rather, HPSR can combine theoretical and empirical work or be primarily theoretical and still maintain its policy relevance.

Combined theoretical and empirical work has, for example, aided understanding of the norms and customs influencing the decision-making of health system actors in particular contexts (such as Riewpaiboon et al., 2005; Sheikh and Porter, 2010). It has also traced the patterns and influences over time of policy change across sub-national, national and global levels (for example Walt, Lush & Ogden, 2004). Theory-driven evaluation, meanwhile, supports research that seeks to explain *how* new policies and interventions influence health system operations (Marchal, Dedzo & Kegels, 2010). Combined theoretical and empirical work can also generate ideas about how to influence policy agendas (for example Shiffman, 2007: advocacy in agenda setting) or manage policy change (for example Walker & Gilson, 2004: managing front line providers acting as street-level bureaucrats). Such ideas have relevance beyond the original settings in which the research was conducted.

Purely theoretical research can also lead to new ways to describe the nature and organization of health systems, or what influences their performance, and to understand what drives particular policy actors in their decision-making (for example Bloom, Standing & Lloyd, 2008 (plural health systems); de Savigny & Adam, 2009 (systems thinking); Gilson, 2003 (trust and health systems); Kutzin, 2001 (financing); Mackian, Bedri & Lovel, 2004 (health seeking behaviour)). Through such work HPSR informs policy by expanding our understanding of what strengthening a health system involves, and identifies research questions for empirical investigation.

Part 3 of the Reader presents references to some conceptual frameworks that are valuable in HPSR.

Step 3: Ensure research quality and rigour

The criteria used to make judgements of research quality and rigour differ between paradigms of knowledge. Whereas positivist research emphasizes validity and reliability – ensured through careful study design, tool development, data collection and appropriate statistical analysis – relativist research considers the trustworthiness of the analysis – whether it is widely recognized to have value beyond the particular examples considered. The different criteria and questions used in assessing the quality of research based on fixed and flexible designs are summarized in Table 7. Table 8 indicates how trustworthiness can be established by providing information on study design, data collection, and the processes of data analysis and interpretation.

Ultimately, good quality HPSR always requires a critical and questioning approach founded on four key processes (Gilson et al., 2011):

- *An active process of questioning and checking during the inquiry* (Thomas, 1998): ask how and why things happened – not only what happened; check answers to questions to identify additional issues that need to be followed up in order to deepen understanding of the experience.
- *A constant process of conceptualizing and reconceptualizing* (Thomas, 1998): Use ideas and theory to develop an initial understanding of the problem, or situation of focus, in order to guide data collection but use the data collected to challenge those ideas and assumptions and, when necessary, to revise your ideas in response to the evidence.
- *Crafting interpretive judgements* (Henning, 2004) based on enough evidence, particularly about context, to justify the conclusions drawn as well as deliberate consideration of contradictory evidence (negative case analysis) and review of initial interpretations by respondents (member checking).
- *Researcher reflexivity*: be explicit about how your own assumptions may influence your interpretation and test the assumptions in analysis (Green & Thorogood, 2009).

Table 7 Criteria and questions for assessing research quality (Source: adapted from Robson, 2002)

Fixed designs	Flexible designs
Reliability: Is your variable measure reliable? Construct validity: Are you measuring what you think you are measuring? Internal validity: Does the study plausibly demonstrate a causal relationship? External validity: Are the findings statistically generalizable?	Confirmability: Do the data confirm the general findings and lead to their implications? Dependability: Was the research process logical and well documented? Credibility: Is there a match between participants' views and the researcher's reconstruction of them? Transferability: Do the findings generate insights that are transferable to other settings?

Table 8 Processes for ensuring rigour in case study and qualitative data collection and analysis (Source: Gilson et al., 2011)

Principle	Example:
Prolonged engagement with the subject of inquiry Although ethnographers may spend years in the field, HPSR tends to draw on lengthy and perhaps repeated interviews with respondents, and/or days and weeks of engagement within a case study site	A study of the influence of trust in workplace relationships over health worker motivation and performance, involving in-depth inquiry in four case studies (Gilson et al., 2004)
Use of theory To guide sample selection, data collection and analysis, and to draw into interpretive analysis	<i>Case study:</i> A period of three to four weeks spent in each case study facility <i>Respondents</i> Informal engagement & repeated formal interviews
Case selection Purposive selection to allow prior theory and initial assumptions to be tested or to examine 'average' or unusual experience	Conceptual framework derived from previous work (Gilson et al., 2005) Case study selection based on assumptions drawn from framework (see below) Theory used in triangulation and negative case analysis (see below)
Sampling Of people, places, times etc, initially, to include as many as possible of the factors that might influence the behaviour of those people central to the topic of focus (subsequently extend in the light of early findings) Gather views from wide range of perspectives and respondents rather than letting one viewpoint dominate	Four primary health care facilities: two pairs of facility types, & in each pair one well and one poorly performing as judged by managers using data on utilization and tacit knowledge (to test assumptions that staff in 'well performing' facilities have higher levels of motivation and workplace trust)
Multiple methods (case studies) Use multiple methods for case studies	In small case study facilities, sampled all available staff; in larger facilities for interviews: sampled staff of all groupings and with a range of staff in each group (considering e.g. age, sex, length of time in facility); random sample of patients visiting each facility; all facility supervisors & area manager
	<i>For each case study site:</i> Two sets of formal interviews with all sampled staff Researcher observation & informal discussion Interviews with patients Interviews with facility supervisors and area managers

Table 8 (Continued) Processes for ensuring rigour in case study and qualitative data collection and analysis (Source: Gilson et al., 2011)

Principle	Example:
Triangulation Looking for patterns of convergence by comparing results across multiple sources of evidence (e.g. across interviewees, and between interview and other data), between researchers, across methodological approaches, with theory	A study of the influence of trust in workplace relationships over health worker motivation and performance, involving in-depth inquiry in four case studies (Gilson et al., 2004) <i>Within cases:</i> Initial case reports based on triangulation across all data sets for that case (and across analysts in terms of individual staff members' experience), generating overall judgments about facility-wide experience as well as noting variation in individual health worker experience <i>Cross-cases:</i> Initial case reports compared with each other to look for common and different experiences across cases, and also compared with theory to look for convergence or divergence
Negative case analysis Looking for evidence that contradicts your explanations and theory, and refining them in response to this evidence	<i>Within cases:</i> Triangulation across data identified experiences that contradicted initial assumptions (e.g. about the influence of community interactions over motivation, and about the association between low motivation and poor caring behaviour), and identified unexpected influences (e.g. a general sense of powerlessness among health workers) <i>Cross-cases:</i> Cross-site analysis identified facility-level experience that contradicted initial assumptions underpinning study (e.g. about link between high levels of workplace trust, strong health worker motivation and positive caring behaviour), and identified unexpected conclusions (e.g. about the critical importance of facility level management over trust and motivation) Report notes weak evidence to support links between levels of workplace trust and client perceptions, but also stronger evidence of links between levels of workplace trust and motivation
Peer debriefing and support Review of findings and reports by other researchers	Preliminary case study reports initially reviewed by other members of the research team
Respondent validation (Member checking) Review of findings and reports by respondents	Preliminary cross-case analysis fed back for review and comment to study respondents; feedback incorporated into final reports
Clear report of methods of data collection and analysis (Audit trail) Keeping a full record of activities that can be opened to others and presenting a full account of how methods evolved to the research audience	Report provides clear outline of methods and analysis steps as implemented in practice (although more could be fuller and reflexive)

Step 4: Apply ethical principles

As with all research, it is important to take account of ethical issues in conducting HPSR. Although the focus of the research differs from other health research, there are always issues of power at play between those doing the research and those being researched, and so there is real potential for disrespectful and unfair treatment. Robson (2002) suggests that all 'real world researchers' need to watch out for the following ten questionable ethical practices:

- involving people without consent
- coercing them to participate
- withholding information about true nature of the research
- otherwise deceiving participants
- inducing participants to commit acts diminishing of their self-esteem
- violating rights of self-determination
- exposing participants to physical or mental stress
- invading privacy
- withholding benefits from some participants
- not treating participants fairly or with respect.

These are similar to the concerns of all health research. The challenges may be particularly acute in cross-cultural research, such as when HPSR is undertaken in lower-income countries by researchers or others from higher-income settings (Molyneux et al., 2009). Thus, one of the eight ethical principles proposed by Emanuel et al. (2004) for clinical research is collaborative partnership between investigators and research sponsors in higher-income countries and researchers, policy-makers and communities in lower-income countries (see Box 7).

However, as HPSR differs in nature from medical research, there are some particular ethical debates in, and peculiar ethical challenges for, this area of work. From reflection on the experience of conducting household-level HPSR studies in different countries, for example, Molyneux et al. (2009) make the following four sets of proposals on how to implement the principles of Box 7 in this form of research.

Be concerned about safeguarding:

1. the scientific validity and trustworthiness of the data – through careful and deliberate training for all research staff, including fieldworkers, to equip them with the attitudes and communication skills necessary to conduct good quality interviews and get beyond their differences in race, class, nationality, gender or education with respondents; and treatment of fieldworkers as true partners in the research inquiry, recognizing their essential role in shaping the nature and quality of data.
2. social value and a favourable risk–benefit ratio of the study – by careful consideration of the individual and community-level risks and benefits of participation in the study, through engagement with a range of stakeholders at the start of the study and constant review and reflection during the study.
3. informed consent and respect for participants and communities – by ensuring that all team members are familiar with the study's key messages and can call for assistance when unexpected ethical issues arise; are able to, and do, demonstrate respect for participants in all their engagements with communities; and re-negotiate relationships as and when necessary rather than concentrate efforts only on formal consent procedures (which may be infeasible in an HPSR study or impact negatively on the relationships with study participants that are essential to gathering honest information).
4. independent review – by supporting ethics committees to pay particular attention to the proposed process of research and interactions among different actors within HPSR work, rather than primarily examining study design and tools.

Ultimately, however, "the social relationships established between researchers and field-teams and community members, are critical to fulfilling the moral (as opposed to legal) aspects of ethics guidelines" (Molyneux et al., 2009:324). Such relationships will always be important in HPSR, whether the interviewees are community members or policy elites.

Box 7: Eight ethical principles for clinical research in low- and middle-income countries

- Collaborative partnership
- Scientific validity
- Favourable risk-benefit ratio
- Informed consent
- Social value
- Fair selection of study population
- Independent review
- Respect for recruited participants and study communities

Source: Emanuel et al., 2004

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Part 3

Understanding Health Policy and Systems

As indicated in Part 1 of this Reader, a defining characteristic of Health Policy and Systems Research (HPSR) is that it focuses on issues or problems related to health policy and health systems rather than, for example, exploring particular disciplinary questions or perspectives. In other words, it is the research question, or issue of focus, that guides the research.

This section of the reader presents key references to two sets of papers that support HPSR by providing conceptual frameworks that can inform our understanding of issues related to health policy and systems.

Health system frameworks

These references give insight and understanding about the nature of health systems.

Two key references

Bloom G, Standing H, Lloyd R (2008). Markets, information asymmetry and health care: Towards new social contracts. *Social Science & Medicine*, 66(10): 2076–2087

- which recognizes the plurality of health systems (i.e. the variety of providers that comprise health systems) and the importance of understanding their institutional dynamics.

de Savigny D et al. (2009). Systems thinking: What it is and what it means for health systems. In: de Savigny D, Adam T, eds. *Systems thinking for health systems strengthening*. Geneva, World Health Organization: 37–48. Available at: <http://www.who.int/alliance-hpsr/resources/9789241563895/en/index.html>

- which is the most recent and more nuanced version of the World Health Organization's building blocks approach to health systems (which focuses on the six functions of service delivery, health workforce, information, medical products, vaccines and technologies, financing, leadership/governance) - this work also seeks to understand health systems from the perspective of systems thinking.

Additional references

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- *Rationale for selection:* Draws on system thinking perspectives.

Frenk J (2010). The Global Health System: strengthening national health systems as the next step for global progress. *PLoS Medicine*, 7(1):1–3. Available at: <http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1000089>

- *Rationale for selection:* A succinct statement of current thinking by a world leader in the field.

World Health Organization (2007). *Everybody's business: Strengthening health systems to improve health outcomes: WHO's framework for action*. Geneva, World Health Organization:iv–vii, 1–30. Available at: http://www.who.int/entity/healthsystems/strategy/everybodys_business.pdf

- *Rationale for selection:* This is the most recent statement of the influential World Health Organization framework.

Conceptual frameworks for HPSR

These references provide a range of conceptual frameworks that can be used to guide careful and systematic investigation of health policy and health systems' issues, and so lead to a deeper understanding of their complexity.

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Atun R et al. (2010). Integration of targeted health interventions into health systems: a conceptual framework for analysis. *Health Policy and Planning*, 25(2):104–111.

<http://dx.doi.org/10.1093/heapol/czp055>

- *Rationale for selection:* integration is an enduring theme in HPSR and management

Bossert T (1998). Analyzing the decentralization of health systems in developing countries: decision space, innovation and performance. *Social Science & Medicine*, 47(10):1513–1527.

[http://dx.doi.org/10.1016/S0277-9536\(98\)00234-2](http://dx.doi.org/10.1016/S0277-9536(98)00234-2)

- *Rationale for selection:* conceptual framework for understanding and investigating health system from decision-making authority perspective

Brinkerhoff D (2004). Accountability and health systems: toward conceptual clarity and policy relevance. *Health Policy and Planning*, 19(6):371–379.

<http://dx.doi.org/10.1093/heapol/czh052>

- *Rationale for selection:* conceptual framework for understanding & investigating accountability issues, central to governance

Franco LM, Bennett S, Kanfer R (2002). Health sector reform and public sector health worker motivation: a conceptual framework. *Social Science & Medicine*, 54(8):1255–1266.

[http://dx.doi.org/10.1016/S0277-9536\(01\)00094-6](http://dx.doi.org/10.1016/S0277-9536(01)00094-6)

- *Rationale for selection:* conceptual framework for understanding and investigating HR motivation and performance

Gilson L (2003). Trust and health care as a social institution. *Social Science & Medicine*, 56(67):1452–1468.

[http://dx.doi.org/10.1016/S0277-9536\(02\)00142-9](http://dx.doi.org/10.1016/S0277-9536(02)00142-9)

- *Rationale for selection:* highlights the importance of relationships within health systems and the institutional influences over them, and specifically trust; provides concepts for understanding the nature and role of trust in health systems

Kutzin J (2001). A descriptive framework for country-level analysis of health care financing arrangements. *Health Policy*, 56(3):171–204.

[http://dx.doi.org/10.1016/S0168-8510\(00\)00149-4](http://dx.doi.org/10.1016/S0168-8510(00)00149-4)

- *Rationale for selection:* conceptual framework for understanding and investigating financing issues as part of wider system

Vian T (2007). Review of corruption in the health sector: theory, methods and interventions. *Health Policy and Planning*, 23(2):83–94.

<http://dx.doi.org/10.1093/heapol/czm048>

- *Rationale for selection:* conceptual framework for understanding and investigating corruption, central to governance

Walt G, Gilson L (1994). Reforming the health sector in developing countries: the central role of policy analysis. *Health Policy and Planning*, 9(4):353–370.

<http://dx.doi.org/10.1093/heapol/9.4.353>

- *Rationale for selection:* simple heuristic for understanding influences over policy decision-making, that is widely used to guide related research

Part 4

Empirical Papers

The papers presented in this part of the Reader are examples of good quality and innovative research in the field of health policy and systems.

Overview: research strategies and papers

Doing good quality Health Policy and Systems Research (HPSR) demands an understanding of what research strategy is appropriate to the questions of focus. The strategy is neither primarily a study design nor a method, but instead represents an overarching approach to conducting the research that considers the most appropriate methods of data collection and sampling strategy for the research purpose and questions.

The papers provided here are grouped by research strategy in order to encourage critical and creative thinking about the nature and approach of HPSR, and to stimulate new research that goes beyond the often quite descriptive cross-sectional analyses that form the bulk of currently published work in the field. The research strategies were chosen to demonstrate the breadth of HPSR work, covering both dominant and emerging approaches in the field. They are:

1. Cross-sectional perspectives
2. The case-study approach
3. The ethnographic lens
4. Advances in impact evaluation
5. Investigating policy and system change over time
6. Cross-national analysis
7. Action research

The introduction to each group of papers includes:

- an overview of the research strategy or approach, its relevance to HPSR and brief clarification about how to ensure rigour when conducting such research;
- a brief description or overview of the selected papers;
- a summary of papers with reference details, focus of the study, the perspective it takes, and the rationale for its selection in the Reader.

A summary of the papers is given in Table 9.

Table 9 Overview of papers presented

Page no	Paper	System function(s) of focus	Policy/System level addressed	Disciplinary perspective (or key approach)	Key features	Country
1. CROSS-SECTIONAL PERSPECTIVES						
75	Blauuw et al., 2010	Human resources (incentive packages)	Micro: Health workers	Health economics	• Use of discrete choice experiments and economic evaluation • Example of analysis for policy	Multi-country
83	Glassman et al., 1999	Governance and financing (policy change, health systems reform)	Macro: National	Policy analysis	• Application of 'policy-maker' in analysis • Example of analysis for policy	Dominican Republic
95	Morrow et al., 2009	Service delivery (malaria control)	Meso and micro: Primary level/community	Public health	• Mixed-method study • Considers both demand and supply issues	Viet Nam
105	Ramanadhan et al., 2010	Human resources (capacity development)	Micro: Health workers	(<i>Social network analysis</i>)	• Use of network analysis and exploration of social capital issues	Ethiopia
116	Ranson, Jayaswal & Mills, 2011	Financing (household expenditures)	Micro: Households	Health economics	• Sequential use of methods in mixed-method study	India
129	Riewpaiboon et al., 2005	Service delivery (provider – patient interactions, obstetric care)	Micro: Hospital and individual	Sociology/Anthropology	• Theory building • Examination of institutions of health system	Thailand
139	Rwashana, Williams & Neema, 2009	Vaccines and service delivery (immunization programme, nested in health system)	Macro: System	(<i>Systems thinking</i>)	• Rare example of use of systems thinking	Uganda
152	Sheikh & Porter, 2010	Governance and service delivery (HIV clinical guideline implementation)	Micro: Individual	Policy analysis	• Detailed and theory-driven examination of decision-making	India

Page no	Paper	System function(s) of focus	Policy/System level addressed	Disciplinary perspective (or key approach)	Key features	Country
2. THE CASE STUDY APPROACH						
166	Atkinson et al., 2000	Governance (decentralization)	Meso: Districts and facilities	Anthropology	- Districts as cases - Theory building - Examination of complex causality	Brazil
	Murray & Elston, 2005	Financing (private insurance)	Cross-level	Sociology	Integrated analysis of policy change across system layers	Chile
184	Mutemwa, 2005	Health information and governance (decision-making at district level)	Meso: District	Management	Exploratory case analysis	Zambia
197	Rolfe et al., 2008	Human resources (private sector)	Meso: District and facility	Sociology	- Strong example of analysis in case study work - Analysis for policy	United Republic of Tanzania
210	Russell & Gilson, 2006	Financing (household expenditure)	Micro: Households	Development economics	- Use of longitudinal household cases - Examination of complex causality	Sri Lanka
223	Shiffman, Stanton & Salazar, 2004	Governance (policy change, Safe Motherhood Initiative)	Macro: National/global	Policy analysis	Use of theory and generation of questions from analysis	Honduras
3. THE ETHNOGRAPHIC LENS						
	Aitken, 1994	Human resources (training programmes)	Micro: Health workers	Anthropology/Sociology	Theory building	Nepal
239	Behague & Storeng, 2008	Governance and service delivery (debates about approaches to maternal health care provision, and evidence-based policy-making)	Macro: Global debates	Anthropology/Sociology	Discourse analysis	N/A

Page no	Paper	System function(s) of focus	Policy/System level addressed	Disciplinary perspective (or key approach)	Key features	Country
3. THE ETHNOGRAPHIC LENS (CONTINUED)						
	George, 2009	Human resources and governance (management, accountability)	Micro: Health worker–supervisor interactions and influences	Anthropology/Sociology	• Rich analysis of key health system functions	India
245	Lewin & Green, 2009	Service delivery (primary care clinic)	Micro: Clinic, provider–patient interactions	Anthropology/Sociology	• Use of concepts • Programme and facility focus	South Africa
4. ADVANCES IN IMPACT EVALUATION						
257	Björkman & Svensson, 2009	Governance (community accountability mechanism)	Meso: Facility/community	Health economics	• Quasi experimental evaluation • Unusual focus for this evaluation approach	Uganda
292	Macinko et al., 2007	Service delivery (primary care model)	Macro: National	Epidemiology	• Ecological analysis using available panel data	Brazil
303	Marchal, Dedzo & Kegels, 2010	Human resources (management)	Meso: Facility	<i>(Policy evaluation/ Critical realism)</i>	• Rare example of critical realist evaluation	Ghana
	Wang et al., 2009	Financing (community-based health insurance)	Micro: Household	Health economics	• Unusual quasi-experimental evaluation, using propensity matching scores	China
5. INVESTIGATING POLICY AND SYSTEM CHANGE OVER TIME						
320	Brown, Cueto & Fee, 2006	Governance (global organizations and discourse)	Macro: Global	History	• Historical analysis • Global organization focus	N/A
331	Crichton, 2008	Governance and service delivery (policy change, family planning)	Macro: National	Policy analysis	• Use of theory	Kenya
343	Masanja et al., 2008	Service delivery (child mortality trends and explanations)	Macro: System	Epidemiology	• Rich trend analysis with explanation around system development	United Republic of Tanzania

Page no	Paper	System function(s) of focus	Policy/System level addressed	Disciplinary perspective (or key approach)	Key features	Country
5. INVESTIGATING POLICY AND SYSTEM CHANGE OVER TIME (CONTINUED)						
351	Van Ginneken, Lewin & Berridge, 2010	Human resources (community health workers)	Macro: National	History	• Historical analysis • Unusual use of witness seminars	South Africa
6. CROSS-NATIONAL ANALYSIS						
363	Bryce et al., 2005	Service delivery (Inte- grated Management of Childhood Illness approach)	Meso: Districts and facilities	Epidemiology	• Seminal paper • Careful system evaluation	Multi-country
369	Gilson et al., 2001	Governance and financing (implementing policy change, Bamako Initiative community financing schemes)	Cross-level	Policy analysis	• Conceptual framework used to guide study • Opportunistic country cases selected • Explanatory focus	Multi-country
400	Lee et al., 1998	Governance and service delivery (sustaining family planning policy implementation)	Macro: National	Policy analysis	• Deliberate country cases selected • Careful analysis • Explanatory focus	Multi-country
411	O'Donnell et al., 2007	Financing (public spending incidence)	Macro: National	Health economics	• Rigorous cross-country analysis, with explanation	Multi-country
7. ACTION RESEARCH						
445	Khreshneh & Barclay, 2007	Health Information (hospital records system)	Meso: Hospital	Action research	• Rare application of research strategy	Jordan
461	Khreshneh & Barclay, 2008	Health Information (hospital records system)	Meso: Hospital	Action research	• Account of action research	Jordan

1. Cross-sectional perspectives

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Cross-sectional studies may seek to explore, describe or explain a phenomenon at a particular moment in time (see Part 2: Step 2 of this Reader). This distinguishes them from longitudinal and other studies which describe or analyse change over time, and experimental studies which involve interventions. As cross-sectional studies generally require fewer resources than other research strategies, they are the most frequently performed and reported type of research in HPSR.

Cross-sectional studies encompass a wide universe of disciplinary perspectives and methods from both the fixed and flexible research traditions. They range from single to mixed (quantitative and qualitative) and multi-method forms of data collection (when the phasing of fixed and flexible research designs allows triangulation from one data collection approach to inform the other and epistemological triangulation, as well as use of secondary data sources). While mixed-method cross-sectional studies may share features of the case study method they do not necessarily follow the same analytic procedures.

As also noted in Part 2: Step 2, HPSR mixed-method studies serve a number of purposes (Pope & Mays, 2009):

- In the process of tool design, qualitative interviews may precede the development of quantitative instruments, in instances where standardized tools may not exist or the context specificity of the phenomenon requires tailored approaches.
- A quantitative survey may be conducted to provide a sampling frame to select cases for qualitative study.
- To extend the analysis and interpretation, different studies may be triangulated to provide different perspectives on the same question or may answer different kinds of questions (for example 'what' versus 'why' questions).

Depending on the purpose, data collection in mixed-method studies can be either concurrent or sequential (Creswell & Plano-Clark, 2007).

The findings of such studies often involve what can be described as a 'bricolage', a "pieced together close-knit set of practices that provide solutions to a problem in a concrete situation" (Denzin & Lincoln, 1998:3). The study components provide different insights into a phenomenon and are combined as pieces in a puzzle to explain the phenomenon of focus.

Rigour in cross-sectional studies

As with other research strategies, research validity/trustworthiness and reliability are important in cross sectional studies, whether from the fixed or flexible traditions. Such concerns are especially important in HPSR seeking to shed light on the complex dynamics and relationships between system actors and dimensions (see Part 2: Step 1).

The validity of cross-sectional studies may be undermined by (Robson, 2002:171):

- inadequate or insufficient description of a phenomenon;
- problematic interpretation through selective use of, or inappropriate meanings imposed on, data;
- explanations drawn without considering alternatives or 'counterfactuals';
- failure to draw on existing concepts and theory in the literature.

The validity of cross-sectional studies can be enhanced by (Pope & Mays, 2009):

- triangulation of data, observers, methodological approaches, and with theory;
- member checking (asking respondents to validate the findings and analysis);

- clear description of methods of data collection and analysis;
- reflexivity by the author (reflecting on how their own personal or intellectual biases may have influenced the study and analysis);
- attention to, and discussion of, negative cases (incidents or experiences that are unusual in terms of the dominant pattern of findings and the possible explanations of which are then specifically discussed in analysis to clarify their implications for the broader set of findings).

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Denzin NK, Lincoln YS (1998). Introduction: Entering the field of qualitative research. In: Denzin NK, Lincoln YS, eds. *Collecting and interpreting qualitative materials*. Thousand Oaks, California, Sage Publications:1–34.

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Overview of selected papers

For this Reader we have specifically selected cross-sectional studies which demonstrate data collection or analytic techniques that go beyond the most commonly used approaches of key informant interviews or straightforward content analysis. The selection includes examples of:

- discrete choice experiments (DCEs), derived from the economic theory of demand, examining nurses' preferences for policy interventions that would attract them to rural areas in three countries (Blaauw et al., 2010) – this innovative study also shows the context specificity of health policy and systems interventions and offers guidance for policy-makers;
- the use of PolicyMaker, a computer-assisted political analysis tool to study health policy reform in the Dominican Republic and draw out guidance for policy-makers (Glassman et al., 1999);
- a multi-method study that includes observations, use of routine data and multi-stakeholder interviews to construct a model of the demand and supply side dimensions of poor malaria control in Viet Nam (Morrow et al., 2009);
- the application of social network analysis, an unusual and interesting analytic approach for HPSR, to evaluate the impact of health management training in Ethiopia (Ramanadhan et al., 2010);
- a mixed-method study in which qualitative and quantitative methods are used sequentially to examine the coping strategies used by households to manage the costs of hospital inpatient care in India (Ranson, Jayaswal & Mills, 2011);
- building explanatory frameworks for the choice of public or private obstetric care provider among women of different socio-economic status in Thailand, informed by trust theory (Riewpaiboon et al., 2005) – this study also illustrates the approach and value of theory building in HPSR;
- the use of systems theory to explain uptake of immunization in Uganda, drawing on causal loop diagram methodology to model the relationships in a complex system (Rwashana, Williams & Neema, 2009);
- the use of detailed interpretive analysis in a study of how policy actors' understandings influence HIV policy implementation in India (Sheikh & Porter, 2010).

Some of the different purposes of mixed or multi-method approaches are highlighted in two of these papers. Ranson, Jayaswal & Mills (2011) report a study in which focus group discussions were conducted to develop a closed-ended survey tool. The survey, in turn, identified a group of poorer patients for further in-depth interview. The study reported by Morrow et al. (2009), meanwhile, involved 17 different forms of data collection, sequenced in a 'formative' stage that assisted in the design of a subsequent 'assessment' phase. The paper draws together data, like pieces of a puzzle, to present an explanatory model of the systems and social (non-biological) factors underlying pockets of poor malaria control.

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Blaauw D et al. (2010). Policy interventions that attract nurses to rural areas: a multicountry discrete choice experiment. *Bulletin of the World Health Organization*, 88:350–356.

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Policy interventions that attract nurses to rural areas: a multicountry discrete choice experiment

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Objective To evaluate the relative effectiveness of different policies in attracting nurses to rural areas in Kenya, South Africa and Thailand using data from a discrete choice experiment (DCE).

Methods A labelled DCE was designed to model the relative effectiveness of both financial and non-financial strategies designed to attract nurses to rural areas. Data were collected from over 300 graduating nursing students in each country. Mixed logit models were used for analysis and to predict the uptake of rural posts under different incentive combinations.

Findings Nurses' preferences for different human resource policy interventions varied significantly between the three countries. In Kenya and South Africa, better educational opportunities or rural allowances would be most effective in increasing the uptake of rural posts, while in Thailand better health insurance coverage would have the greatest impact.

Conclusion DCEs can be designed to help policy-makers choose more effective interventions to address staff shortages in rural areas. Intervention packages tailored to local conditions are more likely to be effective than standardized global approaches.

الترجمة العربية لهذه الخلاصة في نهاية النص الكامل لهذه المقالة. Al final del artículo se facilita una traducción al español. Une traduction en français de ce résumé figure à la fin de l'article.

Introduction

The shortage of health workers in the areas where they are most needed is an important problem for health systems. Patients who have the greatest need for health care tend to live in remote and rural areas, but attracting skilled health workers to such areas and retaining them there has proved difficult.¹ Such an uneven distribution of health workers contributes directly to the global burden of ill health and inequity in health outcomes. Thus, it will not be possible to improve health outcomes globally unless more health professionals are attracted to work in rural and remote areas.²

The factors that often motivate health workers to stay in remote areas have been extensively studied.^{3–5} Several strategies have been proposed to address the problem, including changing student selection criteria; improving educational opportunities for workers; introducing financial incentives; creating more supportive working environments; and making it compulsory for health professionals to work in underserved areas.^{6,7} However, the potential impact of these policy interventions, either singly or in combination, remains undetermined. Recent systematic reviews have invariably concluded that few rigorous studies evaluating the impact of rural recruitment and retention strategies have been conducted.^{3,6–9} In the Cochrane review,⁶ for example, not a single controlled study met the inclusion criteria.

What is needed is more evidence, not more reviews, yet just how such new evidence will be generated remains unclear, particularly for low- and middle-income countries. Evaluating the effectiveness of human resource interventions is not the same as testing a drug for efficacy. Many human resource strategies require national policy changes and few are amenable to controlled studies.¹⁰ Governments and donors should be encouraged to introduce human resource interventions under more controlled conditions

that allow proper evaluation, but previous calls to strengthen the monitoring and evaluation of health reforms in low- and middle-income countries have had little impact.¹¹

In addition, statistically significant evidence of impact in well controlled trials may not be sufficient for informing practical policy decisions. The results of many human resource strategies are, in some measure, self-evident. Rural financial incentives are likely to improve rural recruitment and retention, but the critical questions are how much money is required to achieve a certain impact and how do financial strategies compare to other policy options, either individually or in combination. The answers to these questions will certainly vary between settings. What policy-makers actually need is information on the relative impact and cost-effectiveness of different packages of human resource interventions in a variety of contexts. Rigorous evaluation methods to answer such questions are not currently available.

In the meantime, more modelling studies could be carried out to determine the probable outcomes of different policy scenarios. Stated preference discrete choice experiments (DCEs) are a promising method for conducting human resource research in low- and middle-income countries.¹² They are a quantitative technique for evaluating the relative influence of different product attributes on consumer choices¹³ and have come to be used widely in health services research, primarily to assess patients' preferences and willingness to pay for different models of health service delivery.^{14–16} However, DCEs have been used in recent studies to assess the relative importance of different factors on health workers' job choices.^{17–19}

The objective of this study was to use data from a DCE to model the relative effectiveness of different policy interventions on the recruitment of nurses to rural areas in three different countries.

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(Submitted: 1 October 2009 – Revised version received: 29 January 2010 – Accepted: 10 February 2010)

Methods

This study was conducted in Kenya, South Africa and Thailand, all three of which have documented shortages of professional health workers in rural areas. Kenya is typical of low-income countries with poor health outcomes, has limited financial and human resources for health, and is largely dependent on donors for new human resource policy interventions.²⁰ South Africa and Thailand are both middle-income countries with higher per capita health expenditure, sufficient numbers of skilled health workers, and demonstrated capacity to implement policies that make it attractive or compulsory for health professionals to work in rural areas,^{21,22} but they differ in terms of health outcomes. A comparison of key indicators in the three countries is shown in Table 1 (available at: <http://www.who.int/bulletin/volumes/88/5/09-072918>).

This DCE was part of baseline data collection for a larger longitudinal cohort study we are conducting with recent nursing graduates in the three countries. In accordance with the usual practice in DCE studies,^{13,17} we estimated that a minimum sample of 300 subjects was needed to allow for sub-group analysis. We used a multi-stage stratified cluster sampling strategy. Provinces were purposely selected from rural and urban strata, and nursing colleges were subsequently selected from each province until the required sample size was achieved. All students nearing the end of their training as professional nurses at the selected colleges were invited to participate in the cohort study. Data collection was completed during 2008.

For the DCE we used a labelled choice design with two choices in each choice set. In a labelled experiment the options presented have specific labels, in this case *rural job* and *urban job*, whereas in an unlabelled or generic design the options are simply labelled *job A* and *job B*. Unlabelled designs are used to determine the value of attributes that are assumed to be generic, while labelled designs produce alternative-specific valuations. Most of the DCE studies in the health economics literature have used generic designs. We had several reasons for using labelled choices. First, we suspected that particular job characteristics were not valued to the same degree in rural versus urban jobs (better housing, for instance, appears to be more highly valued when considering a rural posting rather than an urban one).

Second, labelled choices allowed us to design a model with different attribute levels for the two choices (for instance, the financial incentive applied only to rural jobs). Third, a labelled design allowed for more sophisticated modelling of the impact of policy interventions on nurses' choice of a rural posting.

In finalizing the DCE tool we followed the standard recommended steps for ensuring rigour.²⁴ We began by identifying the attributes and levels to be included in the study. Our explicit intention was to focus on job characteristics influencing rural choices that were amenable to policy intervention and to test their likely impact in different country contexts. To inform the selection of policy options to be included, we reviewed the international literature and conducted preparatory qualitative work in each country, as summarized in Table 2 (available at: <http://www.who.int/bulletin/volumes/88/5/09-072918>).

Next we completed several iterations of design development and consultation across the three countries to arrive at a similar design that allowed comparisons but also addressed local specificities. Pilot studies were then conducted in each country, and this resulted in further design refinements (Table 2). Table 3 summarizes the final design used in each country. The policy options we evaluated were:

- the introduction of a financial rural allowance, using relative salary increases to facilitate cross-country comparisons;
- the provision of better housing facilities;
- preferential opportunities for specialist training;
- faster rank promotion;
- the provision of a benefit package that differed in each country; and
- a change in workplace culture from hierarchical to relational management.

Facility type was also included in the design because it was identified as an important determinant of health workers' choices. The financial incentive had four levels to allow for the evaluation of nonlinear effects, while all the other attributes had two levels (Table 3). This specification resulted in a design with 8192 (i.e. $2^{11} \times 4^1$) possible combinations of attributes and levels. We used DCE macros for SAS (SAS, Cary, NC, United States of America) to select combinations for an orthogonal main effects design, and then to organize the selected profiles into

the most D-efficient choice design, given our design parameters.²⁵ The final design had 16 choice sets. The DCE tool was administered in English in Kenya and South Africa and in Thai in Thailand.

Baseline data collection was conducted with final year nursing students in a classroom setting. We explained the DCE questionnaire to the group, whose members then completed it on their own. Students also completed a second questionnaire with basic demographic information. In each college we also held a focus group discussion that included feedback on the DCE questionnaire (Table 2).

Data from the DCE were entered, cleaned and analysed using STATA v9.0 (Stata Corp., College Station, TX, USA) and Nlogit version 4.0 (Econometric Software, Inc., Plainview, NY, USA). The basic analysis was performed with a multinomial logit model. For the cross-country comparison we used both country-specific and pooled models. Analysis of pooled DCE data using a multinomial logit model is problematic because the model's coefficients are confounded with the scale parameter (λ), which is inversely proportional to the error variance of the model.^{13,26} This complicates comparisons between data sets, since observed differences in coefficients may be scale (variance) effects rather than real differences. The problem is well known for analyses that combine revealed and stated preference data²⁷ and requires more complex statistical modelling.²⁸ Following Rose et al.²⁹ we used an error components mixed logit model for the analysis and the Chow test to formally test differences between coefficients.³⁰ Odds ratios (ORs) and their confidence intervals (CIs) were used to compare the relative importance of attributes, while the preferences of different subgroups were evaluated by including interaction terms in the regression models. Finally, the results of the mixed logit models were used to predict the effect of different attribute (policy) changes on the proportion of nurses choosing a rural job.

National and international ethical standards were maintained throughout the research project. The research protocol was reviewed by the ethics committees of the academic institutions of the researchers in Kenya, South Africa, Thailand and the United Kingdom of Great Britain and Northern Ireland. Permission to conduct the research was also obtained from the relevant governmental and educational authorities in each country.

Results

Of the 1429 eligible nursing graduates in the selected colleges, 1064 (74.5%) agreed to participate in the study: 345 in Kenya, 377 in South Africa and 342 in Thailand. The response rates in the three countries were 65.2%, 87.9% and 74.7%, respectively. The demographic characteristics of the participants are shown in Table 4. The Thai nursing students were much younger and predominantly female, unmarried and childless, whereas the students from Kenya and South Africa were older, many were married and more than half had children. Kenya had the highest proportion of male students. Students of rural origin were in the majority in Kenya and Thailand but made up slightly less than half of the South African participants.

The results from the mixed logit model are represented diagrammatically in Fig. 1, which compares the impact of different policy interventions and individual characteristics on the odds of choosing a rural job in each country. For simplicity, the figure does not show the rural constant or urban attributes, but these were included in the model. The statistical model shown correctly predicted 60.0% of the responses from Kenya, 62.6% of the responses from South Africa and 75.2% of the responses from Thailand. All policy interventions shown in Fig. 1 yielded statistical significance as factors influencing the choice of a rural job (at the 0.05 level), except for better promo-

tion opportunities in Thailand and a change in management culture in South Africa. Of the individual characteristics, only rural origin showed statistical significance in all three countries.

Fig. 1 suggests that preferences for different human resource policy interventions vary between countries. Kenyan nurses were indifferent to the type of facility, whereas Thai respondents were 4.3 (95% CI: 3.3–5.6) times more likely to choose a job in a rural hospital than in a rural health centre, and the South Africans actually preferred rural clinics. In both Kenya and South Africa, the most effective policy interventions to attract nurses to a rural job were the introduction of a financial rural incentive and the provision of preferential access to specialist nursing training. For example, the availability of a 30% rural allowance made South African and Kenyan nurses 12.4 (95% CI: 9.6–15.9) and 7.7 (95% CI: 6.0–10.0) times more likely to choose the rural job, respectively. However, Thai nursing students were only 2.0 (95% CI: 1.5–2.7) times more likely to do so. In South Africa, allowing nurses in rural posts to specialize earlier increased the odds of rural uptake 6.7 times (95% CI: 5.5–8.1) and was a more effective measure than a 20% salary increase. For Thai respondents, improved housing and an expanded health benefit package were more important than a 30% salary increase. Overall, faster promotion and changes in management culture were the factors that least persuaded nurses to accept a rural posting.

In our models, age, gender, marital status and motherhood were not consistent predictors of the choice of a rural job. Thai graduates were too homogenous to allow us to test some of these factors. Whereas in South Africa students who were younger, single or had children were more likely to choose an urban posting, in Kenya these same groups preferred rural jobs. Female graduates were less likely to choose rural postings, but not significantly. However, in all three countries having been born in a rural area was significantly associated with the choice of a rural job, and the effect was comparable to that of a 10% salary increase. For example, graduates from rural areas in South Africa were more likely to choose a rural job than those from urban settings (OR: 2.7; 95% CI: 1.9–3.6).

The formal statistical testing for differences in model coefficients between countries is shown in Table 5. Most of the differences were highly significant. This confirms that nurses in the three countries valued the human resource policy interventions differently.

Table 6 presents the proportion of nurses who would choose a rural job when the mixed logit model was used to simulate the effect of different policy interventions alone or in combination. Thailand is clearly experiencing less difficulty recruiting nurses to work in rural areas than Kenya and South Africa. Even in the absence of any human resource policy intervention, 84.2% of recent Thai nursing graduates would choose a

Table 3. Attributes included in discrete choice experiment for assessing the effectiveness of policies to attract nurses to rural areas in Kenya, South Africa and Thailand, 2006

Attribute ^a	Kenya		South Africa		Thailand	
	Rural	Urban	Rural	Urban	Rural	Urban
Facility	Dispensary Hospital	Dispensary Hospital	Clinic Hospital	Clinic Hospital	Health centre Hospital	Health centre Hospital
Salary	Local entry level +10% +20% +30%	Local entry level	Local entry level +10% +20% +30%	Local entry level	Local entry level +10% +20% +30%	Local entry level
Training	No study leave 1 years' study leave after 4 years	No study leave 1 years' study leave after 4 years	6 years before study leave 2 years before study leave	6 years before study leave 2 years before study leave	2 weeks study leave per year 4 weeks per year	2 weeks study leave per year 4 weeks per year
Housing	Basic Superior	None Basic	Basic Superior	None Basic	Basic Superior	None Basic
Promotion	4 years before promotion 2 years before promotion	4 years before promotion 2 years before promotion	2 years before promotion 1 year before promotion	2 years before promotion 1 year before promotion	2 years before promotion 1 year before promotion	2 years before promotion 1 year before promotion
Additional benefit	Permanent contract Short-term contract	Permanent contract	None Car allowance	None	Basic cover Expanded cover	Basic cover
Workplace culture	Hierarchical Relational	Hierarchical Relational	Hierarchical Relational	Hierarchical Relational	Hierarchical Relational	Hierarchical Relational

^a The actual tools used contained more detailed descriptions of each attribute and level.

Table 4. Demographic characteristics of respondents in discrete choice experiment for assessing the effectiveness of policies to attract nurses to rural areas in Kenya, South Africa and Thailand, 2006

Variable	Kenya	South Africa	Thailand
<i>n</i>	345	377	342
Sex			
Males (%)	31.9	14.3	4.7
Females (%)	68.1	85.7	95.3
Mean age (years)	31.0	31.5	22.6
Marital status			
Single (%)	54.8	65.9	100.0
Married (%)	41.7	30.4	0.0
Divorced/Widowed (%)	3.5	3.7	0.0
Any children (%)	51.3	61.0	0.0
Born in rural area (%)	66.1	46.7	83.0

rural job, compared with only 43.4% of the nurses in Kenya and 36.0% of those in South Africa. Therefore, even the most effective single policy intervention in Thailand (an expanded health benefit package) would only increase rural uptake by 8.4 percentage points.

However, in South Africa and Kenya the proportion of nurses prepared to work in rural areas could increase dramatically if various human resource strategies were introduced. For example, the model predicts that a 30% rural incentive would increase the proportion of nurses choosing a rural job to 75.0% in South Africa and to 79.8% in Kenya. Preferential access to specialist training would also be particularly effective in Kenya and South Africa but would have no impact in Thailand.

The DCE model can also be used to predict the impact of any combination of policies. Three examples are shown in Table 6. Combining all the non-financial interventions is an effective policy package and would persuade a total of 86.3% of nurses in South Africa, 82.5% of those in Kenya and 98.1% of those in Thailand to opt for a rural position. If all the human resource strategies we included in our design were introduced, more than 95% of nursing students would choose to work in a rural area in all three countries. However, for low- and middle-income countries it may be more practical to introduce a 10% rural allowance combined with preferential training opportunities for nurses in rural areas, a strategy that would increase the rural uptake by 46.0 percentage points in South Africa and 34.0 percentage points in Kenya. In South Africa such a strategy would be more effective than a 30% rural allowance, while in Kenya the impact of the two strategies would be similar. In Thailand, however, the combination of an allowance and training would be relatively

ineffective, as it would only result in a 3.3 percentage points increase in the number of nurses choosing rural posts.

Discussion

We have used DCE data to quantify the degree to which nurses in Kenya, South Africa and Thailand are receptive to various incentives and to model the likely impact of different human resource strategies on rural recruitment in those countries. In the absence of data from rigorous evaluation studies, such analyses provide useful insights into the potential effectiveness of different human resource policy interventions. DCEs provide some of the only current evidence on the relative importance health workers attach to different incentives and human resource strategies.¹² Some have argued that packages of interventions are essential for improving the distribution of human resources,³ and DCEs are one of the few methods available for comparing such packages. In forthcoming publications we will also show how DCE data can be used to model the cost-effectiveness of different human resource strategies.

Our findings confirm that financial incentives are very important in persuading health workers to choose a rural posting, especially in poorer countries, but only if they are fairly large. In our study, a 10% salary increase was relatively ineffective in all three countries (Fig. 1). Non-financial strategies are just as important. Improved housing and accelerated promotion were moderately effective, but preferential access to training and career development opportunities were very powerful non-financial strategies. Similar results have been obtained in other human resource DCE-based studies in low- and middle-income countries.¹² For example, a recent study in

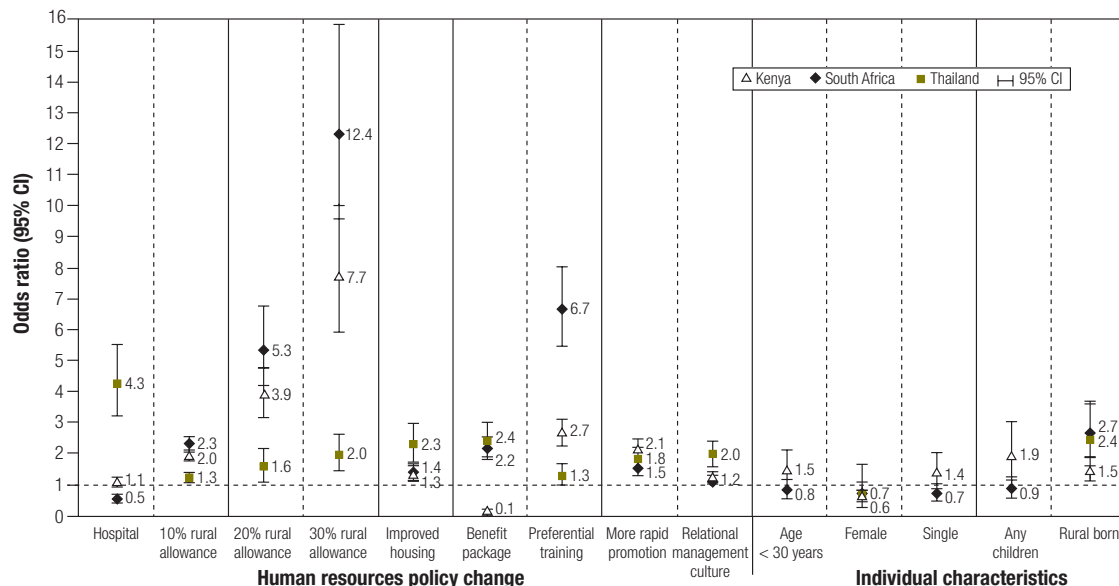
the United Republic of Tanzania showed that better educational opportunities and salary increases were the most influential policy levers to attract clinical officers to remote areas.³¹ We showed that changes in management culture are relatively unimportant in South Africa, contrary to what previous studies have shown.¹⁸ This is perhaps because young graduates have not developed clear preferences for different management styles. While many preferred more personal, supportive managers, others argued that formal, hierarchical management was needed to maintain discipline and manage resources properly.

Most non-financial strategies have budgetary implications. Thus, both financial and non-financial policy interventions will require a considerable amount of additional financial resources that are not currently available in most low- and middle-income countries.^{32,33} Preferential training opportunities are attractive to health workers because they also provide future economic returns. This was confirmed in our focus group discussions with nursing graduates. Interestingly, however, the impact of certain benefit packages, such as car allowances for rural nurses in South Africa, which are normally reserved for more senior staff, had double the impact expected from their equivalent financial value. The explanation may lie in the prestige attached to such allowances.

Of all the individual characteristics reported here, only rural origin was associated with a significant increase in the likelihood of choosing a rural job. This suggests, however, that preferential selection of rural students by training institutions can be an effective strategy, and it also lends support to claims that student selection policies are a key component of human resource intervention packages.⁷

The limitations of DCEs have been clearly acknowledged elsewhere:¹² they can only include a restricted set of attributes, which limits their range and realism; and they rely on stated preferences, not actual decisions, but the analysis of revealed preference data is not always straightforward.²⁴ Finally, the complexity of DCE design and analysis restricts widespread application, and failure to keep up with methodological developments can compromise study rigour and validity.^{34,35} Ours is the largest DCE-based study of human resources in low- and middle-income countries to date,¹² but producing nationally-representative data will require larger sample sizes, complex sampling strategies and more resources.

Fig. 1. Relative importance of different human resource policy interventions and individual characteristics in discrete choice experiment to study nurses' choice of rural postings in Kenya, South Africa and Thailand, 2006



CI, confidence interval.

This study, which is one of the first labelled DCE studies and the first multicountry DCE that we could identify in the health literature, has demonstrated the more advanced modelling that is possible with labelled DCEs. Labelled designs are of particular relevance to human resource questions but should become more widely used in health research.³⁶ Only very few multicountry studies exist in the entire DCE literature,²⁹ probably because they present significant challenges in design and analysis. Nevertheless, they could be used to investigate contextual differences in health worker preferences and responses, an area of research that is underdeveloped to date.

Indeed, much of the discourse and data on health workforce retention in

remote and rural areas does not pay sufficient attention to the diversity of individual preferences. It should not be the aim of human resource policy research to identify a proven set of standard strategies to be applied in any context. Our modelling study confirms that both financial and non-financial incentives are effective in motivating nurses to move to rural and remote areas, and that a package of interventions is more effective than a single strategy. However, it has also shown that different countries require completely different combinations of human resource policies. Furthermore, it is likely that nurses and doctors and other categories of health workers will respond differently to a particular set of incentives. In this study

we have demonstrated that different subgroups of nurses have different preferences, and in future studies we will compare the choices of different types of health workers. Packages of interventions are likely to be more effective than individual policies in attracting health workers to rural areas³ not only because individual policies have an additive effect, but because different subgroups of health workers respond differently to different components. DCEs provide an important tool to investigate such individual heterogeneity.

Conclusion

This study confirms that DCEs can be designed to assist policy-makers in

Table 5. Pairwise comparison of coefficients between countries in pooled results of discrete choice experiment for assessing the effectiveness of policies to attract nurses to rural areas in Kenya, South Africa and Thailand, 2006

Rural variable	South Africa–Thailand		South Africa–Kenya		Thailand–Kenya	
	Difference in coefficients	P-value ^a	Difference in coefficients	P-value ^a	Difference in coefficients	P-value ^a
Hospital	–1.95	<0.001	–0.59	<0.001	1.36	<0.001
Increase in salary	0.26	0.002	0.08	0.201	–0.18	0.022
Improved housing	–0.49	<0.001	–0.23	<0.001	–0.23	<0.001
Benefit package	–0.11	0.396	2.60	<0.001	2.71	<0.001
Preferential training	1.73	<0.001	0.74	<0.001	–1.00	<0.001
More rapid promotion	–0.54	<0.001	–0.59	<0.001	–0.59	<0.001
Relational management	–0.40	<0.001	0.02	0.851	0.42	<0.001

^a Chow test.

Table 6. Predicted impact of different policy interventions on nurses' uptake of rural postings in Kenya, South Africa and Thailand, 2006

Intervention	Kenya		South Africa		Thailand	
	Change (% points)	Total uptake (%)	Change (% points)	Total uptake (%)	Change (% points)	Total uptake (%)
Single interventions						
Base uptake	–	43.4	–	36.0	–	84.2
10% rural allowance	+15.2	58.6	+16.9	52.9	+3.3	87.5
20% rural allowance	+27.8	71.2	+30.5	66.5	+4.8	89.0
30% rural allowance	+36.4	79.8	+39.0	75.0	+5.8	90.0
Better rural housing	+6.5	49.9	+8.1	44.1	+5.4	89.6
Benefit package	–28.0	15.4	+15.8	51.8	+8.4	92.6
Preferential training opportunities	+21.9	65.3	+35.5	71.5	+1.2	85.4
More rapid promotion	+17.0	60.4	+8.6	44.6	+6.7	90.9
Relational management culture	+5.0	48.4	+3.1	39.1	+7.5	91.7
Intervention packages						
Housing + benefit ^a + training + promotion + relational management	+39.1	82.5	+50.3	86.3	+13.9	98.1
30% allowance + housing + benefit ^a + training + promotion + relational management	+51.7	95.1	+59.2	95.2	+14.5	98.7
10% allowance + training	+34.0	77.4	+46.0	82.0	+3.3	87.5

^a The benefit package was excluded in Kenya because it decreased rural uptake.

choosing more effective human resource policy interventions to address the shortage of health professionals in rural and remote areas. We have quantified the relative importance of different factors in nurses' career choices and shown that nurses' receptiveness to various human resource strategies differs substan-

tially between countries. This suggests that intervention packages tailored to local conditions are more likely to be effective than standardized global approaches. These insights should inform the future human resource research agenda in low- and middle-income countries. ■

Funding: This document is an output from the Consortium for Research on Equitable Health Systems, funded by the UK Department for International Development (DFID) for the benefit of developing countries.

Competing interests: None declared.

ملخص

التدخلات في السياسات لاجتذاب الممرضات إلى المناطق الريفية: تجربة حول اختيارات منعزلة متعددة البلدان

الموجودات اختلفت جوانب التفضيل لدى الممرضات بين الموارد المختلفة للتدخلات في السياسات اختلافاً يعتد به إحصائياً بين البلدان الثلاثة. ففي كينيا وفي جنوب أفريقيا كانت الفرص الأفضل في التعليم أو للتعويزات عن الخدمة في الأرياف هي الأكثر فعالية في زيادة الاجتذاب للوظائف في الأرياف، أما في تايلند فقد كان التغطية الأفضل بالضمان الصحي هي ذات التأثير الأعظم. **النتيجة** يمكن تصميم تجربة الاختيارات المنعزلة لمساعدة أصحاب القرار السياسي على اختيار التدخلات الفعالة في التصدي لنقص العاملين في المناطق الريفية. ويبدو أن مضمومات التدخلات المصممة لمواءمة الظروف المحلية ذات فعالية أكثر احتمالاً من الأساليب العالمية القياسية.

الهدف تقييم الفعالية النسبية للسياسات المختلفة التي تستهدف اجتذاب الممرضات إلى المناطق الريفية في كينيا، وجنوب أفريقيا، وتايلاند وذلك باستخدام معطيات مستمدة من نموذج تجربة اختيارات منعزلة متعددة البلدان. **الطريقة** صمّم الباحثون تجربة حول اختبارات منعزلة ذات لصاقات توسيم لإعداد نموذج حول الفعالية النسبية لكل من الاستراتيجيات المالية وغير المالية المصممة لاجتذاب الممرضات إلى المناطق الريفية. وجمع الباحثون المعطيات من أكثر من 300 من الممرضات المتخرجيات في كل بلد، وإستخدموا نماذج لوجاريتمية مختلطة لتحليل شغل الوظائف في الأرياف وتوقع شغلها تحت توليفات مختلفة من الحوافز.

Résumé

Comment attirer le personnel infirmier dans les zones rurales? Résultats d'une expérience à choix discrets réalisée dans plusieurs pays.

Objectif Comparer l'efficacité de différentes politiques visant à attirer le personnel infirmier dans les zones rurales au Kenya, en Afrique du Sud et en Thaïlande, en utilisant les données d'une expérience à choix discrets.

Méthodes Une expérience à choix discrets a été conçue pour modéliser l'efficacité d'incitations financières et non financières visant à attirer le personnel infirmier dans les zones rurales. Dans chaque pays, des données ont été collectées auprès de 300 élèves infirmiers en fin d'études, puis analysées

avec des modèles logit mixtes afin de prédire l'acceptation de postes en milieu rural en fonction de différentes combinaisons de mesures incitatives.

Résultats Les préférences du personnel infirmier pour diverses interventions de réaffectation des ressources différaient significativement entre les trois pays. Au Kenya et en Afrique du Sud, des possibilités plus intéressantes sur le plan éducatif ou des primes de ruralité seraient les incitations les plus efficaces pour améliorer le recrutement de personnel

en milieu rural, tandis qu'en Thaïlande, c'est une meilleure couverture par l'assurance maladie qui aurait le plus d'impact.

Conclusion Des expériences à choix discrets peuvent être conçues pour aider les décideurs politiques à définir les interventions les plus efficaces

pour remédier aux pénuries de personnel dans les zones rurales. Des interventions adaptées aux conditions locales seront probablement plus efficaces que des approches standardisées, définies au niveau mondial.

Resumen

Intervenciones de política para atraer a las enfermeras a las zonas rurales: modelo de elección discreta multinacional

Objetivo Evaluar la eficacia relativa de diferentes políticas para atraer a las enfermeras a zonas rurales en Kenya, Sudáfrica y Tailandia utilizando los datos obtenidos mediante un modelo de elección discreta (MED).

Métodos Se diseñó un MED con etiquetas para modelizar la eficacia relativa de la aplicación de estrategias financieras y no financieras para atraer a las enfermeras a las zonas rurales. Se recogieron datos de más de 300 estudiantes de enfermería al término de la carrera en cada país, y se aplicaron modelos logit mixtos para analizar y predecir la ocupación de los puestos rurales en respuesta a distintas combinaciones de incentivos.

Resultados Las preferencias de las enfermeras ante diferentes intervenciones en materia de recursos humanos difirieron significativamente

entre los tres países. En Kenya y Sudáfrica, unas mejores oportunidades educativas o la instauración de subsidios rurales serían la fórmula más eficaz para aumentar la ocupación de los puestos rurales, mientras que en Tailandia se conseguiría el máximo impacto ampliando la cobertura del seguro de enfermedad.

Conclusión Es posible diseñar MED que ayuden a las autoridades a elegir las intervenciones más eficaces para hacer frente a la escasez de personal en las zonas rurales. Los paquetes de intervenciones adaptados a las condiciones locales tienen más probabilidades de ser eficaces que los enfoques mundiales normalizados.

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Table 1. **Key indicators used in discrete choice experiment for assessing the effectiveness of policies to attract nurses to rural areas in Kenya, South Africa and Thailand, 2006**

Indicator	Kenya	South Africa	Thailand
National population × 10 ⁶	36.5	48.3	63.4
Population in rural areas (%)	79	40	67
GNP per capita (PPP\$)	1 470	8 900	7 440
Total expenditure on health (% of GDP)	4.6	8.6	3.5
Per capita expenditure on health (PPP\$)	105	869	346
No. of nurses	37 113	184 459	172 477
No. of nurses per 10 000 population	12	41	28
No. of doctors	4 506	34 829	22 435
No. of doctors per 10 000 population	1	8	4
Life expectancy at birth (years)	53	51	72
IMR (per 1 000 live births)	79	56	7
MMR (per 100 000 live births)	560	400	110
HIV infection prevalence (%)	6.1	16.6	11.4

GDP, gross domestic product; GNP, gross national product; HIV, human immunodeficiency virus; IMR, infant mortality rate; MMR, maternal mortality ratio; PPP\$, purchasing power parity dollar.
Data from the World Health Organization.²³

Table 2. **Methods for selecting attributes included in discrete choice experiment for assessing the effectiveness of policies to attract nurses to rural areas in Kenya, South Africa and Thailand, 2006**

Method	Objective(s)	Details
International literature review	- Identify strategies that have been used to attract health workers to underserved areas in HICs and LMICs - Review evidence on the effectiveness of existing strategies	Systematic search and review of relevant literature
Review of the HR DCE literature	- Identify attributes that have been used in previous HR DCEs - Review relative importance of selected attributes	Systematic search and review of relevant literature¹²
Review of ministry of health HR policy documents	Identify policy interventions that have been implemented or proposed in each country	Systematic search and review of HR policy documents in each country
Key informant interviews with relevant policy-makers	- Identify policy interventions implemented or proposed in each country. - Identify planned policy strategies for the future - Assess feasibility of strategies tried in other countries	Semi-structured interviews with 3–5 senior policy-makers responsible for HR in ministry of health in each country
Focus group discussions with nursing students	Obtain student suggestions on important job characteristics and required policy interventions	- Focus group discussion in each country with 6–9 final year nursing students from nursing college not selected for final study - Semi-structured discussion on factors considered in job choices and attitudes towards working in rural areas
Pilot study	- Test understanding of DCE task and tool format - Confirm understanding and relevance of DCE attributes and levels	10–20 nursing students in each country from different colleges completed draft tool - Semi-structured discussion on responses to DCE tool and attributes - DCE results analysed for consistency

DCE, discrete choice experiment; HIC, high-income country; HR, human resource; LMIC, low- and middle-income country.

Political analysis of health reform in the Dominican Republic

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This article examines the major political challenges associated with the adoption of health reform proposals, through the experience of one country, the Dominican Republic. The article briefly presents the problems of the health sector in the Dominican Republic, and the health reform efforts that were initiated in 1995. The *PolicyMaker* method of applied political analysis is described, and the results of its application in the Dominican Republic are presented, including analysis of the policy content of the health reform, and assessment of five key groups of players (public sector, private sector, unions, political parties, and other non-governmental organizations). The *PolicyMaker* exercise was conducted in collaboration with the national Office of Technical Coordination (OCT) for health reform, and produced a set of 11 political strategies to promote the health reform effort in the Dominican Republic. These strategies were partially implemented by the OCT, but were insufficient to overcome political obstacles to the reform by late 1997. The conclusion presents six factors that affect the pace and political feasibility of health reform proposals, with examples from the case of the Dominican Republic.

Introduction

In the early 1990s, countries throughout Latin America initiated the process of reforming their health sector policies. These efforts received unprecedented levels of financial support from multilateral institutions, especially the World Bank and the Inter-American Development Bank (IDB). World Bank lending in health in Latin America quadrupled in a five-year period, to over US \$900 million a year in 1995 (World Bank 1995). IDB activity added to this total, increasing total lending in the Latin American health sector to nearly US \$2.2 billion in 1995, with the expectation that IDB lending in education and health would continue to grow.

Yet little attention has been paid to the major political challenges associated with the adoption and implementation of health reform proposals. Reform is a profoundly political process that affects the allocation of resources in society, and often imposes significant costs on well-organized, politically powerful groups. This article presents a method of political analysis for health sector politics, and identifies key patterns in the politics of health reform proposals. The article uses the experience of one country, the Dominican Republic, to illustrate the political challenges of health reform.

Health sector reform has been variously defined. In this paper, we define health sector reform as those activities undertaken cooperatively between the international development banks and a national government to alter in fundamental ways the nation's health financing and health provision policies.

This limited definition focuses on the processes around the design and adoption of new health policies, occurring through

an interaction between international lending agencies and national government bodies. The proposed policies usually seek to build a self-sustaining national health care financing system as the primary goal. Secondary goals include greater coverage for basic health services at a lower cost per person, rationalized decision-making within public sector health agencies, institutional reform, and expanded access for disadvantaged populations.

Health sector reforms are politically problematic. In many countries considering reform, the most powerful health sector actors are often satisfied with the status quo – despite serious problems in the distribution of health services, quality of care, patterns of utilization, efficiency, and equity. Moreover, the proposed policy changes are often perceived as politically and economically painful decisions in the short term. One of the most important and complex problems in the process of health reforms is the management of these short-term, concentrated costs, and of the powerful groups affected.

Reform proposals create the perception that a major redistribution of the benefits and costs within the health system will occur, but *how* and *when* that redistribution will occur is unclear. In contrast to education reform, which usually entails increasing budgets, building new schools, and hiring teachers, health reform seeks to radically alter the social contract between citizens and the government, changing physician payment schemes, introducing patient payments, and limiting reimbursable services to affluent social groups. Politically, health reform proposals resemble structural adjustment policies, but without the national mandate for change accorded to adjustment.¹ In addition, health reform policies confront more complex obstacles in implementation, compared to

structural adjustment policies, because of the nature of the decisions and institutions involved.

Both multilateral institutions and national health reform teams have experienced some difficulty in understanding and navigating the political economy of health sector reform. This paper reports on an effort to try to improve the understanding and the navigation. The paper first reviews a method for applied political analysis. We then explore the background of the Dominican health sector, and apply the method to the reform proposals in the Dominican Republic. Finally, we draw some general conclusions about the political processes of health sector reform.

Applied political analysis

The method of applied political analysis known as *PolicyMaker* was used in this project to assist decision-makers in analyzing and managing the politics of health reform in the Dominican Republic. The method provides a systematic analysis of the probable consequences of policy reform efforts, the positions of support and opposition taken by key players, the political, financial, and other interests of key players. It then assists decision-makers in initiating the process to design strategies for managing the politics of policy reform (Reich 1996; Reich and Cooper 1996).

In the software format, *PolicyMaker* uses a series of matrices to guide the analyst through five steps of political strategizing. The framework prompts the analyst to: (1) define the content of the policy under consideration; (2) identify political players, their interests and relationships; (3) analyze opportunities and obstacles to the policy in the political environment; (4) design political strategies; and, (5) assess the potential and actual impacts of proposed strategies. The analyst can complete each matrix, or can be selective according to the objectives of the analysis.

The method assists policy analysts with the political dimensions of policy change in five ways. First, the method provides a systematic assessment of the political environment in which health sector reform policies are formulated and implemented. At a minimum, the method provides a tool to describe the political dimensions of a policy decision, and then to organize and prepare the data for analysis. Second, the method provides practical assistance in the design of political strategies. The software includes a tool box of 31 'expert-suggested' political strategies that can be modified by the user. Third, if conducted by a team analysis, the method helps to make explicit the team's assumptions about how a new policy will be adopted, and forces the team to explain and justify those assumptions. This reflective process helps to enhance the coherence and feasibility of the policy. Fourth, if conducted with interviews of key stakeholders, the method helps validate the reform group's perceptions about other stakeholders, and helps the reform team view the policy from the perspectives of other stakeholders. Fifth, the process of performing the analysis helps create a sense of common language and mission for some reform groups. The analysis encourages reform groups to make their strategies explicit, and rethink the strategies,

taking into account the interactions among policies, players, and positions. Finally, the process strengthens the reform group's capacity to advocate for reform policies.

Put another way, this method helps policy-makers and policy analysts do what they should do anyway: systematically analyze the support and opposition for a proposed policy; consult with the major stakeholders on their views; analyze opportunities and obstacles to change; design a set of creative and effective strategies for change; and assess and track the processes of implementing those strategies.

In the case of the Dominican Republic, three consultants (AG, KL, MRR) were financed by the IDB to work with the government's health reform group (headed by FR) to define the policy, interview key players, and propose strategies. The analysis was carried out by a team of 'insiders' and 'outsiders', in order to minimize analyst bias through group discussion and collective judgment. As with any social science methodology, however, the method cannot eliminate unpredictable elements in the policy-making process.

In this case, 35 guided interviews with key figures in the health sector were conducted in the Dominican Republic between July and November 1995. Both published and unpublished documents were collected and reviewed, and the national press was monitored closely for one year following the interviews. This paper presents some results of the analysis, and the conclusions reached.

The health sector in the Dominican Republic

The Dominican health sector

The Dominican health sector exhibits a number of systemic problems, typical of many countries in Latin America. These problems include inadequate financing, low coverage, inequitable distribution of services, an emphasis on curative care, fragmented vertical programming, redundant and under-used facilities, inefficient institutions and personnel, corrupt bureaucracies, and unregulated private health services.

By the early 1990s, many Dominicans felt that the health sector was in crisis: preventive and curative services were low-quality, irregular, concentrated in the capital and in tertiary care facilities, and highly inefficient. The sector had experienced one of the largest and longest (8 months) strikes in the country's history, with the Dominican Medical Association (Asociación Médica Dominicana – AMD) showing its power to control the functioning of government health services. As in many other countries, doctors work in both the private and public sectors, usually squeezing their public sector obligations, where they are poorly paid, in order to attend to their private practices. Remuneration is not connected to performance. Physicians working in public hospitals regularly refer their patients to their private clinics for procedures, and some physicians use public sector facilities to conduct for-profit procedures.

The Secretariat of Health (SESPAS) and the Social Security Institute (IDSS), the largest institutional actors in the public

sector, have shown little capacity to respond to the major problems in the health sector. Both institutions have been used extensively for political patronage and have limited technical capacity. The average stay of a Health Secretary is less than eight months. Although almost 60% of the population falls below the poverty line, subsidized government services through the Ministry cover only 35% of the population (Santana and Rathe 1994). SESPAS is organized vertically by programme, and focuses mostly on curative, tertiary level care.² IDSS, with its own networks of hospitals and clinics, covers only 6% of the Dominican population. Many businesses now pay double for health care – an obligatory payment to the IDSS, plus payments to cooperatives of private providers for health insurance. Evasion of the IDSS scheme is widespread. As a result, the private sector has grown rapidly but with minimal regulation. The private sector now represents the primary source of health financing and service provision in the Dominican Republic. While health service infrastructure is plentiful in both the public and private sectors, access is highly inequitable since it depends on an individual's ability to pay. According to the 1991 Demographic and Health Survey, approximately 60% of persons who reported a serious illness in the past month did not seek medical care, principally for economic reasons.

Recent efforts at health reform

The Dominican Republic has experienced several waves of policy responses to problems in the health sector. In November 1992, SESPAS received funding from the United Nations Development Program (UNDP) to undertake a project of 'modernization' of the Dominican health system. For more than a year, a group of Dominican professionals elaborated policy proposals for reforms, in consultation with health sector players and with technical assistance from UNDP. Late in 1993, the results were disseminated to policymakers. The proposals included recommendations to rationalize human resources policies, including the introduction of new forms of physician payment, and a 'new model of care'. For political and financial reasons, including the absence of a forum in which to continue reform discussions, no follow-on activities resulted from this first wave of reform efforts.

The second wave occurred between October and May 1995, when the health commission of the national legislature introduced a 'National Health Law', written by deputies from the Partido de la Liberación Dominicana (PLD) with technical assistance from SESPAS and PAHO advisors. While recognizing many of the problems of the sector, the proposed law read like a long list of special-interest programmes. Each disease and programme priority was included, based largely on a 'traditional' public health paradigm, while little attention was paid to the methods for financing health services, the roles of existing health sector institutions, or the regulation of the private sector. The bill was intended to replace the Dominican Republic's 'Sanitary Code', which contains special provisions for regular salary raises for doctors working in the public sector. Although these provisions have never been implemented (since 1956), the new law was opposed by the AMD (OCT 1995b). Some perceived the bill

as part of pre-electoral political positioning by PLD, rather than a genuine reform effort. Debate around the bill lasted nearly a year, and then died.

At about the same time, in January 1995, an executive decree created the National Health Commission (CNS) with a mandate to promote 'modernization' of the health sector. The Office of Technical Coordination (OCT) was created to design a health reform plan under the auspices of the CNS. The OCT operated primarily with project funds from the IDB and the World Bank, with occasional assistance from the Pan-American Health Organization (PAHO), the US Agency for International Development (USAID), and other donors. Initially, the OCT operated under the CNS; however, in 1997, the OCT was shifted organizationally to the SESPAS, although the OCT maintained separate offices in Santo Domingo away from the ministry.

In this third wave of health reform, the OCT was asked to draft a reform 'white paper' with technical assistance from consultants in the first half of 1995. The 'white paper' was to serve as the basis for assessing the technical feasibility of various reform initiatives and as a first attempt to change the discourse on health sector transformation in the country. Reform studies were commissioned by the OCT from national and international consultants using non-reimbursable technical cooperation monies from the IDB and donated funds from the Government of Japan through the World Bank and the UNDP.

Reform studies addressed the following topics, in chronological order: (1) hospital autonomy; (2) SESPAS re-organization; (3) SESPAS financing systems; (4) IDSS reorganization; (5) prepaid health systems (*iguales*); (6) incorporating NGOs into health sector reform; (7) survey on use of and satisfaction with health services; (8) financing of public expenditure in health; (9) health expenditure module as part of the DHS; (10) personnel administration systems; (11) burden of disease and basic package definition; (12) pharmaceutical and supply stocks at SESPAS; (13) accreditation and re-equipping health services; (14) decentralization of SESPAS; (15) design of a new social security system; and, (16) a legal and regulatory framework for social security reform in the Dominican Republic (OCT 1995a). As the product of intensive collaboration between the OCT and the multilateral development banks, with a great deal of autonomous leadership from the OCT, the studies were intended to lay the groundwork for implementing reform activities in these 16 specific areas. The OCT has monitored the progress of and payment for the 16 studies.

In addition, the OCT expected to manage the process of reform. For example, the OCT was expected to secure high-level political support for reforms among government leaders, especially the Secretary of Health, the Director of Social Security, and the President of the Republic. More broadly, the OCT was intended to prepare government agencies, other interest groups, and society at large for accepting and implementing the reforms. The reform studies were intended to play a major role in this preparation, and usually involved staff members from the affected institutions.

The OCT 'white paper' recommended the following reforms: (1) the separation of financing from provision of services within SESPAS and IDSS; (2) the massive expansion of IDSS coverage; (3) the definition of a cost-effective basic package of services to be financed by the public sector; (4) hospital autonomy; and, (5) linkage of productivity and incentives in the health work force (e.g. through physician contracts). This set of recommendations, published as *Salud: Una Visión del Futuro*, was taken as the 'policy' for this applied political analysis (OCT 1995a).

In 1995, the OCT had seven staff members, primarily technical, with one public relations person part-time. The CNS included 33 health sector 'actors' and had no clearly defined decision-making structure, but had taken most decisions through voting. All votes (through November 1995) were unanimous, and voting was initiated by the chair of the CNS, the Secretary of Health.

Political climate

In June 1995, the Dominican Republic was one of the poorest countries in Latin America. In 1988, it had the third lowest Gross Domestic Product (GDP) per capita in the Americas, after Haiti and Bolivia. Despite respectable economic growth rates in the 1980s, the economic crisis (followed by structural adjustment policies) impoverished the country in the 1990s. The Dominican Republic was one of the last of the aging dictatorships in Latin America. When health sector reform design began, Joaquín Balaguer had been president of the country for more than 50 years, off and on. The political system can be categorized as 'clientelistic'. As one study of Dominican political culture put it, 'The Dominican political system is theoretically organized along formal democratic principles, however, it is essentially informal operationally' (AG translation, Cross-Beras 1985). It is a limited pluralist system without accountability, and without an explicit political ideology. Most decisions, national or otherwise, were taken by the President personally.

Although SESPAS is the major public provider of health services, in recent years the Secretariat of the Presidency has become a significant source of health financing, especially for the purchase of plant, equipment, and supplies for SESPAS facilities. In 1991, for instance, the Secretariat of the Presidency was the source of 38% of public expenditures on health (IDB 1997). An unpublished study on the health sector found that SESPAS decisions on even micro-level budgeting and personnel issues lay with the President of the Republic (Perez Uribe et al. 1974). In June 1996, the Dominican Republic held democratic elections which resulted in the election of Leonel Fernández, a young US-educated lawyer.

In contrast to the longevity of the Presidency, other political leaders have a short duration in office. Few political appointees are able to acquire effective capacity to manage the technical or organizational challenges of their policy domain. Between 1930 and 1974, 37 people served as Secretary of Health. A similar turnover has affected the directorship of the IDSS: 21 vice ministers in the past two years. This lack of continuing leadership has left the poorly paid but

stable bureaucracy in charge of the health system. The bureaucracy, however, is also very conservative, not well trained, accustomed to certain privileges (to offset the low salary) and fearful for their jobs. In this sense, any change in the system that could increase the degree of formal control or the grade of institutionalized procedures implies a significant reduction in the discretionary power of the bureaucracy. The bureaucracy, therefore, has tended to oppose reform in principle and in practice.

Analysis of the 1995 OCT reform proposal

This section analyzes the political circumstances around health sector reform using the *PolicyMaker* method. The analysis uses the OCT 'white paper' of July 1995 as the reform proposal, and considers the OCT its primary client. Two major objectives are: (1) to assess the political feasibility of the reform proposal, as of mid-1995, and (2) to propose strategies that could enhance the political feasibility of the reform process. Before designing strategies, *PolicyMaker* analyzes policies along three dimensions: policy content, players, and environment (opportunities and obstacles). These three dimensions frequently intersect. A player's position may emerge out of a complex combination of its reactions to the policy content, the player's interests, relative power, and relationships with other policy actors, and the internal and external organizational environment.

For this case study, we first review the content of the reform policy under consideration. Second, we analyze the players, by exploring the interests, power, and position of the dominant policy players, with reference to relevant aspects of the reform proposal. Third, we review the external opportunities and obstacles that the OCT faced in the policy environment. Finally, we present the strategies that were designed in the Dominican Republic, using the *PolicyMaker* method, for OCT to consider in managing the reform process.

(1) Policy content

Policy proposals for health sector reforms supported by the multilateral development banks are similar across Latin America, responding to similar challenges within public health bureaucracies. At the time of the analysis, proposals followed the ideas presented in the 1993 *World Development Report*, and built on the World Bank's seminal 1987 policy study, *Financing Health Services in Developing Countries* (Akin et al. 1987). The reforms have usually included three levels of policy goals and mechanisms.

First, the reforms define broad governing principles. In the Dominican Republic, the principles were universal access, equity, solidarity, quality, freedom of choice, efficiency, efficacy, and transparency.

Second, strategic guidelines are developed that set out more specific parameters for a restructured health system. In the Dominican Republic, these guidelines included: (1) the design of a single system, organized functionally (regulation, financing, policy, provision); (2) a shift towards preventive services; (3) a strengthened regulatory role of the state; (4)

increased financing for the health system; (5) guaranteed benefits for affiliates; (6) efficient systems; and, finally, (7) the facilitation of social participation in the health system (OCT 1995a). These strategic guidelines represent policy goals, but they do not specify how to achieve the goals, which may have contradictory objectives.

The third level provides more specific policy mechanisms. In the Dominican Republic, policy mechanisms were defined in four areas, according to the OCT in 1995. Similar proposals can be found in other Latin American countries undergoing health reform:

1. development of a new model of rationally determined, publicly financed health services that would ensure a basic basket of cost-effective interventions, namely preventive services, available to the entire population;
2. decentralization and restructuring of the ministry of health and the social security institute;
3. transformation of the state's role from direct service provider to financer and regulator; and,
4. creation of managed competition through government contracting with both public and private sector providers.

(2) Players

Assessment of political feasibility requires an analysis of the stakeholders – the political actors affected by or affecting a given policy. These actors are called the ‘players’ in *Policy-Maker*. The field of policy analysis has not produced a single or simple method for assessing the characteristics of players involved in policy change (Reich 1996). *PolicyMaker*, therefore, combines a number of analytical methods. The basic analysis requires an assessment of each player's position on the policy (support, opposition, or non-mobilized position), power (resources available to use in the policy debate), and intensity of position (high, medium, or low, depending on the willingness to use available resources in the policy debate). In this analysis, a player can be either an organization or an individual, though the analyst might consider weighting these groups differently, according to their power resources.

In our analysis of health reform in the Dominican Republic, the players were divided into five key groups: public sector, private sector, unions, political parties, and other non-governmental organizations.

Public sector: SESPAS and IDSS

The reform proposal has profound implications for the public sector, especially the Ministry of Health (SESPAS) and the Dominican Social Security Institute (IDSS). Political resistance in the public sector was anticipated particularly around the issues of hospital autonomy and institutional restructuring.

A 1985 evaluation of SESPAS described it as a government agency suffering from ‘overall inoperativeness’. SESPAS and IDSS lack the internal structures, formal lines of command, functional definition, administrative machinery and policy-making capacity to effectively execute current mandates or to

meet longer-term institutional objectives. Decision-making is usually concentrated in an individual, and accountability is diffuse. An attempt at regionalization of SESPAS failed and local officials lack authority. Services are poor in quality, and coverage is low. Human and material management is deficient. Nearly all appointments are made at the central level by the Minister (or the President) without the knowledge of division chiefs or facility managers. Mismatches result between human resource supply and service demand. For example, several SESPAS facilities have up to 50% more medical personnel than necessary to meet demand, while other facilities are closed due to lack of personnel (IDB 1997).

Considerable confusion exists concerning the role of SESPAS within the sector because the Secretariat of the Presidency administers nearly one-third of government health spending, and little coordination of any kind exists among public sector health institutions. Linkages between the public and private sector are absent. Each institution makes policies, sets plans and implements programmes more or less independently. This, in turn, contributes to stratified access to health care, concentration of resources in large cities, duplication of infrastructure and service provision, and overlapping financial arrangements. For example, household surveys show that 50% of IDSS enrollees do not use IDSS services, while 50% of users of IDSS services are not enrolled in IDSS. In some rural areas, NGOs and SESPAS provide similar services to the same population groups. A significant percentage of the poor bypass ‘free’ SESPAS facilities, seeking care at fee-for-service private clinics.

Hospital autonomy

After the public release of the ‘white paper’ in 1995, the Secretary of Health and the OCT were accused of ‘privatizing’ the health sector. While it is true that the management of publicly owned hospitals through contracts is not privatization, especially since the government would guarantee subsidies for preventive services and basic ambulatory care (F. Rojas 1995), elements of autonomization can have (and can be perceived as having) the same political and social effects as privatization has had on other state industries. That is, hospital autonomization does imply that current government employees become employees working under contract, without a lifetime guarantee, which allows for discretionary firing and a complete break in the traditional relationship between the state and physicians. Hospital autonomization also implies that public sector hospitals would compete with the private sector to provide the basic package of services; that the hospital director would have discretion over budgets, and that the central SESPAS would not; and that any services provided in excess of basic ambulatory care would not be subsidized by the government.

For all these reasons, the SESPAS bureaucracy, though not fully cognizant of the potential implications of the reform, was extremely wary of the proposal. And the AMD was highly opposed to hospital autonomization, due to the loss of job security that physicians would face under this system. Hospital directors, who stand to gain in status and control,

were pleased with the idea, but were not organized. Overall, there were serious concerns about the technical capacity of hospital staffs to manage the process of autonomization and re-orient the hospital to a competitive environment.

Institutional restructuring

The processes of institutional restructuring present serious challenges. For the Health Secretary, restructuring could mean political suicide if the AMD were to mobilize against the plan. Any benefits from the policy reform are likely to be long-term and difficult to perceive as tangible. For the bureaucracy, restructuring is feared, because it would disturb the status quo, create a threat to job security, and upset established ways of doing things. For physicians, institutional restructuring places the AMD's organizational autonomy and negotiating power at stake. For hospitals, it represents a change from the status quo, which is so negative at present, that any change is perceived positively.

IDSS faces many of the same issues. Restructuring for IDSS has similar implications as for SESPAS, but with the added nuance that IDSS would be forced to stop its direct service provision altogether. Under the reform, all financing of health services for formal and informal sector employees would be provided through the IDSS. Many observers outside of IDSS were surprised that IDSS could be considered a responsible controller for funds, given its history of political patronage. Most likely, the reform proposal would be revised to remove IDSS (not government) from the collection and disbursement of funds.³ However, if this were to occur, then IDSS would have few tasks remaining in health services.

This is not the first attempt to restructure the IDSS. Created in 1948 during a wave of Bismarckian-style social security, the IDSS was primarily a response to pressures from the cane-cutters union. Its political patronage functions have persisted over time. In 1982, the President, three of the major trade unions, and the main employers' association, with assistance from the International Labor Organization, endorsed a legislative draft to expand IDSS health care coverage to all salaried workers in both the private and public sectors regardless of salary level (removing a cut-off that exempted most white and blue collar workers from obligatory payment). The reform presented a politically viable solution, given the power of the AMD. A last-minute revision of the bill, prepared by a group of civil servants who did not want to be required to pay into IDSS instead of their current private insurers, restricted care to IDSS-owned facilities, which were notoriously poor quality. This revision eliminated free choice to use private facilities, a central element of the bill. The strong opposition of the private sector then defeated the bill in Congress. High-salaried employees, who would have been incorporated into IDSS after the projected elimination of the salary ceiling, also opposed the amendment because they would have been required to pay contributions but did not want to use IDSS services. The bill's defeat strengthened the private sector and contributed to further erosion of the IDSS public image (Mesa-Lago 1978, 1989, 1992).

In 1994, a private think tank and the association of employers published a plan for health sector reform that proposed the elimination of IDSS. The new IDSS director accepted the proposal, but was fired shortly thereafter. The position of the subsequent directors was not known officially. At the time of analysis (1995–96), IDSS's technical office questioned the value of contracting and seemed to reject the idea of eliminating its role as a direct provider of health services.

Transformation of the state's role

Bank-financed health sector reform is meant to transform the state's role from direct service provider to financier and regulator, but the details of this transformation are unclear. There is some ambiguity on how the state becomes 'financier and regulator'. At the time of our interviews in the Dominican Republic in 1995, 'separation of financing and provision' was interpreted in the press as the 'privatization' of health services provision and created reluctance among political leadership to support health sector reform with enthusiasm: political leaders of SESPAS (SecSal) and IDSS (IDSSDir) were thus classified as high-power actors in low support of the white paper. In the pre-presidential election period (September 1995 to May 1996), this reluctance was expected. In the post-election period, the issues were still unresolved. A distinction was also made between political leadership and SESPAS and IDSS bureaucracies in the analysis, as these groups had contrasting interests in the process. The SESPAS bureaucracy (SESPBur) was considered high-power and low-support at the time of the white paper, while the IDSS bureaucracy (IDSSBur) was medium-power and low-opposition, with potential to move to high opposition in the near future.

Private sector: private clinics and *iguales*

The private sector is highly opposed to regulation, having operated profitably during the progressive decay of public sector services. Approximately 15% of Dominicans, primarily formal sector employees, belong to employer prepayment plans, known as *iguales médicas*, which cover a basic package of 'equal' services. The plans compete on price, service quality, and completeness. In principle, consumers of *igual* health plans would welcome government financing of these services, but would resist any attempt to be incorporated into government-provided services. If formal sector employees were obliged to contribute to the public sector (in order to finance the rest of the health system), then formal sector employers who are not already evading payment would be expected to resist further. This practice (the so-called *doble cotización* or double payment) has been identified as an agenda item for small and large business organizations.

Employer discontent (and evasion), along with the private sector's resistance to regulation and the formal sector consumer's aversion to government-related (financed or provided) services, make the decision to move towards a managed competition model difficult for the government. While the private sector is expected to gain under managed competition, the *iguales* would probably be more profitable if

they can continue to restrict plan entry to the relatively healthy and wealthy, which would probably occur more easily without reform. Private health sector players (private clinic/*igualla* owners – PrivClin – and employers – EMPLOYER), while expressing basic agreement with the reform's principles, were lukewarm towards the white paper, and based on an analysis of player interests were classified as moderately opposed, high-power players.

Unions: the AMD

A key feature of the Dominican health sector is the near-omnipotence of the physicians' association (AMD).⁴ In the past, every negotiation between the government and the AMD has ended with government concessions. As part of this process, the AMD strikes frequently and for long periods of time. In 1996, for example, the AMD held an eight-month strike for higher wages and increased job security. This strike came after an extremely generous settlement, in which the government promised to double all doctors' salaries in the public sector, waive import taxes on vehicles, and provide public housing. The strike was perhaps precipitated by the government's inability to finance its health services, much less provide housing to doctors. During this time, the government agreed to pay doctors their salary for the time missed, and still, the AMD remained on strike pending resolution of the 'situation' of IDSS doctors. This situation is particularly deplorable since physicians are supposed to work eight hours a day legally, but typically work only two hours a day and spend an average of two minutes per patient (Mesa-Lago 1992). In addition, they are frequently absent, delay hospital dismissals, violate rules, and reject any effort to introduce planning, set work schedules, or enforce the budget (Mesa-Lago 1992).

The AMD is led by an experienced union organizer, and the Secretary of Health, usually inexperienced in negotiation given his short tenure, is the AMD's primary target. If the Secretary is unable to meet the AMD's demands, the organization has often been able to pressure the President to remove the Secretary. The AMD is also able to mobilize quickly against journalists and policy-makers who attack their interests publicly. The AMD was considered a high-power actor, highly opposed to the white paper in principle and in practice.

Political parties: Fernández and the PLD

Leonel Fernández, who was elected President as a member of the Partido de Liberación Dominicana (PLD) in 1996, produced an elaborately detailed, Bill Clinton-style governing plan. The plan placed health reform at the bottom of a 24-item list of priorities and left it undefined (Partido de Liberación 1996). During an interview conducted in August 1995 with the current vice-president, Dr Jaime Fernández Mirabal (then a PLD senator), the reform group was advised to stop using 'economic terminology' in their proposals and to focus on 'decentralization issues', consistent with the democratization rhetoric favoured by the PLD. Leonel Fernández's position on the AMD strike, which occurred before he took office, was that the President of the Republic should negotiate directly with the head of the AMD, and should continue

to make concessions on most issues, rather than delegating this task to the Secretary of Health, thereby undermining the efforts of the Secretary of Health to be firm with the AMD. This position agrees with Dominican political culture, as described earlier, where power is concentrated in the President.

These expressions of position and power do not necessarily indicate that the President is fully opposed to the OCT 'white paper'. However, they do indicate that he is not supportive, and that he will not serve as an advocate. The Secretary of Health, who was replaced in January 1997, could be an important factor in the reform process. Thus far, however, the Secretary has been remarkably uninvolved in planning for reform. The passivity of Balaguer's last Secretary of Health could be linked to a protracted 'lame duck' period prior to the elections. In the case of the new government, the Secretary's tepid support is notable and could have significant consequences for feasibility. The President (PRES) at the time of analysis was classified as high-power with a non-mobilized position. The PLD, currently in office, was classified as a high-power, low-support player.

Non-governmental organizations (NGOs)

While NGOs were expected to be supportive of reform plans to expand coverage to the entire population and provide more preventive services, the interviews did not find much support for reform among NGOs. NGOs initially focused attention on the creation of a basic package of services using cost-effectiveness criteria. NGOs focusing on preventive care services felt that many elements of equity were not well served by an application of cost-effectiveness criteria, which were not connected to a concept of health as a right. NGO staff published press articles criticizing the OCT for using 'economic' criteria where they 'don't belong', that is, in the health sector (O. Rojas 1995a, 1995b). This criticism had the potential of associating reform with particular 'victims', such as children who would not receive emergency interventions that fall outside of the basic package. Other groups, which provided specialized forms of care and received government monies, such as the *Asociación Dominicana de Rehabilitación* or the *Liga Dominicana Contra el Cáncer*, feared that reform would decrease resources available to their work. While NGOs are generally not very influential on the national political scene in the Dominican Republic, they have sufficient resources to access the media, to shape public perceptions of health reform, and thereby to influence the reform process in the CNS. NGOs were classified as low-power, low-opposition players.

At the time of our analysis (July–November 1995), most political players were essentially non-mobilized with regard to the health reform proposal (the National Health Commission – CNS; beneficiaries – BENEFS; the press – PRESS; universities – UNIV; and the Church – CHURCH), although many players' interests clearly conflicted with the white paper. Even when players expressed nominal support (such as the Secretary of Health), the interviews suggested that most players preferred to wait for completion of the studies and proposals before taking a position. This lack of involvement forced the

Table 1. Summary of *PolicyMaker* strategies

Strategy name	Actions
<i>Strategy #1</i> OCT: Create Common Ground	1. Seek common ground with other organizations. 2. Identify common interests. 3. Link different interests – invent new options. 4. Make decisions for opponents easier.
<i>Strategy #2</i> OCT: Create a Common Vision	Keeping in mind that the principal obstacles to reform are not only technical: 1. Create an atmosphere of shared values, unified leadership. 2. Articulate a common vision of equity and the respective roles of the public and private sectors.
<i>Strategy #3</i> Define the Decision-Making Process	At the time of the analysis, there was no formal procedure for decision-making in the CNS, so: 1. Formalize process for the approval of the ‘white paper.’ 2. Legal efforts to formalize this process may be fruitful.
<i>Strategy #4</i> CNS: Mobilize and Prepare Key Actors	1. The Secretary of SESPAS should be positioned to take a strong position of leadership. 2. The Director of the IDSS should be prepared to take a clear position on the reform of the IDSS. 3. Key actors within SESPAS, IDSS, and the CNS should limit their discussion to the specific components under consideration.
<i>Strategy #5</i> OCT: Initiate Pilot Studies	1. Select pilot study sites according to technical and political exigencies.
<i>Strategy #6</i> OCT: Political Parties/ New Government	1. Meet with political candidates and their technical staffs. 2. Attempt to integrate health reform policies and the ideas of the ‘white paper’ into political debate and discourse.
<i>Strategy #7</i> OCT: Initiate Strategic Communications	1. Initiate strategic contacts with the press, responding to critical attacks (except those of the AMD). 2. Place key decision-makers in the media.
<i>Strategy #8</i> SESPAS and IDSS: Manage the Bureaucracy	1. Identify possible opposition and involve them in the technical design of the reform.
<i>Strategy #9</i> OCT: Strengthen Alliances with International Organizations	1. Request technical-political assistance from the IDB and the WB in order to respond more effectively to common critiques of the WDR-style reforms. 2. Work together with PAHO in concrete areas. 3. Ask for donor support for the vision of reform articulated by the OCT and define their active participation in influencing key actors in the health sector.
<i>Strategy #10</i> OCT: Involve ‘Friends’ in Planning	1. Hold informal consultations with ‘friends’ of the reform on the sequencing of actions and political strategy; draw on the experience of the education reforms. 2. Bring together public hospital directors to articulate an agenda.
<i>Strategy #11</i> AMD and IDSS: Create Strategic Alliances	1. Create strategic alliances with key actors not usually involved in health sector policy debate (nurses’ union, igualas, other unions, business associations, NGOs, churches, universities).

Pilot projects (strategy 5) in hospital autonomy were initiated during the pre-electoral period as planned, but the demonstration effects of the studies were limited due to the OCT’s weakening relationships with the new Administration, especially with the new leadership in SESPAS. Subsequently, key technical staff in the OCT and in the Secretariat of the Presidency were replaced, reducing the feasibility of reform proposals as originally conceived. The limited political support of the new Administration for health reform showed the OCT’s mixed success in working with political parties (strategy 6). A communications strategy (strategy 7) was launched with success; the debate in the press became more

accurate over time, and the OCT was able to respond to editorials and attacks in a timely manner. Alliances with international agencies were strengthened during the design phase through the creation of working groups on specific themes such as human resources (strategy 9, 11).

Overall, the *PolicyMaker* exercise produced a set of strategies that achieved some success for the OCT, especially with regard to common ground, vision, and work with the SESPAS and IDSS bureaucracies. However, relationships with key political actors were particularly precarious in the post-election period, and presented an insurmountable challenge to

reformers. This exercise in systematic applied political analysis helped move the health reform process forward in the Dominican Republic, but did not result in full adoption of the health reform package. In short, applied political analysis may be necessary to promote WDR-style health reform efforts, but analysis alone is not sufficient for success, for reasons discussed below. In late 1997, the OCT repeated the *PolicyMaker* analysis, updating the position maps and setting out modified strategies. Whether this additional analysis will provide sufficient guidance to produce political and social acceptance of health reform in the Dominican Republic in the near future is an open question.

Conclusions

This analysis of the political dimensions of health sector reform processes in the Dominican Republic suggests some generalizations that may be relevant to other nations. Six factors seemed to affect the pace and feasibility of the health sector reform proposal in the country in 1995.

Factor 1: The leadership of the reform

The leadership vacuum in the Dominican Republic in 1995 made decision-making on health reform difficult and incremental at best. The Secretary, facing the progressive decay of institutions and the near certain loss of his party in the coming elections, was unwilling to tackle health system change. Comprehensive health sector reform usually requires the full commitment of the Secretary of Health. In the Dominican Republic and elsewhere, leadership capacity is deeply affected by the system of government (new democracy versus aging dictatorship), the credibility of the government, political timing (the approach of elections), and the political effects of the technical content of reforms.

If the political leadership is inactive on health sector reform, the technical reform group and the Banks themselves become the policy advocates. To play this role effectively, leadership and resources are required within the reform group. The reform group must receive technical, strategic, and political support, above and beyond the standard studies conducted under Bank pre-loan processes. In a personalized political system in which decision-making is highly centralized, the reform group must create a critical mass of reform supporters, who can promote reform despite a turnover of leaders. Reform groups may need to create incentives for the Minister to become a fully engaged advocate for reform. Politicians need to find ways to navigate the political costs and benefits of health reform, through a combination of short-term gains and a supportive environment. In situations of uncertain political leadership, as shown by the case of the Dominican Republic, the prospects of health reform are greatly handicapped.

Factor 2: The political strategies adopted by the reform group

Health sector reform confronts a collective action dilemma: the small and delayed benefits for many people who are highly dispersed (and politically weak) are perceived as less

important than the high and immediate costs felt by small groups that are highly concentrated (and politically strong). Explicit political strategies are needed to manage this distribution of the political costs and benefits of reform, especially in relation to key interest groups (the medical association and health workers' union), the government bureaucracy, and international agencies. Reformers need short-term concrete gains that can satisfy key constituents, especially if the expected benefits of reform are perceived as long-term, uncertain, or intangible. In short, reform advocates require political strategies to manage the perceived interests of key stakeholders. If there is a political leadership vacuum, then reform groups need substantial human and financial resources to plan for these non-technical dimensions of the reform process. Applied political analysis can assist the process of generating strategies for promoting reform, but analysis must be supported with the skills and resources for on-going consultation and negotiation with major stakeholders.

Factor 3: The location of the reform group

A structural dilemma exists in the organizational location of the reform group, reflecting a general dilemma about the location of advisory or policy analysis groups. A location within the agency can restrain the group's autonomy and ability to question basic assumptions of the leadership, making the advice serve the preconceptions of the leadership. On the other hand, a location outside the agency can produce weak links to decision-makers with a tendency to marginalization and irrelevance, while allowing the reform group more autonomy and capacity for independent analysis. At the time of this analysis, the OCT was located outside SESPAS and was seen as an outsider by the Health Secretariat's bureaucracy. This allowed critics of health reform to link the OCT symbolically with the development banks, and helped weaken the OCT's political legitimacy. After the election, the OCT was brought into SESPAS, only to be separated again several months later.

Factor 4: The ownership of the reform

For health reform to be adopted, the reform package needs to have strong ownership, usually by the Minister and by the government. But a dilemma also exists with ownership. If a reform is closely associated with a government, and the government changes, then a common political response of the new regime is to reject or reverse the reforms. The new government needs its own reforms, with material and symbolic benefits, and also needs to distinguish itself from previous power-holders.

The dilemma is this: an effort to raise ownership above the current government-in-power (through a multi-partisan commission, for example) may successfully diffuse ownership, but this process could lower the probability of achieving successful acceptance and implementation. Minister-driven reform can tie the change closely to one person and thereby raise the chances of adoption now and reversal later; but if not tied closely, then the reform may not happen at all. The goal is to create a reform with sufficient ownership by the current power-holders that it is likely to be accepted, and without so

much ownership that the next government will reject the reform and seek its own. Achieving this goal requires the creation of strong constituencies, within the bureaucracy and among interest groups, to mobilize supporters who will have an interest in continuing the reform and who will persist beyond changes in government.

In the Dominican Republic in 1995, prior to elections, the potential political owner of health reform had little chance of continuing in office, and therefore no effort was made to mobilize high-level political support for the reform. The Dominican Republic's approach of technical studies plus wait-and-see was effective in preserving some elements of the OCT after the election. But this strategy also reduced the probability that the reform proposals emerging from the study period would be adopted and owned by the new administration.

Factor 5: The political language of reform

Reform efforts often require new ideas that can change the political landscape, provide new perspectives on old problems, and create alliances among diverging groups. The political language of reform can create legitimacy by connecting the reform to international sources and the experiences of other countries. The promotion of 'equity and efficiency in health systems' is hard to oppose. Poor choices of political language can undermine efforts at reform. As shown in the Dominican Republic, an association with the word 'privatization', regardless of its technical accuracy, can undermine support for a reform effort and can put reformers in a defensive mode that is difficult to overcome.

Factor 6: The political timing of reform

The feasibility of health sector reform is often affected by political timing; whether a government is recently elected or is approaching the end of its term will affect its political capital and its willingness to take political risks. The approach of elections can complicate strategies to create political circumstances that would support reform. If the current government is unlikely to stay in power, or if the current Minister is unlikely to stay in power, then the power-holders may have limited political resources and limited interest in attempting a reform that entails high political costs.

The process of health sector reform involves a continual tension between the technical and political dimensions. Often, the proposed technical solutions are only partially constructed, with large ambiguities remaining in the institutions required and the implementation methods. The reform group may be highly qualified in a technical sense and acutely aware of the political implications of different reform options, but may be unprepared for analyzing and managing the highly political dimensions of the reform process. Applied political analysis can be helpful in organizing political data in a systematic way, in analyzing the political risks of health sector reform, and in constructing and selecting political strategies to manage the multiple players involved.

The case of health sector reform in the Dominican Republic shows that the WDR-style reform package creates multiple

political challenges that are of significant size. These challenges require political leadership that is committed to reform and prepared to expend political capital, and political strategies that can manage the political costs of powerful stakeholders associated with the reform. The experience in the Dominican Republic suggests that applied political analysis can help identify strategic options, which may enhance the prospects for health reform. But the experience also demonstrates that analysis must be accompanied by an adept use of political power; otherwise the reform package is likely to languish as technically desirable but politically infeasible.

Endnotes

¹ Governments usually started adjustment with the tacit consent of the population, having been put into office to 'reverse economic collapse' (Lindenberg and Ramirez 1989). Health sector reform has not enjoyed such a mandate in Latin America.

² More than 70% of public (SESPAS, IDSS, Secretariat of the Presidency) spending on health is directed to hospital care (IDB 1997).

³ In the most recent OCT document, money management would be the responsibility of the Central Bank.

⁴ While politically powerful, it is interesting to note that the 1996 eight-month AMD strike, which resulted in the total shut down of public services, evoked little interest from the public. Private sector services seem to have absorbed most clients willing to pay. In fact, health indicators (infant mortality) actually improved during this same time period.

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Acknowledgements

The authors would like to thank the following for their thoughtful comments on the paper: Gerard LaForgia and Ruth Levine of the Inter-American Development Bank, members of the HSPH Health Policy and Politics Working Group, and an anonymous reviewer.

The views expressed in this paper are those of the authors and do not reflect the views or policies of the Inter-American Development Bank.

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Research article

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Pathways to malaria persistence in remote central Vietnam: a mixed-method study of health care and the community

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Published: 23 March 2009

Received: 25 January 2008

BMC Public Health 2009, 9:85 doi:10.1186/1471-2458-9-85

Accepted: 23 March 2009

This article is available from: <http://www.biomedcentral.com/1471-2458/9/85>

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Abstract

Background: There is increasing interest in underlying socio-cultural, economic, environmental and health-system influences on the persistence of malaria. Vietnam is a Mekong regional 'success story' after dramatic declines in malaria incidence following introduction of a national control program providing free bed-nets, diagnosis and treatment. Malaria has largely retreated to pockets near international borders in central Vietnam, where it remains a burden particularly among impoverished ethnic minorities. In these areas commune and village health workers are lynchpins of the program. This study in the central province of Quang Tri aimed to contribute to more effective malaria control in Vietnam by documenting the *non-biological* pathways to malaria persistence in two districts.

Methods: Multiple and mixed (qualitative and quantitative) methods were used. The formative stage comprised community meetings, observation of bed-net use, and focus group discussions and semi-structured interviews with health managers, providers and community. Formative results were used to guide development of tools for the assessment stage, which included a provider quiz, structured surveys with 160 community members and 16 village health workers, and quality check of microscopy facilities and health records at district and commune levels. Descriptive statistics and chi-square analysis were used for quantitative data.

Results: The study's key findings were the inadequacy of bed-nets (only 45% of households were fully covered) and sub-optimal diagnosis and treatment at local levels. Bed-net insufficiencies were exacerbated by customary sleeping patterns and population mobility. While care at district level seemed good, about a third of patients reportedly self-discharged early and many were lost to follow-up. Commune and village data suggested that approximately half of febrile patients were treated presumptively, and 10 village health workers did not carry artesunate to treat the potentially deadly and common *P. falciparum* malaria. Some staff lacked diagnostic skills, time for duties, and quality microscopy equipment. A few gaps were found in community knowledge and reported behaviours.

Conclusion: Malaria control cannot be achieved through community education alone in this region. Whilst appropriate awareness-raising is needed, it is most urgent to address weaknesses at systems level, including bed-net distribution, health provider staffing and skills, as well as equipment and supplies.

Background

Malaria remains a major global threat and its control is one of the Millennium Development Goals. Anti-malarial drug resistance, linked to both unnecessary and inadequate drug intake, creates risks for malaria resurgence, and is a major challenge for malaria control [1]. Insecticide-treated bed-nets and effective anti-malarial drug combinations are essential components of control programs [2,3]. However, effective control requires consistent action from both *health systems* and *community*, and an understanding of features that precipitate risk, such as development projects bringing labourers through forested areas [4]. The broad social (i.e. non-biological) aspects of control are thus critical to success [5].

Overextension or poor training of health staff can undermine diagnosis and treatment, while bed-net distribution requires reliable systems that are difficult for impoverished, isolated settings. Patients may not seek care if they lack knowledge or money for treatment or transportation, or may seek care from multiple sources [6-8,3], making implementation of treatment guidelines – and health information systems – problematic [9].

Vietnam is considered a Mekong region malaria 'success story' after the introduction of a National Malaria Control Program (NMCP) in 1991 to address a spike in cases and increasingly widespread drug resistance. The NMCP provided free anti-malarials (especially artemisinin to treat *P. falciparum*, Vietnam's most prevalent – and most deadly if untreated – strain, impregnated bed-nets, twice-yearly home insecticide spraying, and early diagnosis and treatment. Declines from 1.2 million clinical cases (without confirmed blood tests) and 4646 recorded deaths in 1991, to 185 529 clinical cases and 50 deaths in 2002, are attributed to the program [9-12]. Managed by the National Institute for Malariology, Parasitology and Entomology (NIMPE), the NMCP relies on vertical and horizontal collaborations from central to village level.

By 2000 malaria had largely retreated to 84 districts in 15 (out of 61) provinces, with an estimated population of 7.2 million (vs 83 million nationwide). Over 90% of severe cases and deaths occurred in mountainous, forested and largely ethnic minority areas of central Vietnam [9,12], often along international borders, where the common mosquito vectors that transmit malaria, *Anopheles dirus* and *An. minimus*, are plentiful [13]. These ethnic minorities tend to be impoverished, poorly educated, culturally and linguistically distinct, and living in dispersed, less accessible settlements; such areas 'represent a real challenge for the [NMCP]' [9] (p.217). Therefore, it is both instructive and timely to investigate persistent malaria in such settings.

In 2002–03 the central province of Quang Tri was among Vietnam's highest malaria burden provinces with 4178

cases (confirmed and clinical). Over 9% of Quang Tri's approximately 573 000 inhabitants are ethnic minorities, overwhelmingly Van Kieu and Paco [14], who live astride the border with Lao PDR in districts with rugged, lush terrain, frequent rainfall, and large infrastructure projects within forests (including a bridge and road along the old Ho Chi Minh Trail). These contextual aspects, together with poverty, low education levels, cross-border mobility, and cultural diversity, made this an appropriate study site for malaria social science research.

This paper reports on a collaborative study aiming to contribute to malaria control in Vietnam by documenting the *non-biological* pathways to malaria persistence in two districts. The objectives were to identify the role and nature of health system and community factors *directly* linked to malaria persistence, and *underlying* influences that help explain the direct factors. The study was undertaken by Vietnamese and Australian researchers from March 2004 to April 2005.

Methods

In order to meet the study objectives we chose a flexible study design with multiple methods (both qualitative and quantitative). Mixed-method approaches permit explication of complex interrelationships between actors and systems, and have been used for malaria social research [15,16,5]. Data were collected in two stages. The formative stage used mainly qualitative tools to help define and expand thematic areas of enquiry; these data were rapidly reviewed to inform the (mainly quantitative) tools used for the assessment stage. An overview of methods and samples appears in Table 1. NIMPE investigators were trained by Australian colleagues and collected all data during 3 field visits.

Choice of Study Sites

Among Quang Tri's 8 districts, two (hereafter, A and B) were selected for their greater malaria caseload and proximity to the Lao border. At the 1999 census, district A's population was 54 547 and B's was 27 000; the vast majority were Van Kieu and Paco. For the formative stage we chose 3 border communes per district.

For the assessment phase we used 2 of these communes per district (i.e. total 4 communes) in order to ensure sufficient sample recruitment within the timeframe in view of the low population density and transportation difficulties. From each commune's approx 10 villages we selected 4 with varying ease of access as well as distance from the commune health station (i.e. total 16 villages).

Development and Use of Instruments, Sampling and Ethics

In the formative stage we held community meetings with district stakeholders to establish rapport and elicit local information and views. Semi-Structured Interviews (SSIs)

Table 1: Summary of methods and data sources (both stages)

Sample/source/focus	Location	Method (number)
FORMATIVE STAGE		
MC officials, local government, mass organisations, hospitals	2 district capitals	Community Meetings (approx 20 participants each)
Provincial MC officials	Provincial capital	SSIs (2)
District MC secretaries	2 district capitals	SSIs (2)
District Hospital managers	2 district capitals	Informal group discussion (2)
Anti-malarials sold at market	1 border commune	Observation (1)
Village environment	6 villages	Observation (6)
District Hospital staff	2 District Hospitals	SSIs (3)
Commune health staff	6 Commune Health Stations	FGDs (5) SSIs (4)
Village Health Workers	6 communes	FGD (1) SSIs (13 in 5 communes)
Community members	6 communes	FGD (1 with women) SSIs (14 men, 6 women)
ASSESSMENT STAGE		
District Hospital staff	2 District Hospitals	Tests (11 open questions) (14)
Malaria patient record cards	2 District Hospitals	Case numbers year-to-date (one DH); Review of previous month's cards DH-A (53) & DH-B (35)
Microscope points	2 District Hospitals & 4 Commune Health Stations	Observation (6)
Patient treatment logs	4 Commune Health Stations	Breakdown of year-to-date case numbers (one CHS); Review of previous 3 months (4 CHSs)
Village Health Workers	16 villages	KAP survey (16) (1/village)
Community members	16 villages	KAP survey (160) (10/village)
Bed-net use and quality	16 villages	Use observed in night-time home visits (55); quality observed in KAP survey home visits (160)

MC = malaria control; FGD = Focus Group Discussion; SSI = Semi-structured Interview; KAP = Knowledge, Attitudes and Practices

and Focus Group Discussions (FGDs) using flexible guides were held to explore beliefs, attitudes, awareness, care seeking/providing and circumstances relevant to malaria exposure and control with all provincial and district MC managers and Commune Health Stations (CHS) staff, a convenience sample of VHWs, and community

members (village heads and adult men and women, recruited purposively).

For the assessment stage we developed and administered face-to-face structured knowledge, attitudes and practices (KAP) surveys in the 16 villages, one with every Village

Health Worker (VHW) (n = 16) and another with 10 community members per village (n = 160), respectively. The community sample size was determined on the basis of time, resources and feasibility, along with power to conduct tests of significance on some demographic variables. Sampling was undertaken randomly from village household lists, stratified for equal numbers of men and women aged 18–48. Van Kieu interpreters (one male and one female) were used for nearly all community surveys after training by NIMPE researchers. We also devised observation check-lists to assess visibility and currency of malaria treatment guidelines, quality of CHS microscopy, and bed-net quality during KAP survey home visits. Actual bed-net use was determined by unannounced night visits to 55 homes in 2 communes. To obtain an impression of provider knowledge and guidelines adherence, we quizzed (11 open questions) district hospital (DH) staff involved in malaria control and available on the day, and reviewed one month of patient records from both DHs and 3 months of treatment logs from all 4 CHSs; comprehensive malaria case record numbers for the first 9 months of the year were collated from one DH and one CHS.

Potential participants were assured that participation was voluntary and confidential and refusal would have no negative consequences. As is common in Vietnam, all agreed to participate; verbal informed consent was taken. Participants were given a t-shirt with a malaria control message in appreciation. The study was approved by NIMPE's Human Research Ethics Committee for Medical-Biological Research, and the University of Melbourne's Human Research Ethics Committee. Instruments were developed in English, translated into Vietnamese (and back-translated) and pre-tested with a convenience sample in the study area.

Data Management and Analysis

Notes were taken during SSIs and FGDs; transcripts were not prepared due to time constraints. Researchers reviewed the formative data to finalise the assessment stage tools. Check-list data, health record reviews and quiz results were collated. KAP survey data were analysed using *Stata* v8.0 (descriptive statistics and chi square tests), and community level differences calculated for location, sex and education. Interpretation of findings was iterative and involved all data sources and researchers; together we distilled a subset of triangulated findings that offered a coherent picture of the interplay between direct and underlying influences on persistent malaria.

Results

Provincial records showed a continued high malaria burden in Quang Tri in 2004, with a total of 3958 cases (both clinical and slide-confirmed), a slight decline from 2003

(4178). District A recorded 2131 cases (vs 2246 in 2003) and District B 608 cases (vs 571 in 2003). Below we present evidence of direct and underlying influences on malaria persistence in both districts at health system levels (district, commune, village) and community level, in turn.

District hospital level: satisfactory standards of malaria care but early discharge for some patients

Record review from the first 9 months of the year showed that DH-A treated 433 malaria cases. Review of a total of 88 patient cards from the two DHs showed close adherence to the most recent national malaria guidelines [17]. Just 3 patients were treated for malaria despite having a parasite-negative slide. Most DH malaria control staff were trained in the guidelines and generally knowledgeable. Of the 11 questions, the 8 staff at DH-A correctly answered all but 3, with 1–3 staff incorrect on each. Of the 6 DH-B respondents, all got 5 questions correct, with one wrong answer apiece for the remaining 6 questions. Microscopes were in good condition, microscopists had specialist training, and results were reportedly usually available within 30 minutes. There was one notable problem noted by DH staff during a community meeting: about one-third of inpatients discharged themselves prior to completion of treatment. Staff attributed this to inability to afford 'extra' charges for in-patient care, e.g. antibiotics and vitamins. Many were lost to follow-up, making it impossible to verify their adherence or recovery. However, most patients presented first to lower levels (though some were referred to DHs). At their last bout of malaria, 38% of community members reported they sought care from the VHW and 60% from the CHS; just 10% travelled to the DH (>one answer possible).

Commune Health Stations: deficiencies linked to resources

Each commune in Vietnam has a health station in a fixed facility serving the commune's villages. National policy states CHSs should have at least 4 staff, including a fully-qualified doctor, nurses and/or midwives, and should implement all basic preventive and curative care under DH direction. Just 2 of our 4 communes had the full staff complement, but also had larger populations than usual. The others had 3 staff, though some were not qualified to offer routine services.

Checks found deficiencies at most CHSs in malaria diagnosis, treatment and microscopy. During FGDs and individual interviews, staff at all 4 communes acknowledged that presumptive treatment frequently occurred. A detailed record review for the first 9 months of 2004 was undertaken in one CHS (popn 2618) in District A; staff treated 100 parasite-positive and 82 'clinical' cases (unconfirmed by microscopy and diagnosed by symptoms). Thus nearly half of all cases (i.e. 82/182) were

treated presumptively. Review of the past 3 months of logs in all 4 CHSs showed that in 2 communes, staff gave appropriate treatment per guidelines. In the other 2, staff sometimes gave CV8 for *P. vivax* cases (when chloroquine temporarily ran out) and primaquine + artesunate for clinical cases; moreover, workers at these CHSs did not recognise these treatments were contrary to guidelines. Laminated treatment guidelines intended for display to facilitate their use were locked out of sight in 3 of the 4 CHSs.

Although CHS staff discharged patients with instructions to report to their VHW during treatment, staff (at both levels) said patients often failed to do so, making it impossible to monitor adherence to treatment and course of illness, both of which are important for effective malaria control at the population level.

Several underlying influences apparently contributed to CHS-level weaknesses, including deficiencies in human resources, training, equipment and supply, all exacerbated by geographic isolation. In SSIs and FGDs most CHS staff said they found it difficult to accomplish their duties given current staffing levels. Understaffing placed particular pressures on microscopy services. Blood films would arrive haphazardly via VHWs or outpatient CHS services. Slides should be prepared and read immediately, which takes 30–45 minutes, but this rarely happened because of competing tasks, e.g. queues of infants awaiting immunisation, disease outbreaks, meetings with district health staff, or absence of the microscopist. For each slide the microscopist is paid an 'incentive' of just 300 dong (about USD two cents), which is low even by local standards. This situation may help explain why staff frequently prescribed anti-malarials according to symptoms, rather than after microscopic confirmation, as is preferred. For quality assurance, district staff periodically collected slides for review at the provincial capital; the percentage of incorrect readings was reported back to the district, and thence to each CHS, but without specifics on individual slides. One commune was told that 20% were incorrect after awaiting feedback for 4 months.

Although the MC program stipulates a properly trained microscopist for each CHS, most CHSs relied on one of their staff who was designated for this role but undertook the usual CHS workload, and typically had just a week of training. Few had in-service training. As well, quality was undermined by ageing microscopes, lack of stain solution in one commune, improper storage of materials in another, and inadequate pure water and filtering equipment in several.

The geographic features that make malaria viable in this region, coupled with low population density, present great challenges for its control. Poor roads, many water-

ways, steep ravines and a dearth of telephones hinder communications and transportation. Home visits, referrals and patient follow-up were particularly difficult, especially considering understaffing and (at the time of the study) lack of telephones in some CHSs, leading at times to local management of severe cases who would have been referred to the DH.

Poorly trained Village Health Workers and lack of appropriate drugs

Among the 16 VHWs surveyed, most (14) were men, 12 were Van Kieu, 3 were Kinh (ethnic Vietnamese), and one Kazo. Median age was 31 years (range: 21–45 years). All had regular occupations as farmers (14) or traders (2). The 2 female VHWs had the highest education (10–12 years), 10 of the men had 6–9 years, and the other 4 had the minimum required (5 years) for VHWs. Median length of service was 5 years (range: 7 months–15 years).

The VHW (one per village) is a volunteer working across all primary health care programs following very basic training. For MC alone, VHWs are expected to prepare blood films, make referrals for severe cases, treat with (free) anti-malarials, educate the community, manage cases discharged from higher levels, and assist with spraying and net impregnation. The study found that some VHWs lacked confidence in their clinical MC duties (see Table 2).

KAP analysis revealed that 11/16 VHWs prepared blood films, but only 6 delivered these the same day to the CHS, with 4 waiting >72 hours. Ten said they 'rarely or never' stayed to obtain results; only parasite positive results were reported back to them from the CHS, often after a few more days. Most (11/16) commenced treatment without microscopic-confirmed diagnosis, prescribing partly by symptoms, and partly by the type of drug currently on hand within their kits. In 10 villages VHWs did not carry artesunate, the recommended drug of choice for *P. falciparum* malaria at the time of the study (see Table 3).

Of the 6 who carried artesunate, all believed it was appropriate for 'serious' malaria cases. The main indication for chloroquine offered by the 14 who carried it was 'light' fever, not its usefulness for *P. vivax* malaria. Hence, use of anti-malarials for non-malarial fever may have occurred. Despite the fact that 12 VHWs reported confidence in case management, 8 admitted they never followed up.

Triangulation of data sets suggests that VHW weaknesses in malaria management were attributable to a number of underlying influences, including insufficient time to complete duties outside normal working hours, inadequacies in pre- and in-service training and some delays in rolling out the new guidelines for drugs in VHW kits.

Table 2: VHW self-reported confidence in aspects of malaria control role

	n (%)
Diagnose malaria through symptoms (n = 15*)	10 (66)
Take a blood sample from patients (n = 15*)	9 (60)
Make a blood film for microscopy (n = 15*)	9 (60)
Give correct anti-malarial medication (n = 15*)	9 (60)
Adequately manage malaria cases (n = 15*)	12 (80)
Undertake malaria information-education-communication activities (n = 16)	13 (81)

* missing data

In Vietnam, individuals often become VHWs out of civic duty or the appeal of further education and occasional – if small – incentives for particular health care tasks. Apart from their MC duties, VHWs must keep abreast of changing, relatively complex, treatment guidelines. This is daunting for volunteers with low education levels residing in remote locations. When asked to name the role's disadvantages, our sample mentioned low remuneration, lack of time, and difficulties with transportation and distance, all of which could undermine case identification and management. About one-third felt frustrated by the villagers' 'refusal to take advice'.

Although policy dictates that each VHW is trained pre-service for at least three months, just 4 (one-quarter) had such training; 3 had 12–45 days, 6 had 1–5 days, and 3 reported no training. Only 5 reported training during 2004, although provincial policy requires annual refresher training. Only 12 VHWs knew about the new guidelines and 10 carried the new treatment table. Most, however, knew correct dosage for the drugs they carried. At the time of the study NIMPE was disseminating new diagnosis and treatment guidelines, which include some devolution of decision-making on local treatment to provincial MC managers. Some confusion appeared to persist during this transition, because informants at various levels provided inconsistent information about policy for anti-malarials in VHW drug kits, and a range of explanations for what was actually in the kits.

The terrain and isolation that hinder optimal care by CHSs act as greater barriers for the VHW MC role, because VHWs typically have even less access to reliable transportation. It takes time, effort and – at the least – opportunity costs for these part-time volunteers to remain in close touch with higher health system levels, to follow up or to

refer patients. These circumstances presented ongoing risks that some seriously ill patients would be treated in the village, possibly with a less effective anti-malarial.

Community level: sub-optimal prevention linked to insufficient bed-nets and socio-cultural context

Demographic information from the community KAP appears in Table 4. Most were Van Kieu, and education levels were low, with females more likely to be unschooled ($\chi^2 = 28.22$, $p = 0.01$). Median household size was 6 persons (range 2–13 persons). Sixty percent had a 'Poor Card', which denotes low-income status and enables free medical care and basic drugs. Most (66%) survey respondents reported having had malaria, including about one-third at least once in 2004.

Our findings suggest the direct risks operating at community level were sub-optimal bed-net use and early self-discharge from care. The national MC program calculates net sufficiency on a ratio of one net per two people, with a target of consistent use by at least 80% of the population in endemic areas. Quang Tri health staff at all levels believed this target was not met in the study communes, a view based on irregular day-time spot checking by provincial and district survey teams. We undertook our estimates differently, i.e. by observation during unannounced night-time visits, coupled with survey questions on bed-net use. Night visits to 55 homes in two communes found no nets were used in 20% of households and some nets did not reach the floor or were used as blankets. The 160 survey respondents, however, reported very high usage: 145 (92%) claimed to have slept under a net on the previous night, and 136 (86%) said that all family members had done so, whether singly or (more frequently) sharing. Respondents cited adolescents and the elderly as less likely to use and/or share nets, with just 50% of teenagers consistently using, among whom 70% shared. Reportedly, 91% of elders 'always' used nets, but only 57% shared. Whilst 16% of respondents claimed to travel occasionally or often into Laos, and about half went into forests at varying frequency, just a handful carried bed-nets on overnight trips.

While 66 (41%) sometimes (n = 58) or always (n = 8) consulted traditional healers for 'health problems', the

Table 3: Number of VHWs carrying different types of anti-malarial drugs

	n = 16
Number who carry only chloroquine	8
Number who carry only artesunate	0
Number who carry chloroquine & artesunate	6
Number who do not carry any anti-malarial drugs	2

Table 4: Description of the KAP community sample, by sex

	Males n (%)	Females n (%)	Total n (%)
Sex	80 (50)	80 (50)	160 (100)
Age (mean, range) in years	34, 18–48	30.6, 18–45	32.5, 18–48
Ethnicity:			
Van Kieu	69 (86)	71 (89)	140 (87.5)
Kinh (Vietnamese)	8 (10)	9 (11)	17 (10.6)
Other	3 (4)	0	3 (1.9)
Education level reached:			
No schooling	31 (39)	64 (80)	95 (59.3)
Some primary (1–5 years)	27 (34)	4 (5)	31 (19.3)
Some secondary (6–9 years)	22 (27)	12 (15)	34 (21.3)
Occupation			
Farmer	67 (84)	68 (85)	135 (84.3)
Other	11 (14)	9 (11)	20 (12.5)
missing	2 (2)	3 (4)	5 (3.1)
Poor Card			
Yes	44 (55)	52 (65)	96 (60)
No	35 (44)	27 (34)	62 (38.8)
missing	1 (1)	1 (1)	2 (1.3)

survey showed high awareness of recommended help-seeking for suspected malaria. Respondents claimed to act accordingly (Table 5), although this could not be verified. Some malaria patients with Poor Cards said they were charged for extras like vitamins at DHs (6/20) and CHSs (12/113), leading some to borrow money or discharge themselves early.

There was considerable evidence that insufficient bed-nets, cultural sleeping norms, low education and poverty acted as underlying influences on sub-optimal community behaviours. Provincial staff told us that Quang Tri had comprehensive bed-net coverage through the NMCP, and MC staff at all levels attributed persistent malaria in Quang Tri mainly to community 'refusal' to use bed-nets, arguing the need for more 'information, education and communication'. While enough nets may have been distributed, our survey respondents reportedly received theirs prior to 2003, and many were no longer intact. Some purchased additional nets, usually cheaper single bed size. Using MC guidelines on bed-net ratios (one net/2 people) and data on household size, we calculated that among the 160 households represented by survey respondents, just 72 (45%) had sufficient nets to cover their needs and 88 (55%) did not. In addition, checks of net quality when conducting the survey found 62% of households had at least one ripped or damaged net. Thus, even if all available nets were used, *less than half of all households were fully protected*.

Family configuration and cultural sleeping patterns also affected net adequacy. In FGDs we heard that some teenagers refuse to use nets, and that elders (with reportedly high net usage) strongly prefer to sleep alone, thus potentially leaving other family members short. As well, overnight socialising among male neighbours is so normal that Van Kieu houses contain a nominated 'guest' space in the living room, but just 19% of respondents had a spare net for guests.

Table 5: Community responses about care-seeking for suspected malaria

What to do first for fever or suspected malaria (n = 149*)	n (%)
Do nothing	1 (0.7)
Pray	3 (2.0)
Buy drug in market	4 (2.7)
Go to Village Health Worker	77 (52)
Go to Commune Health Station	63 (42)
Go to District Hospital	1 (0.7)
How long do you wait before seeking care? (n = 129*)	
Immediately	81 (63)
One day	41 (32)
Two days	6 (4.7)
More than two days	1 (0.8)

* Missing data

A lack of spare nets also contributes to exposure risk during periods of mobility – usually by foot – into Laos, forest or fields for overnight stays. This mobility is culturally and economically driven, as families seek reunions with relatives across the Lao border, and individuals collect forest products for consumption or sale due to lack of employment options.

As Table 6 illustrates, most respondents had basic understanding of malaria symptoms and causation, and knew malaria is curable. However, about one-quarter were unsure about causation and prevention. Among those who said malaria is not preventable, 28 (55%) had no schooling, versus just 5 (18%) with one or more years of schooling (χ^2 14.33, p = 0.001); this misperception was held by 17.5% of men and 50% of women (χ^2 6.60, p = 0.01). The lower education levels of women in particular may explain gaps in preventive behaviours.

Ethnic minorities in western Quang Tri have little involvement with mainstream society. Whilst VHWs tend to be the same ethnicity as villagers, this is less true for other providers. A third of respondents 'sometimes' had language problems with district or commune providers, and one ethnic Vietnamese commune health worker who spoke Van Kieu felt neither fully accepted nor fully trusted.

In theory, cost should not deter care-seeking because malaria diagnosis and treatment are free. However, these involve transportation, opportunity and (sometimes) medical 'extras' costs that this community could ill-afford, which may help explain why some discharged themselves from care and were lost to follow-up. Such charges are imposed increasingly as Vietnam's health system is decentralised.

Discussion

This mixed-method study in Quang Tri province in central Vietnam was designed by a multi-disciplinary team that included malaria experts and social scientists. It set out to

map the non-biological 'causal pathways' that led to the problem of persistent malaria in a remote ethnic minority population. As Hawe et al argue, exploring the underlying influences that precipitate, amplify or mitigate direct health risks provides evidence that can assist programmers to design and target comprehensive interventions to bring about and sustain necessary changes; the same approach used in program evaluation can pinpoint specific opportunities to address quality concerns [18].

Strengths and weaknesses of the study

Particular strengths of the study were the involvement of stakeholders from various health levels, including the community itself, and the triangulation of data through use of multiple methods (quantitative and qualitative), including self-report and the more objective tools of observation and record review. Malaria social scientists have noted the need for community-level malaria investigations to commence with qualitative methods that help explain behaviours, thus permitting grounded development of structured surveys [19]. This formative approach was one of our study's strengths. However, due to lack of resources and expertise, systematic preparation and analysis of complete transcripts were not conducted, preventing full utilisation of qualitative data to illuminate the study's quantitative findings.

Another limitation was a lack of definitive data from CHWs on case management and microscopy quality, which reflects the more rudimentary health reporting often found in remote settings. However, our objective was to map pathways in one study site and not to produce generalisable findings, which in any case would be inappropriate given the small number of communes explored and relatively small sample of providers and community members. This study also did not attempt to identify the role of biological factors such as vector prevalence or drug sensitivity; thus preventing us from arguing conclusively the relative importance of all potential factors.

Systems and the community: a dual focus for malaria control in remote settings

Figure 1 summarises relationships and pathways to malaria persistence drawn from this study and lays out the underlying influences that apparently explained weaknesses found at both health systems and community levels. This model excludes vectors, weather events and drug sensitivity. We present this as a conceptual framework for mapping our findings, and for possible adaption by researchers wishing to investigate such pathways in other complex settings.

Previous studies in Vietnam have found widespread misunderstanding about malaria treatment and prevention among populations in similar isolated endemic areas

Table 6: Community knowledge about malaria transmission, prevention and cure

	n (%)
Have heard of malaria (n = 158*)	143 (91)
Mosquitoes main 'cause' of malaria (n = 158*)	113 (72)
'Don't know' what causes malaria (n = 158*)	40 (25)
Fever is a symptom of malaria (n = 160)	124 (77)
Malaria can be cured (n = 156*)	134 (84)
Malaria can be prevented (n = 140*)	107 (76)
Bed-net is best way to prevent malaria (n = 160)	98 (61)
'Don't know' best way to prevent malaria (n = 160)	53 (33)

* missing data

[20,21]. Our study found around a quarter of the community shared these misunderstandings, and our model suggests this may have contributed to poor health behaviours. Health systems managers often assume (as here) that minority group customs, culture or knowledge 'barriers' account for poor behaviours (and outcomes), assumptions that typically lead solely to community education interventions. The national program's ratio for bed-net sufficiency also rests upon assumptions about net-sharing, and about where people actually sleep. Our major finding – that over half of households surveyed lacked sufficient bed-nets – illustrates the risks of untested assumptions, particularly in view of population sleeping patterns and mobility through forests and borders, which increases net requirements while enhancing exposure risk. A recent study in Vietnam found that regular forest work accounted for 53% of *P. falciparum* infections, with increased risk if people used nets at home but not in forests [22]. Another found that movement of infrastructure project workers within forests (which was occurring in our site) was a source of ongoing malaria [4]. While respondents – particularly women and the unschooled – require an appropriate educational program, it is clear that responsibility for non-use of bed-nets, and/or ongoing malaria, cannot fully be placed at the feet of this community.

A review by Williams and Jones [23] found that malaria studies typically focused on the role of mothers or care givers in malaria management, while few looked at health care quality. This is surprising given the pivotal role played by both providers and rational drug use. The World Health Organization [24] has noted that health worker shortages – an increasing global problem and one found in our site – are linked to higher mortality rates. A recent review [25] of the impact of health reforms on Viet-

nam's commune-level services found poorer quality CHSs in remote areas, especially where ethnic minorities live. We found that local providers often lacked diagnostic skills, time, equipment and/or appropriate drugs for populations in this remote region. Even temporary shortfalls in the supply of anti-malarial drugs, especially during outbreaks, could have serious impacts. Additionally, District Hospital staff estimated that one-third of malaria patients discharged themselves early for cost reasons (medical 'extras'), and were usually lost to follow-up. Thus, presumptive, under-treatment and unnecessary treatment probably occurred, which are known to endanger individual patients and may contribute to the emergence of drug resistance [1].

Conclusion

A recent multi-country analysis found increasing use of income-generating malaria services and reductions in free services, with low provider salaries associated with inappropriate care-giving [26]. Regional disparities in revenue-raising and human resources can result in uneven implementation of control programs [27]. In a poor province with limited revenues like Quang Tri, care must be taken to ensure that pressures to charge additional service fees do not discourage people from seeking and completing malaria treatment. Malaria control in this site cannot be achieved through community education alone. Focused training, strategies to attract staff to remote areas, appropriate transportation and communication systems, greater efforts to keep (often impoverished) patients under care, and robust supply chains for drugs and impregnated bed-nets – with regular monitoring of use, quality and sufficiency – are among the responses that can further strengthen Vietnam's efforts to address malaria persistence in this isolated region.

Abbreviations

CHS: Commune Health Station; DH: District Hospital; FGD: Focus Group Discussion; KAP: Knowledge, Attitudes and Practices; MC: Malaria Control; NMCP: National Malaria Control Program; NIMPE: National Institute for Malariology, Parasitology and Entomology; SSI: Semi-structured Interview; VHW: Village Health Worker.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

MM conceptualised and designed the study, trained co-investigators, led the analysis process and was primarily responsible for drafting the manuscript. QAN coordinated the field work and conducted the majority of field research, entered and analysed quantitative data and contributed to the analysis process. SC made substantial contributions to training of co-investigators, data analysis and

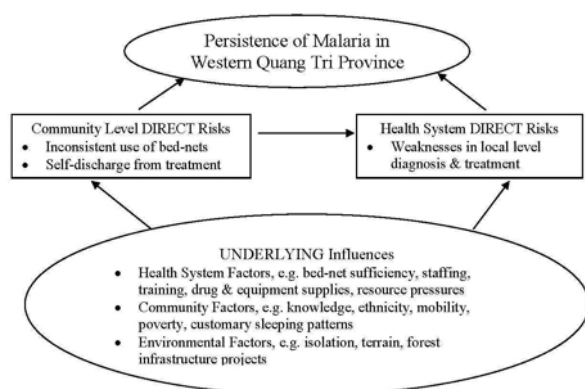


Figure 1
Model of non-biological pathways to malaria persistence in Quang Tri province.

revision of manuscript drafts. BAB contributed to the analysis process and revision of the manuscript. NHD and TTN contributed to analysis of data and revision of the manuscript. All authors read and approved the final manuscript.

Acknowledgements

The authors are grateful to Atlantic Philanthropies for providing financial support for the project, and to all research participants for their time and inputs. The authors would also like to acknowledge and thank Ms Pham Thi Xuan and other NIMPE colleagues for their important contribution to field data collection, and the Quang Tri provincial and district health staff for their logistical support. We also thank the reviewers for their useful comments on a previous draft of the manuscript.

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Pre-publication history

The pre-publication history for this paper can be accessed here:

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CASE STUDY

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Network-based social capital and capacity-building programs: an example from Ethiopia

Shoba Ramanadhan^{*1}, Sosena Kebede², Jeannie Mantopoulos² and Elizabeth H Bradley²

Abstract

Introduction: Capacity-building programs are vital for healthcare workforce development in low- and middle-income countries. In addition to increasing human capital, participation in such programs may lead to new professional networks and access to social capital. Although network development and social capital generation were not explicit program goals, we took advantage of a natural experiment and studied the social networks that developed in the first year of an executive-education Master of Hospital and Healthcare Administration (MHA) program in Jimma, Ethiopia.

Case description: We conducted a sociometric network analysis, which included all program participants and supporters (formally affiliated educators and mentors). We studied two networks: the Trainee Network (all 25 trainees) and the Trainee-Supporter Network (25 trainees and 38 supporters). The independent variable of interest was out-degree, the number of program-related connections reported by each respondent. We assessed social capital exchange in terms of resource exchange, both informational and functional. Contingency table analysis for relational data was used to evaluate the relationship between out-degree and informational and functional exchange.

Discussion and evaluation: Both networks demonstrated growth and inclusion of most or all network members. In the Trainee Network, those with the highest level of out-degree had the highest reports of informational exchange, $\chi^2(1, N = 23) = 123.61, p < 0.01$. We did not find a statistically significant relationship between out-degree and functional exchange in this network, $\chi^2(1, N = 23) = 26.11, p > 0.05$. In the Trainee-Supporter Network, trainees with the highest level of out-degree had the highest reports of informational exchange, $\chi^2(1, N = 23) = 74.93, p < 0.05$. The same pattern held for functional exchange, $\chi^2(1, N = 23) = 81.31, p < 0.01$.

Conclusions: We found substantial and productive development of social networks in the first year of a healthcare management capacity-building program. Environmental constraints, such as limited access to information and communication technologies, or challenges with transportation and logistics, may limit the ability of some participants to engage in the networks fully. This work suggests that intentional social network development may be an important opportunity for capacity-building programs as healthcare systems improve their ability to manage resources and tackle emerging problems.

Introduction

The global health agenda is increasingly focused on strengthening health systems to improve population-level health outcomes in low- and middle-income countries [1]. One component of this strategy focuses on the development of sufficient workforce capacity, a target area that has been somewhat resistant to intervention thus far [2,3]. The chronic shortage of skilled leadership in the healthcare sectors of low- and middle-income countries

greatly hinders the improvement of facilities and systems and the ability to provide needed services [2,4-6].

Successful management and leadership training programs have improved process-related outcomes (such as planning and coordination, delivery of services, and resource management) in a range of countries, including The Gambia, Ethiopia, and Nicaragua [7-9]. Such capacity-building programs typically target human capital, or increased value of a professional from acquiring knowledge, skills, and other assets that may benefit an employer or system. Another benefit of these programs, which is seldom evaluated, may be the development of social capital

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tal, or resources that exist in a social structure and can be retrieved and utilized to meet specific goals [10].

Taking a broad view of potential benefits is consistent with current perspectives on capacity-building, which focus on processes that assist individuals, organizations, and societies in efforts to manage, develop, and utilize the resources at their disposal to solve problems [3,11], here those related to healthcare. This view represents an intentional shift away from programs focused on technical assistance and knowledge transfer towards an endogenous process, owned and driven by those who will ultimately benefit from and sustain changes in their systems [3]. Capacity-building program participants (and the organizations for which they work) can benefit from increased social capital as participants are able to utilize relationships to increase their effectiveness and performance [10,12,13]. In this way, participants can leverage relationships to improve communication and collaboration across and within organizations to reach a common goal [14,15]. Such benefits are particularly important in low-resource settings as organizations are expected to turn to external sources to find needed resources [16].

A network perspective on social capital

Although there are a wide range of conceptualizations of social capital [17], we take a network perspective, which holds that the extent to which an individual can realize the benefits of social capital is a function of that individual's position in a given social network [10,18]. This drives our focus on: a) the resources that can be accessed by network members (either directly or through contacts), and b) the structure of relationships or linkages in a network of interest [10]. In a professional network, key benefits of increased social capital among colleagues include increased exchange of information and resources [17,19]. For example, sharing of appropriate and timely information allows individuals to make strategic adjustments to reach their goals [10,20]. Additionally, participants can access novel information by developing relationships with individuals who are dissimilar in terms of experience and professional contacts [21]. By learning in the context of social relationships, network members can come together to identify pressing problems, make sense of complex changes in the environment, and develop innovative solutions [22,23]. Provision of tangible support or material resources from one network member to another also improves network members' performance [24]. By tapping into relationships, network members can gain access to contacts' resources, and perhaps more importantly, to the resources held by the organization(s) represented by those contacts [25]. The challenge is to balance efficiency (knowing others who have contacts and resources that are very different than

one's own) and effectiveness (development of a strong set of key contacts) [18].

Social network analysis provides the necessary tools for our analysis as the methodology allows for the assessment of structures in social relationships, as well as the resources exchanged through those relationships [26]. Additionally, given that successful capacity-building relies on changes at the individual, organizational, and system levels [27], the ability to assess relationships and resource flow at multiple levels allows for a holistic assessment. For example, a network in which all members are connected prompts members to develop trust and a sense of obligation towards each other and encourages the generation of social capital [28]. At the same time, at the individual level, connections to other network members are expected to provide new access to resources for program participants. If a capacity-building program results in network structures that support resource exchange, network-based social capital can have an impact on the ultimate goal of management training programs: the improvement of trainee performance.

Despite the number of programs focused on building healthcare worker capacity [2,7-9] and the understanding that increased collaboration and partnerships are important outcomes of capacity-building efforts [29], we are not aware of previous studies examining how such programs may affect the structure and functioning of resulting social networks. Examining this potential impact is important to our understanding of the full impact of capacity-building programs in health. Using survey data from hospital executives participating in an executive-education program in Ethiopia [30], we conducted a social network analysis to examine the growth of the network and the social capital generated by the network (in the form of resource exchange) during the first year of the program. Social network development and social capital generation were not explicit goals of the training program, but we were able to take advantage of this natural experiment to test exploratory hypotheses. We expected to find growth and resource exchange within networks as well as a positive association between network connections and resource exchange. We tested these assumptions among a network of program participants and among a network of participants plus educators and mentors participating in the program.

Case description

Study setting

The capacity-building program under study was a two-year executive-education Master of Hospital and Healthcare Administration (MHA) program in Ethiopia developed by the Federal Ministry of Health (FMOH), the Clinton HIV/AIDS Initiative (CHAI), Jimma University, and the Yale School of Public Health [9,31]. The program

was implemented at the request of the FMOH, with the goal of developing skilled executives to improve hospital management in Ethiopia, a low-resource, high-demand setting. This program was part of a larger quality improvement effort targeting the Ethiopian healthcare system, which began decentralization in 1994. The course was offered by Jimma University in Jimma, Ethiopia and was the first graduate-level program for hospital management in the country. The course was administered and taught jointly by faculty from Jimma and Yale Universities, with local coordination provided by a Program Director and Program Assistant. As an executive-education program, the course was offered over two years, with three-week long sessions in residence three times per year, as well as regular progress reports and evaluations when trainees were working at their hospitals.

Executives of public hospitals were eligible to apply. The course focused on improving trainees' skills in a range of management-related areas, such as human resources, hospital operations, financial management, strategic planning, and leadership. Trainees also had the opportunity to develop professional connections with each other as well as with leaders and mentors in Ethiopia and the United States.

Study design and respondents

We conducted a cross-sectional study at the end of the first year of the MHA program to describe the social networks that developed during the year. Data were collected with a self-administered survey of two groups of respondents: trainees and supporters. Trainees were the first Chief Executive Officers (CEOs) of public hospitals in Ethiopia. Supporters comprised educators and mentors formally linked with the MHA program through either Yale or Jimma University or through CHAI. We contacted all 25 trainees enrolled in the MHA program and 38 supporters affiliated with the program to complete the survey. All research procedures were approved by the Human Investigation Committee at the Yale School of Public Health and the Institutional Review Board at Jimma University.

Data collection and measures

The self-administered survey was distributed in December 2008 and January 2009 and required approximately 20 minutes to complete. Paper copies of the survey were distributed to all trainees in residence during the December course session and electronic copies were distributed to all other respondents. Surveys were administered in English, which was the language of instruction and a requirement for participants in the MHA program.

For this study, we focused on two networks: 1) the Trainee Network, which was comprised solely of trainees, and 2) the Trainee-Supporter Network, which included

trainees and supporters (educators and mentors). Respondents were presented with a roster that listed all trainees and supporters. The survey asked all respondents to identify trainees and supporters with whom they interacted for professional purposes. Respondents also noted whether or not they were acquainted with each network member before the MHA program started. From these responses, we derived our measures of interest for each network.

We measured a series of network characteristics which have been shown in other settings to promote exchange of information and flow through networks [26]. These measures were based on data about connections (or reported relationships) between network members. Some measures focus on presence or absence of a connection, whereas others include information about the 'direction' of the connection. For the latter, the measure can capture whether Member X reported a connection to Member Y, Y reported a connection to X, or both reported a connection to each other.

To describe the network as a whole, the first measure of interest was network density, or the proportion of possible relationships between members that were realized, which described the extent to which network members are connected, regardless of the direction of connections [26]. A more dense, or more highly connected, network may be useful for sharing information and resources and cooperation, whereas a more sparsely connected network may provide greater access to diverse contacts and novel resources [10,18]. A density level of around 15-20% is expected to support knowledge-sharing in a network of about 100 members [32]. We also identified isolates, individuals who reported no connections to other network members. Isolates are of interest as their lack of connections prevents them from contributing to or benefiting from network membership. Last, we identified components, or subgroups of members that are not connected to each other and therefore cannot share information and resources between subgroups [26].

Shifting our focus to individual network members, we calculated degree, the number of connections between a given network member and all other network members, regardless of the direction of ties [33]. The bulk of our analyses focused on out-degree, or connections from a given network member to other network members. Thus, if Member X reported three connections with other network members, that member's out-degree value would be three, regardless of how many network members reported connections to Member X. Compared with degree, this measure narrows the focus to connections that may be perceived as functionally useful to respondents [34]; here, these connections involve the set of individuals from whom respondents may seek and gain skills. In the Trainee Network, 'trainee out-degree' was the

number of connections a trainee reported regarding other trainees, grouped into tertiles. In the Trainee-Supporter Network, 'trainee-supporter out-degree' was the number of connections to supporters reported by each trainee, grouped into tertiles. Last, geographic homophily referred to whether or not pairs of network members worked in the same region.

To assess potential by-products of social network development, we measured informational and functional exchanges, which are complementary manifestations of social capital that can help trainees achieve work-related goals [10,24]. Informational exchange refers to access to necessary knowledge, the ability to transmit it to the correct person, and acquisition of information with sufficient time to react [18]. Trainees were asked whether or not they received guidance in non-classroom settings from: a) other trainees, and b) supporters on a series of subjects. These topics included: problem-solving, human resources, finance management and budgeting, basic public health, biostatistics/research methods, hospital operations, strategic management, health policy development and analysis, health ethics and public health law, leadership, and management information or tools. The list of topics was defined in the curriculum as critical to the program and most topics, but not all, were covered in the MHA course at the time of the survey. We created a summary score of the total number of exchanges reported and dichotomized responses at the 50th percentile for each network, resulting in categories of 'low exchange' and 'high exchange' for each network. Based on the distribution of data, 'low exchange' represents zero reported informational exchange in the Trainee Network.

Functional exchange described the provision of tangible support from one network member to another [24]. Such exchange often involves collaboration between institutions or individuals that benefit one party to a greater degree, e.g., one individual training another on the use of a new tool. Examples of tangible support can include sharing of useful tools, policies, and materials or serving as a reference for colleagues [25,35]. Trainees were asked whether or not they received a series of tangible resources from: a) other trainees, and b) supporters. These resources included: materials and goods (such as surplus supplies), connections/introductions, and hands-on instruction, such as through site visits. We created a summary score of the total number of exchanges reported and dichotomized responses at the 50th percentile for each network, resulting in categories of 'low exchange' and 'high exchange' for each network.

Analysis

We conducted a sociometric network analysis for both the 25-member trainee network and for the larger 63-member trainee-supporter network, which included edu-

cators and mentors ($n = 38$) in addition to trainees ($n = 25$). Sociometric analyses assess the connections between all members of each network of interest, supporting evaluation of network growth and resource exchange [36,37]. Thus, an individual who was invited to participate, but did not fill out a survey, could have been noted as a contact by another respondent and would still appear in the dataset. Although the Trainee Network is wholly contained within the Trainee-Supporter Network, we analyzed them separately to be able to isolate resource exchange among complementary sets of ties that are important for trainees.

Network analysis requires dedicated software to assess relational data, and we used UCINET-6 [38]. As network data are not independent and do not meet the assumptions of classical statistical techniques, we utilized procedures developed for network data available in the UCINET software package [38,39]. Thus, the significance tests were based on random permutations of matrices as is appropriate for relational data. Here, the significance levels were determined based on distributions created from 10 000 random permutations. The analytic procedures also supported comparison of matrices of data. Descriptive measures were calculated using standard UCINET procedures developed for network data. We utilized UCINET Contingency Table Analysis to assess the association of out-degree with two types of resource exchange. We tested the relationship between geographic homophily and connection patterns using UCINET QAP Relational Cross-Tabulation.

Results

Trainee network

Among trainees, 23 of 25 individuals completed the survey (92% response rate). Table 1 describes the characteristics of trainees' hospitals. The trainee hospitals had on average 204 beds with a range of 40-800 beds, and the average number of employees per hospital was 399 employees, with a range of 82-2500 employees. The majority of hospitals (72%) were classified as regional; one-third were rural.

The network graphs comparing connections before the program started at year 1 (Figure 1) and key network measures (Table 2) demonstrate network-level growth. The network transitioned from having seven isolates (individuals who were not connected to anyone) and two components (distinct and isolated subgroups) to having zero isolates and only one component. At year 1, the network demonstrated closure, or the ability of all members to connect with each other, either directly or through contacts. The density of connections increased from 4% to 13% of all potential connections over the year. In terms of resource exchange, 55% of trainees reported that they had informational exchanges with other trainees during

Table 1: Descriptive characteristics for hospitals led by trainees (n = 25).

	n	Range
Hospital location		
Rural	8 (32%)	
Urban	17 (68%)	
Number of beds: mean	204	40-800
Number of employees: mean	399	82-2500
Hospital classification		
Federal	4 (16%)	
Regional	18 (72%)	
Sub-regional/Zonal	3 (12%)	

the first year of the program. The same percentage reported functional exchange with other trainees. We found that trainee out-degree (the number of connections reported by the trainee regarding other trainees) increased from 1.0 to 3.0 connections in the first year of the program, which was not a statistically significant increase. We found increased variation in trainee out-

degree and trainee in-degree values at year 1 compared with the beginning of the program, suggesting that the network became more centralized, or more centred on a subset of individuals.

At year 1, trainees in the lowest out-degree tertile averaged 0.5 outgoing connections compared with an average of 2.0 outgoing connections for the middle tertile, and 6.1 outgoing connections for the highest tertile. Individuals with the highest level of connections were more likely to be working in the capital city of Addis Ababa compared with other regions (Fisher's exact test, $p = 0.03$). We found a significant ($p < 0.001$) association between regional homophily and connections reported at year 1. Of potential connections among individuals from the same region, 45% (45 of 100) were reported compared with 6% (30 of 500) of potential connections among individuals from different regions.

As presented in Table 3, we found that at year 1, trainee out-degree was positively associated with informational exchange, $\chi^2(1, N = 23) = 123.61, p < 0.01$. Those with the highest tertile of trainee out-degree had the highest reports of informational exchange. We did not find a statistically significant relationship between trainee out-degree and functional exchange, $\chi^2(1, N = 23) = 26.11, p > 0.05$.

Trainee-Supporter Network

For the larger network, 41 of 63 individuals completed the survey (65% response rate), with a 47% response rate among supporters. Network-level growth was assessed using a pair of network graphs (Figure 2) and a series of complementary measures (Table 4). The density

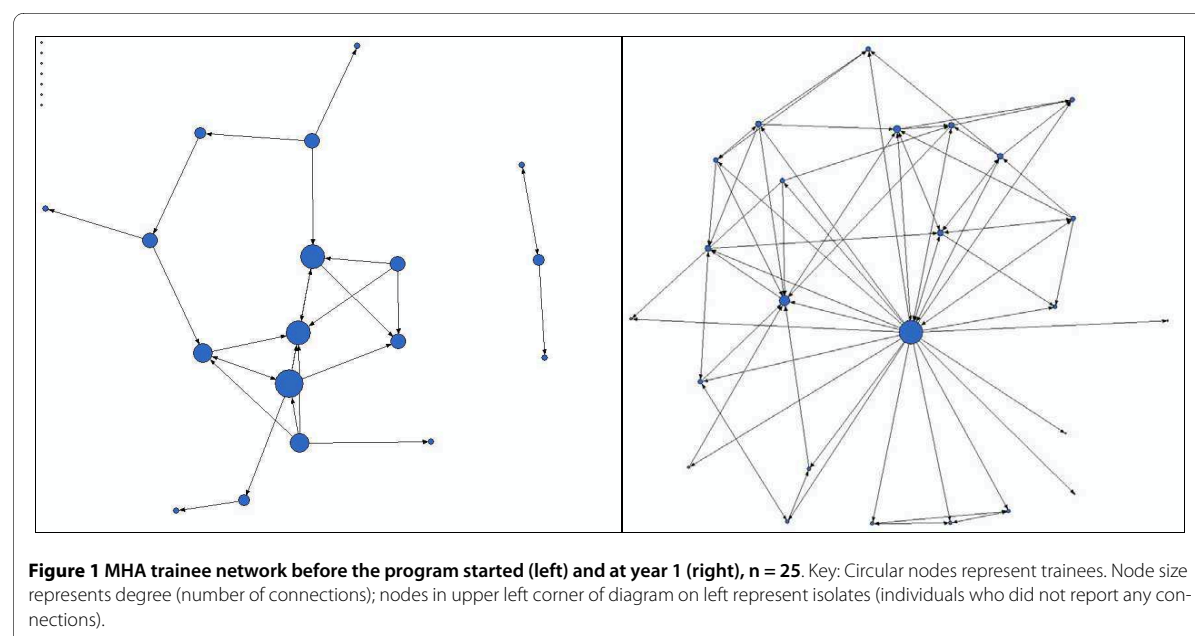


Table 2: Descriptive measures for the trainee-only sociometric network (25-member network)

Measure	Pre-MHA	Year 1
<i>Network-level measures</i>		
Density (proportion of potential ties that were actually realized)	0.04	0.13
Isolates (members of the network not connected to anyone else)	7	0
Components (distinct and isolated subgroups in the network)	2	0
<i>Individual-level measures</i>		
Degree (all connections reported to/from the respondent)	Mean: 1.92 SD: 1.79	Mean: 4.88 SD: 4.42
Trainee out-degree (number of connections reported by respondent regarding others)	Mean: 1.04 SD: 1.43	Mean: 3.00 SD: 4.62
Trainee in-degree (number of connections reported regarding respondent by others)	Mean: 1.04 SD: 1.25	Mean: 3.00 SD: 1.67

increased from 3% to 13% of all potential ties realized over the first year of the program. We analyzed density increases among subgroups and found increased ties from trainees to supporters (3% to 20%), from supporters to trainees (0% to 12%) and from supporters to supporters (5% to 9%). The number of isolates decreased from 8 to 2 in this network, and there was only one component

at year 1, ignoring isolates. Again, increased variation in out-degree and in-degree values for the full network from the beginning of the program to year 1 suggests that the network became more centralized. Assessing the overall network, the individuals with the most connections in this network were mainly faculty and staff that played a central role in program administration and teaching.

Table 3: Relationship between trainee out-degree and resource exchange at year 1, contingency table analysis (n = 23).

	Informational: no exchange (%)	Informational: some exchange (%)	Functional: no exchange (%)	Functional: some exchange (%)
Trainee out-degree				
Low	70.00	8.33	40.00	33.33
Medium	10.00	33.33	30.00	16.67
High	20.00	58.33	30.00	50.00
Observed X ²	123.61**		26.11	

Key: ~ < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001

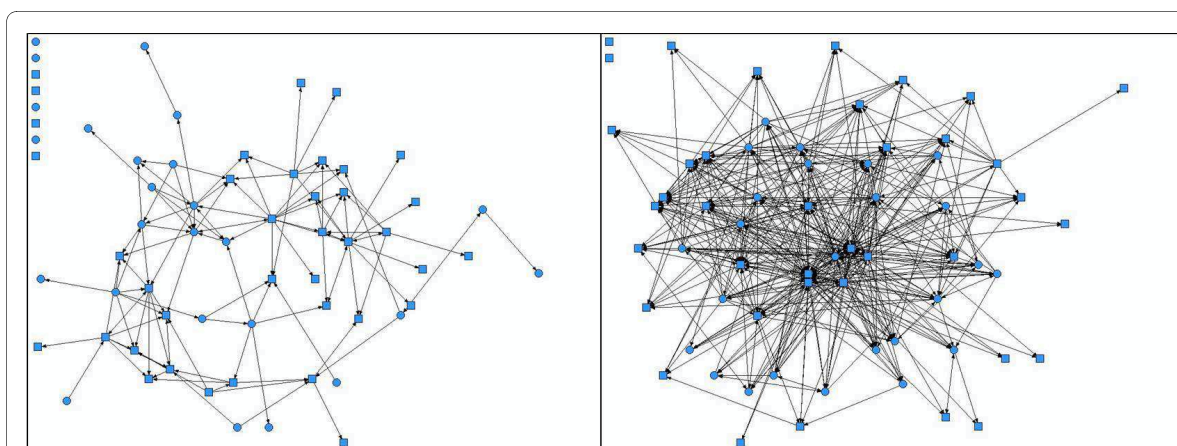


Figure 2 Trainee-supporter network before the program started (left) and at year 1 (right), $n = 63$. Key: Square nodes represent supporters, circular nodes represent trainees. Nodes in upper left corner of diagrams represent isolates (individuals who did not report any connections).

When we narrowed our focus to relationships between trainees and supporters, we found that at year 1, 94% of trainees reported informational exchange with supporters and 55% reported functional exchange with supporters. The average trainee-supporter out-degree at year 1 was 8.1 connections. In this network, the average number of outgoing connections with supporters was 2.3 for the lowest trainee-supporter out-degree tertile, 5.3 for the middle tertile, and 14.9 for the highest tertile. Trainee-supporter out-degree did not vary significantly between regions.

As seen in Table 5, trainee-supporter out-degree was positively associated with informational exchange, $\chi^2(1, N = 23) = 74.93$, $p < 0.05$. Those in the highest tertile of trainee-supporter out-degree also had the highest reports of informational exchange. We found a similar pattern for trainee-supporter out-degree and functional exchange, $\chi^2(1, N = 23) = 81.31$, $p < 0.01$.

Discussion and evaluation

We found substantial development of social networks within the context of a capacity-building program in healthcare management. Through involvement with the MHA program, participants developed professional connections with each other and with supporters, including faculty in Ethiopia and hospital executives in the United States of America. These connections supported valuable exchanges including information relating to hospital management and resources such as hands-on assistance.

The networks that developed through the first year of this program demonstrated several characteristics that have been shown to support resource exchange such as sufficient network density and connections between all or almost all members [26,32]. We found that the number of connections within the network was associated with like-

lihood of resource exchange, as hypothesized based on extant social network literature [10,40]. This level of growth and exchange may be expected in high-resource professional settings, such as corporations, academic institutions, or hospital systems in high-income countries [32,41] but is impressive in a low-resource setting given the level of investment required to support network development [40]. The growth is also notable given that network development was not an explicit goal of the training program.

Although the network growth and resource exchange are promising, limited resources for communication may have inhibited network development of some network members. We found that the network of program participants centered on a subset of individuals from the capital city of Addis Ababa. The centralization of the network is important because the literature suggests that central members of a network have higher potential to access and utilize resources than their colleagues [10,42]. The pattern may reflect the relative ease with which individuals from Addis Ababa can interact, without communication impediments such as transportation and logistics that individuals from other regions may face. Information and communication technologies, such as mobile phones or internet, can mitigate challenges of physical distance and logistics in low-resource settings [25]. At the time of the study, reliable access to such technologies was limited for individuals working outside the Addis Ababa region [43], though these technologies may play an important role in network development in the future. Here, reduced opportunities to communicate and interact may have had a large impact on resource exchange in this network, as strong connections are required to support exchange of complex information [40].

Table 4: Descriptive measures for the trainee-supporter sociometric network (63-member network).

Measure	Pre-MHA	Year 1
<i>Network-level measures</i>		
Density (proportion of potential ties that were actually realized)	0.03	0.13
Density between and within groups of trainees and supporters	Ties among trainees: 0.04 Ties from trainees to supporters: 0.03 Ties from supporters to trainees: 0.00 Ties among supporters: 0.05	Ties among trainees: 0.13 Ties from trainees to supporters: 0.20 Ties from supporters to trainees: 0.12 Ties among supporters: 0.09
Isolates (members of the network not connected to anyone else)	8 isolates	2 isolates
Components (distinct and isolated subgroups in the network)	1 component + isolates	1 component + isolates
<i>Individual-level measures</i>		
Degree (all connections reported to/from the respondent)	Mean: 3.52 SD: 3.11	Mean: 14.22 SD: 10.87
Out-degree (number of connections reported by respondent re: others)	Mean: 1.87 SD: 2.88	Mean: 8.14 SD: 10.81
In-degree (number of connections reported re: respondent by others)	Mean: 1.87 SD: 1.77	Mean: 8.14 SD: 5.68
Trainee-supporter out-degree (number of connections reported by trainees regarding supporters)	Mean: 1.04 SD: 1.46	Mean: 8.26 SD: 5.82

We also saw evidence of the benefits of diverse connections for program participants and found that program participants were able to gain different categories of resources from different types of network members. This is likely a function of differential access to resources by individuals in different organizations and levels of power [10]. In a low-resource setting, other constraints may also be an important driver of resource exchange. For example, the material costs and logistical barriers associated with providing tangible support to colleagues may be too great for program participants. For mentors and educators, the costs of sharing both types of resources may be

lower. The severe system-level constraints experienced by trainees were evident in a recent assessment of public hospitals engaged in a quality improvement initiative, including those represented by trainees in this program [44].

Experience with the MHA program suggests that programs to build human resource capacity in low-income countries can also increase network-based resources. However, given the common challenges of geography and limited communication technologies in such settings, social network development and resource exchange will likely be more effective if they are integrated as explicit

Table 5: Reports of resource exchange by trainee-supporter connection level at year 1, contingency table analysis (n = 23)

	Informational: low exchange (%)	Informational: high exchange (%)	Functional: no exchange (%)	Functional: some exchange (%)
Trainee-supporter out-degree				
Low	20.00	6.67	19.51	9.76
Medium	13.33	13.33	14.63	14.63
High	20.00	26.67	19.51	21.95
Observed X ²	74.93*		81.31**	

Key: ~ < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001

goals of training programs to develop human resources for health. For instance, curricula can be developed to facilitate opportunities for developing new contacts. The focus on development of relationships should extend both to fellow trainees as well as supporters of the trainees, given the breadth of resources that can be accessed through diverse contacts. Another important lesson from the MHA experience is the importance of an enabling environment. This program was developed at the request of the Ethiopian government and was part of a broader effort to reform the healthcare system, such as adopting new hospital standards. This climate of organizational and system change was supportive of changing approaches to hospital management, and thus presented an environment in which social capital exchange was warranted and could have impact. Network development and social capital exchange may be particularly critical in low-resource settings as such networks can foster information and function exchanges in inexpensive ways.

There are several limitations that help place the results in context. First, although we had a high response rate, some trainees and supporters did not complete the survey potentially influencing our findings. However, we used out-degree as our independent variable, which is robust to missing data [45]. Second, the data are cross-sectional; thus causation cannot be assessed. However, a connection must exist between individuals before resources can be exchanged across that connection, so the directionality assumed seems plausible. Third, social desirability bias may have resulted in respondents over-reporting connections and/or resource exchanges, although we encouraged frank responses during survey administration. Despite these limitations, the study is a

novel attempt to study network-based social capital in capacity-building programs targeting healthcare workforce development. Additionally, our assessment of resource exchange uses a broad view of social capital in public health settings, rather than the typical focus on communication patterns [46].

Developing human resources for health is an international priority in global health [47], and our paper highlights the importance of taking a broad view of outcomes of capacity-building programs. Capacity-building programs provide a unique opportunity to direct interactions between participants and potentially useful contacts through coursework, mentoring relationships, and other course-related activities. Active promotion of relationship-building by organizations and/or program developers can support diversity of contacts and development of strong channels for knowledge transfer [48-50]. In this way, the workforce and system will be better equipped to solve problems in healthcare by more effectively managing, accessing, and utilizing resources, thus truly building capacity [10,11].

Conclusions

This analysis suggests that network-based social capital may be a useful addition to the goals and evaluation of capacity-building programs. As discussed by Hawe and colleagues [11], social capital deserves further attention in capacity-building efforts as it leaves the system under intervention with greater ability to tackle current issues as well as those outside the scope of the program and future issues. Through active development of diverse professional networks and investment in relationship-building within the context of system resource constraints,

capacity-building programs can build stronger healthcare workforces in low- and middle-income countries.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

All authors were involved in study and survey instrument design. SR conducted the data analysis and drafted the manuscript. EHB, SK, and JM provided intellectual content and manuscript revisions. All authors read and approved the final manuscript.

Acknowledgements

The authors acknowledge the invaluable assistance of Ms. Mahlet Gebeyehu of the Jimma-Yale MHA program. SR was funded in part by a grant from the Whitney and Betty MacMillan Center for International and Area Studies at Yale. The work for this research was also supported by the Clinton HIV/AIDS Initiative. EHB was supported by the Patrick and Catherine Weldon Donaghue Medical Research Foundation Investigator Award.

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Received: 8 February 2010 Accepted: 1 July 2010

Published: 1 July 2010

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doi: 10.1186/1478-4491-8-17

Cite this article as: Ramanadhan *et al.*, Network-based social capital and capacity-building programs: an example from Ethiopia *Human Resources for Health* 2010, **8**:17

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Health Policy and Planning 2011;1–13
doi:10.1093/heapol/czr044

Strategies for coping with the costs of inpatient care: a mixed methods study of urban and rural poor in Vadodara District, Gujarat, India

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Accepted 14 March 2011

Background In India, coping mechanisms for inpatient care costs have been explored in rural areas, but seldom among urbanites. This study aims to explore and compare mechanisms employed by the urban and rural poor for coping with inpatient expenditures, in order to help identify formal mechanisms and policies to provide improved social protection for health care.

Methods A three-step methodology was used: (1) six focus-group discussions; (2) 800 exit survey interviews with users of public and private facilities in both urban and rural areas; and (3) 18 in-depth interviews with poor (below 30th percentile of socio-economic status) hospital users, to explore coping mechanisms in greater depth.

Results Users of public hospitals, in both urban and rural areas, were poor relative to users of private hospitals. Median expenditures per day were much higher at private than at public facilities. Most respondents using public facilities (in both urban and rural areas) were able to pay out of their savings or income; or by borrowing from friends, family or employer. Those using private facilities were more likely to report selling land or other assets as the primary source of coping (particularly in rural areas) and they were more likely to have to borrow money at interest (particularly in urban areas). Poor individuals who used private facilities cited as reasons their closer proximity and higher perceived quality of care.

Conclusions In India, national and state governments should invest in improving the quality and access of public first-referral hospitals. This should be done selectively—with a focus, for example, on rural areas and urban slum areas—in order to promote a more equitable distribution of resources. Policy makers should continue to explore and support efforts to provide financial protection through insurance mechanisms. Past experience suggests that these efforts must be carefully monitored to ensure that the poorer among the insured are able to access scheme benefits, and the quality and quantity of health care provided must be monitored and regulated.

Keywords Hospitalization, expenditures, coping strategies, insurance, social capital, India

KEY MESSAGES

- In both urban and rural areas, respondents using public hospitals were poorer than those using private hospitals.
- While most of those hospitalized at public facilities were able to pay out of savings or income, or by borrowing from friends, family or employer, individuals using private facilities were more likely to sell land or other assets (rural areas) and they were more likely to have to borrow money at interest (urban areas).
- In India, national and state governments should invest in improving the quality and access of public first-referral hospitals. This should be done selectively—focusing on rural areas and urban slum areas—to promote a more equitable distribution of resources.

Introduction

The aim of this study is to explore mechanisms employed by the urban and rural poor for coping with inpatient expenditures, in order to help identify formal mechanisms and policies to provide improved social protection for health care for these populations.

Background

In India, health care costs, and those for inpatient care in particular, pose a barrier to seeking health care, and can be a major cause of indebtedness and impoverishment. Three-quarters (1999 to 2003 estimates) of total health care spending flows from individuals and households directly to health care providers (predominantly private) in the form of out-of-pocket payments (World Health Organization 2006a). On average, the poorest quintile of Indians is 2.6 times more likely than the richest to not seek medical treatment when ill, and only one-sixth as likely to be hospitalized (Peters *et al.* 2002). In India, 31.1% of individuals fall below the World Bank's absolute poverty threshold of US\$1.08 per day. Subtraction of out-of-pocket payments for health care increases the poverty headcount to 34.8%, representing over 37 million people (van Doorslaer *et al.* 2006). A study of more than 3000 households in 20 Gujarati villages found that, over 25 years, among all households that fell into poverty, ill health and related expenses were critical in 85% of cases (Krishna *et al.* 2003).

In Gujarat (as in all India), the poor are more likely than the rich to choose public rather than private inpatient facilities (Mahal *et al.* 2000). Nonetheless, 54.9% of all hospitalizations among the rural population below the poverty line (BPL) of Gujarat, and 51.1% of all hospitalizations among the urban BPL population, are in private hospitals.¹ Hospital charges faced by the urban BPL population are higher than those faced by their rural counterparts, at both public and private facilities. For example, the average charge per day of hospitalization in a private facility, for BPL patients, is Rs.125.7 in urban Gujarat compared with only Rs.57.8 in rural Gujarat (Mahal *et al.* 2000).

The term 'coping strategies' was coined during the 1980s in the literature on household responses to lack of food and nutrition. The term refers to the mechanisms or activities undertaken by members of a household that help them survive through a crisis situation (McIntyre and Thiede 2007). Figure 1 lists some of the measures available for coping with

financial shocks. The strategies have been categorized as informal (or traditional) and formal, i.e. market-based or publicly provided (World Bank 2001). In India, formal mechanisms are largely inaccessible to the poor. In theory, government provision of universal and free health care should cover the poor, but in practice it often does not. Private-for-profit health insurance and government social insurance are geared primarily towards India's formal sector, comprising less than 10% of the total population (Gupta and Trivedi 2005).

There have been many studies of the informal mechanisms used by poor rural households for coping with financial shocks, and more specifically those related to medical expenditure (Rosenzweig 1988; Townsend 1994; Kochar 1995; Krishna *et al.* 2003). In rural areas, when a shock hits, people cope by selling livestock or other assets, or calling on support networks for transfers or loans. If these mechanisms fail or fall short, households may increase their labour supply, working more hours or involving more household members (women or children), or borrow from a private lender at high rates of interest. In Gujarat, the rates of interest on these loans start as high as 5–7% per month (Krishna *et al.* 2003). If all else fails, households reduce consumption—including the consumption of medical services and goods—and go hungry.

Far less is known about coping strategies among the poor living in urban areas, including those who have migrated from rural areas for work. It has, however, been argued that the strong social networks that provide mutual insurance in India are actually a deterrent to mobility, and explain rates of urbanization that are low relative to other low-income countries (Munshi and Rosenzweig 2005). These authors show, based on 1982 and 1999 survey data, that migration (not necessarily to urban areas, but away from one's native village) is associated with a significantly lower probability of receiving loans from friends or family. International literature suggests that those who have migrated for work are particularly vulnerable as they are more likely to work longer hours, live and work in poorer conditions, be socially isolated and lack access to basic amenities (International Organisation for Migration 2005). In 2002, a World Bank consultation highlighted the fact that, despite a growing population of urban poor (27% of 285 million people), for whom many health indicators are as bad or worse than for poor rural populations, there has been little analytical work on health issues of the urban poor (World Bank 2002).

Informal mechanisms	Individual and household - Sale of assets - Loans from money-lenders - Child labour - Reduced food consumption - Seasonal or temporary migration	Group based - Transfers from networks of mutual support
Formal mechanisms	Market based - Sale of financial assets - Loans from financial institutions	Publicly provided - Free public health care - Social assistance - Workfare - Subsidies - Cash transfers

Figure 1 Mechanisms for coping with financial shocks. *Source:* World Bank (2001)

Methods

Study setting

The study was conducted in Vadodara District, Gujarat State, between October 2007 and December 2008. Vadodara District has a population of 3.6 million people, 52.1% of whom are male and 47.9% female (Office of the Registrar General 2001). The district's only city, Vadodara, is the third largest city in the state of Gujarat and the sixteenth largest in India (UNDP and World Bank 1999). In 2001, the urban population of Vadodara accounted for 45% (1 647 317) of the total district population. Like many other Indian cities, Vadodara is growing rapidly, from only 950 000 in 1981, to 1.3 million in 1991 and 3.6 million in 2001 (Office of the Registrar General 2001). The dominant industries in Vadodara city are petrochemicals, fertilizers, pharmaceuticals, cotton textiles and machine tools. Agriculture predominates in rural areas, with the major crops being: rice, wheat, yellow peas, grams, oilseeds, groundnut, tobacco, cotton and sugarcane.

Step 1: Focus group discussions

Focus group discussions (FGDs) were conducted as the first step in a three-step methodology. The FGDs aimed to: (i) identify commonly used sources of inpatient care among poorer populations; and (ii) explore strategies for coping with the costs of inpatient care, to help develop a list of options for questions in a hospital exit survey. Three FGDs were conducted in urban areas and three in rural areas. In Vadodara city, three different urban slum areas were purposefully selected. Vadodara slum areas are quite segregated according to the State of origin of the residents; our FGD groups consisted of migrants from Uttar Pradesh, Rajasthan and Maharashtra. Eight to 12 adult respondents (>18 years of age) were included in each FGD, including both men and women, and only those who had experienced hospitalization within the previous year and had migrated to the city within the last 5 years, as recent

migrants were expected to be the most vulnerable to the costs of health care. In rural areas, three sub-districts (out of 12 in Vadodara) were randomly selected, and within each sub-district a poor residential area (usually a 'para' or neighbourhood) on the periphery of a village was purposefully selected. Group size and inclusion/exclusion criteria were the same as in urban areas, with the exclusion of the migration criterion.

FGDs were conducted in the Gujarati language by the Principal Investigator (RJ) and with the permission of respondents, recorded using a digital video recorder. They were transcribed in English, and analysed and coded in MS Word.

Step 2: Exit surveys

The goals of the exit survey were: (i) to document costs of hospitalization (both medical and non-medical) at private and public facilities, and in urban and rural areas; (ii) to explore the utilization of different coping strategies; and (iii) to identify poor households who could be interviewed, in-depth, in the final step of field-work.

Eight-hundred respondents were sought, with equal numbers in urban and rural areas, and equal numbers using the public and private hospitals that were most commonly mentioned in the focus-group discussions. In rural areas, respondents had to be resident in the three sub-districts included in Step 1. Urban respondents had to be resident in Vadodara city. In both urban and rural areas, hospitals were purposively selected based on frequency of use reported by respondents in the FGDs. The rural hospitals tended to be much smaller than the urban facilities; hospitals had to have a minimum of 15 inpatient beds in order to be included in the study.

One hundred exit surveys were conducted at each of four urban hospitals (two public and two private). Given the smaller size of rural hospitals, interviews had to be conducted at six facilities (three public and three private), with 65–70 respondents per hospital. Potential respondents were identified by having hospital administrators provide a list of patients to be

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discharged on the day of exit interviews. Exit interviews were restricted to those hospitalized in general wards (thus excluding those who paid extra—both at public and private facilities—to stay in private rooms). Patients (and their families) were approached for interviews immediately after they made their payments and had received their discharge cards. In order to be included in the exit surveys, respondents had to be: (i) older than 18 years of age; (ii) hospitalized for more than 24 hours; and (iii) resident in the corresponding area (either urban or rural) at the time of the interview (for example, residents of a rural village hospitalized in urban facilities were excluded from the study).

Interviews were conducted inside hospital premises by RJ and three trained investigators. Data were collected using an interview schedule which was filled out by the interviewer. The following data were collected:

- Place of residence and place of origin;
- Details as to when they moved to their current place of residence;
- Cause of hospitalization;
- Expenditures on hospitalization, with breakdown by type of costs, e.g. medicines, doctors' fees, etc;
- Indicators of socio-economic status.

In most cases the patient was interviewed (generally with their accompanying family present). In those cases where patients were unable to respond (for example, if the patient remained ill or unresponsive at the time of discharge) we interviewed an accompanying household member instead. As anticipated, 800 exit interviews were conducted. In no case did potential respondents refuse to participate in the interviews.

Data were double-entered into an Excel database, and cross-checked for any inconsistencies. Analyses were conducted using the statistical software STATA. As a proxy for wealth, we constructed a socio-economic status (SES) index based on household assets and utilities, allowing the weights of these assets to be determined by principal components analysis (PCA) (Filmer and Pritchett 2001). All 26 assets and utilities variables from the survey were retained in the index (see Appendix 1) and weighted based on PCA. Twenty-one categorical variables were converted to dichotomous variables as this provided for greater discrimination amongst poorer households. Ultimately, the index comprised 25 dichotomous variables and one continuous variable (number of rooms). The index was validated by examining the likelihood of ownership of specific assets (or utilities) by decile. For example, it can be seen that no respondent below the 50th percentile reported owning a refrigerator, compared with 65% of respondents in the wealthiest decile (Appendix 1). Respondents were grouped by quintile or decile; in both cases the 1st was the poorest.

Step 3: In-depth interviews

After the exit surveys, 18 in-depth interviews were carried out in order to explore further household coping strategies. We aimed to interview people from the poorest three deciles by SES. The respondents were stratified according to type of hospital used (half had used public facilities and half private), place of residence (6 rural and 12 urban), and within urban

		Type of hospital	
		Private	Public
Location of hospital	Rural	Rural – private 3	Rural – public 3
	Urban	Urban – private 3 recent migrants 3 non-migrants	Urban – public 3 recent migrants 3 non-migrants

Figure 2 Distribution of in-depth interview respondents

areas, migration status (6 non-migrants and 6 recent migrants) (Figure 2).²

All interviews were conducted in Gujarati by RJ with the assistance of one trained investigator. For all interviews, the spouse or other family members were present as well as the hospitalized person. A semi-structured interview guide was used. Interviews were recorded, with the permission of respondents, using a digital video recorder, transcribed in English, and analysed and coded in MS Word.

Ethical approval

Ethical approval was obtained from the Ethics Committee of The London School of Hygiene and Tropical Medicine and from the Health Commissioner of Gujarat State. Free and informed consent of all respondents was obtained; this consent was taken in verbal rather than written form, given high rates of illiteracy in Gujarat State.

Results

Exit surveys

Table 1 describes the surveyed population, and highlights the main differences between urban and rural respondents, and users of public and private facilities. A majority of respondents were male. Urban respondents and users of private facilities were more likely to be male than their counterparts in rural areas and at public facilities. Distribution of the surveyed population by quintiles of SES suggests that rural respondents were poorer than urban, and users of public facilities poorer than those using private facilities. A slightly higher percentage of urban residents reported having moved to their current place of residence within the last year (8% vs 2%). The broad categories of illnesses reported by respondents differed little between urban and rural areas. However, respondents at public facilities were more likely to report infectious ailments as the primary cause of hospitalization (in rural areas), were more likely to report non-infectious ailments (both in urban and in rural areas) and were less likely to report accidents and injuries. The median duration of hospital stay differed little between

Table 1 Description of study population, by place of residence and type of hospital used (percentage distributions unless otherwise indicated), Vadodara, India

	Urban			Rural		
	Public	Private	Total	Public	Private	Total
Gender	(n = 200)	(n = 200)	(n = 400)	(n = 200)	(n = 200)	(n = 400)
Male	55.5	75.5	65.5	52.5	68.5	60.5
Female	44.5	24.5	34.5	47.5	31.5	39.5
SES	(n = 199)	(n = 200)	(n = 399)	(n = 199)	(n = 199)	(n = 398)
1	22.61	2.50	12.53	38.19	18.09	28.14
2	23.62	9.50	16.54	23.62	23.12	23.37
3	26.13	14.50	20.30	13.07	26.13	19.60
4	17.59	30.50	24.06	17.09	14.07	15.58
5	10.05	43.50	26.57	8.04	18.59	13.32
Migrant status	(n = 200)	(n = 200)	(n = 400)	(n = 200)	(n = 200)	(n = 400)
Recent migrant (<1 year)	5.5	10.5	8	1	3	2
Non-migrant (resident >1 year)	94.5	89.5	92	99	97	98
Primary cause of hospitalization	(n = 200)	(n = 200)	(n = 400)	(n = 200)	(n = 200)	(n = 400)
Infectious	42	41.5	41.75	49.5	38.5	44.00
Non-infectious	48	30.0	39.00	43.0	34.5	38.75
Injuries	10	28.5	19.25	7.5	27.0	17.25
Days of hospitalization (median)	(n = 200)	(n = 200)	(n = 400)	(n = 200)	(n = 200)	(n = 400)
	5	7	6	5	7	5

urban and rural areas, but was shorter at public facilities (5 days) than at private facilities (7 days).

Table 2 describes the hospital expenditures reported by exit survey respondents. The median expenditure per day was almost three times as high among urban residents (Rs. 395) relative to rural residents (Rs. 138). Expenditures per day were higher at private vs public facilities, and this difference was especially marked in urban areas. Medicine fees were an important component of total costs in both urban and rural areas. Doctors' fees were a more important component of the costs at private vs public facilities. Among non-medical fees, the costs of food and travel were particularly important components of total costs at rural public facilities (at 12.4% and 17.6% of total costs, respectively).

Figure 3 provides an overview of the different (primary) coping strategies reported by exit survey respondents. It is clear that for hospitalizations at public facilities (both in urban and in rural areas) most respondents were able to pay out of their savings or income, or by borrowing from friends, family or employer. For hospitalization at private facilities, these were also common means of paying. But relative to users of public facilities, those using private facilities were more likely to report selling land or other assets as the primary source of coping (particularly in rural areas), and they were more likely to have to borrow money at interest (particularly in urban areas).

Differences in coping strategies between the poorest 30% of respondents and the less poor 70% are illustrated in Figures 4a and 4b.³ In general, there seems to be remarkably little difference in primary coping strategies between the poor and the less poor who used public facilities, although there was a

slightly greater reliance on savings and income amongst the less poor 70%. Among rural, private hospital users, the poorest 30% were much more likely than the less poor 70% to have borrowed from friends, family and relatives, or to have borrowed money on interest, and less likely to have relied on savings and income. It is difficult to comment on 'poor-less poor' differences among those using urban, private hospitals, as only 11 respondents falling below the 30th decile used these facilities.

In-depth interviews

Table 3 provides a description of the 18 in-depth interview respondents (references to respondents provided below correspond to the respondent identification numbers in this table).

Poor people choose public facilities due to lower cost

In-depth interview respondents who used public facilities generally reported that they did so because these were perceived to be less costly than private hospitals.

"Because we did not have money, we had to go to the public hospital. We heard that they do not charge services at the public hospital." (Respondent 1)

While this was the most common reason for choosing a public facility, some reported that even the fees charged at the public facility were unaffordable.

"We chose the public hospital because they would provide treatment for free. But even they charged money...five hundred

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Table 2 Expenditures on hospitalization, by place of residence and type of hospital used, Vadodara, India

	Urban			Rural		
	Public	Private	Total	Public	Private	Total
Observations	198	198	396	200	200	400
Median total expenditures (Rs.)	677.5	4330.5	2525	390	1530	910
Median daily total expenditures (Rs./d)	119.5	629.72	394.44	93.75	277.64	138.33
% breakdown of total expenditures						
Medical fees						
Doctors' fees	0.2	31.8	24.9	2.6	19.2	16.3
Medicine fees	55.5	25.3	31.9	51.5	40.4	42.3
Bed fees	0.5	14.4	11.4	4.3	14.2	12.5
Laboratory fees	21.6	9.5	12.1	4.8	8.3	7.7
Ambulance charges	1.1	0.5	0.6	0.4	0.1	0.1
Other	5.5	8.8	8.1	6.0	6.9	6.7
<i>Sub-total</i>	84.5	90.3	89.1	69.7	89.1	85.7
Non-medical fees						
Food	6.3	5.4	5.6	12.4	5.4	6.6
Travel	9.0	4.3	5.3	17.6	5.5	7.6
Lodging	0.0	0.0	0.0	0.0	0.0	0.0
Other	0.2	0.0	0.0	0.3	0.0	0.1
<i>Sub-total</i>	15.5	9.7	10.9	30.3	10.9	14.3
Total fees	100.0	100.0	100.0	100.0	100.0	100.0

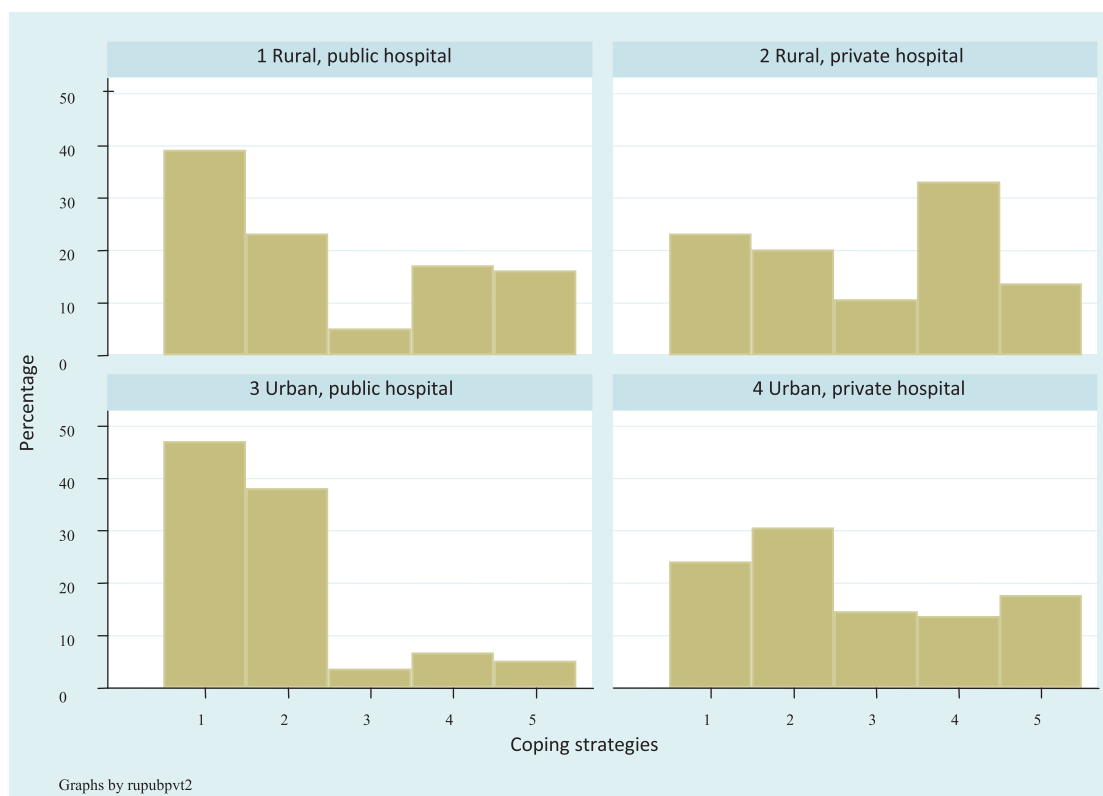


Figure 3 Strategies used for coping with hospitalization costs, by place of residence and type of hospital used, Vadodara, India. Legend (for x axis): 1 = Savings or income; 2 = Borrowed from friends, family or employer; 3 = Borrowed on interest, from moneylender or bank; 4 = Sold land or other assets; 5 = Other (including 'did extra labour', 'don't know') ($n = 200; 200; 200; 200$)

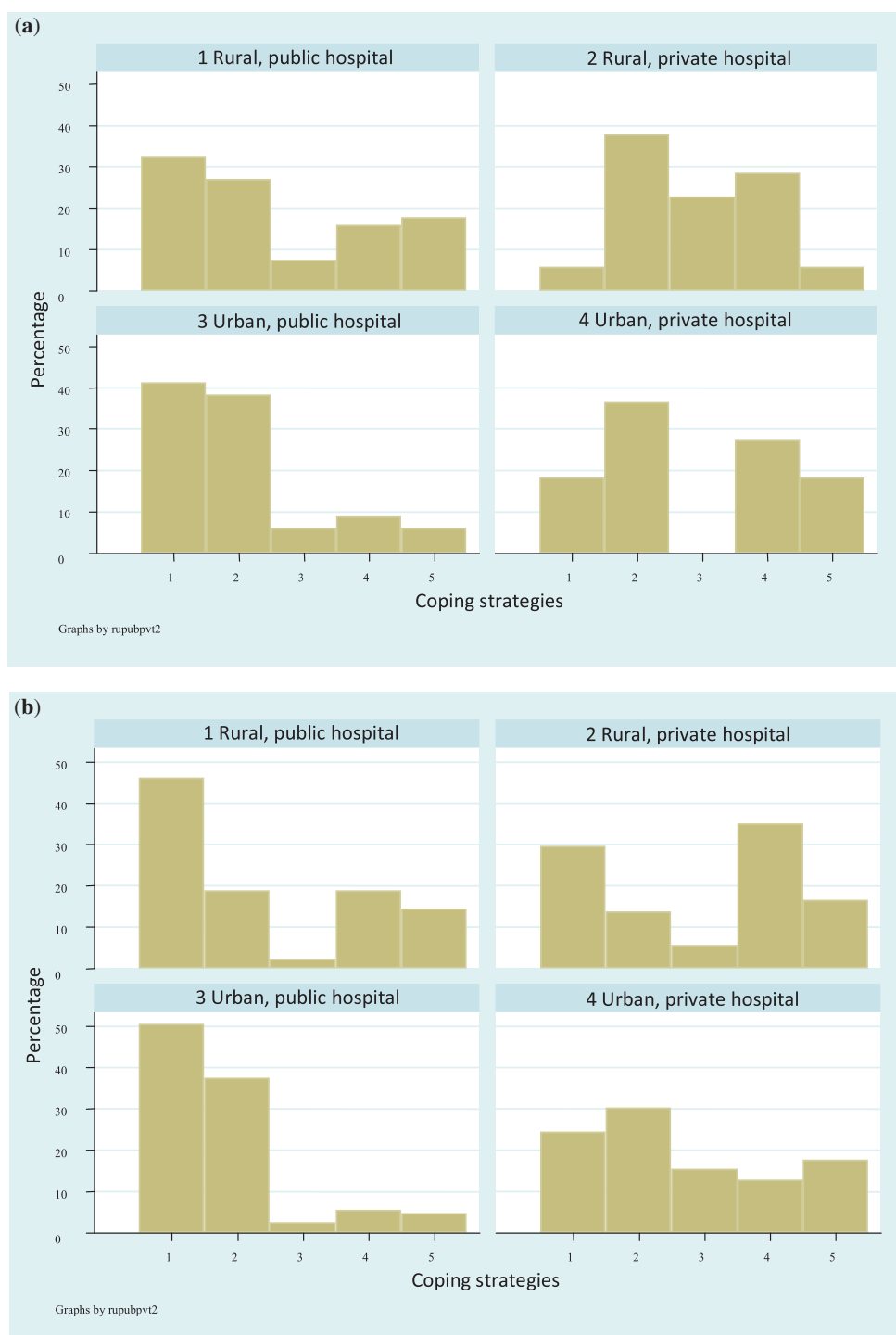


Figure 4 (a) Strategies used for coping with hospitalization costs: poorest 30%, by place of residence and type of hospital used ($n = 108; 53; 68; 11$), (b) Strategies used for coping with hospitalization costs: wealthiest 70%, by place of residence and type of hospital used ($n = 91; 146; 131; 189$). Legend (for x axis): 1 = Savings or income; 2 = Borrowed from friends, family or employer; 3 = Borrowed on interest, from moneylender or bank; 4 = Sold land or other assets; 5 = Other (including 'did extra labour', 'don't know').

Table 3 Description of 18 in-depth interview respondents

No.	City/sub-dist.	Gender	Place of origin	Hospital	Cause of hospitalization	Tot. Exp. (Rs.)	Primary coping strategy used	Age	Occupation	Decile
1	Vadodara	M	Within Gujarat	Public	Fever of unknown origin	535	Savings/income	18	Rag picker	1
2	Vadodara	M	Within Gujarat	Public	Asthma	330	Borrowed from friends/relatives/employer	60	Retired	2
3	Vadodara	F	Within Gujarat	Public	Anaemia	660	Sold gold/silver jewellery	19	Labourer	3
4	Vadodara	M	Uttar Pradesh	Private	Malaria	1550	Borrowed from friends/relatives/employer	28	Salaried	3
5	Vadodara	F	Rajasthan	Private	Dengue fever	2250	Borrowed from friends/relatives/employer	21	Housewife	4
6	Vadodara	F	Rajasthan	Private	Hysterectomy	5300	Savings/income	33	Housewife	4
7	Vadodara	M	(non-migrant)	Public	Blood pressure	900	Borrowed from friends/relatives/employer	30	Unemployed	1
8	Vadodara	F	(non-migrant)	Public	Gastroenteritis	600	Borrowed from friends/relatives/employer	18	Self-employed	2
9	Vadodara	M	(non-migrant)	Public	General weakness	1500	Borrowed from friends/relatives/employer	32	Unemployed	3
10	Vadodara	M	(non-migrant)	Private	Diabetes	23300	Savings/income	55	Self-employed	2
11	Vadodara	F	(non-migrant)	Private	Accident/injury/fracture	4640	Sold land or other assets	28	Housewife	2
12	Vadodara	M	(non-migrant)	Private	Dental problem	12700	Borrowed from friends/relatives/employer	47	Self-employed	4
13	Padra	F	n.a.	Public	Delivery	890	Borrowed from friends/relatives/employer	20	Domestic worker	1
14	Dabhoi	F	n.a.	Public	Abortion	275	Savings/income	30	Housewife	3
15	Sankheda	M	n.a.	Public	Diarrhea/dysentery	1560	Borrowed from friends/relatives/employer	40	Domestic worker	3
16	Padra	M	n.a.	Private	Accident/injury/fracture	26500	Sold land or other assets	40	Casual wage labourer	3
17	Sankheda	F	n.a.	Private	Hysterectomy	985	Borrowed from money/lender on interest	40	Casual wage labourer	1
18	Dabhoi	M	n.a.	Private	Heart disease	2500	Sold land or other assets	32	Farm worker	1

rupees...How can we afford to pay this amount?" (Respondent 14)

Reasons for using private facilities

Respondents cited a number of reasons for using private hospitals. The most commonly cited reason was that the private hospital was nearby to the respondent's home:

"(We chose the private hospital) only because it was nearby and she (Respondent 11) was in a great deal of pain. It was an emergency and the first hospital that I thought of was this nearby private hospital." (Relative of respondent 11)

Several respondents also expressed the belief that private hospitals are of higher quality than public:

"We do not use the public hospital, as the treatment given there is not good. It is very dirty and unhygienic. The private hospital is very clean and well maintained." (Respondent 18)

Poor people rely on multiple coping strategies.

Respondents generally reported using multiple (two or more) different strategies for coping with the costs of hospitalization. Respondent 8, for example, was a young woman from Vadodara city, hospitalized in a public facility for gastroenteritis. In order to cover the cost of the hospital stay—Rs. 600—the family drew on their savings and borrowed money from relatives:

"I bought medicines using the money I borrowed from him (my brother)...I took 400 rupees from my brother, and I gave approximately 100 rupees from my own (savings). As well, I later borrowed 100 rupees from another relative in order to pay the medical shop." (Mother of respondent 4)

Respondent 1, a recent migrant to Vadodara, was also hospitalized in a public hospital, for fever of unknown origin. His family, who earn a living by selling rags and scraps salvaged from garbage, drew on savings and sold a small amount of jewellery:

"...we paid using our own money—money that we had saved for Diwali... We also had to pawn our belongings. We pawned a silver ornament that was on my son's leg. We removed (that ornament) and pawned it... Now it is gone. I could not repay the money (to the pawn-broker) so we lost the ornament." (Sister-in-law of respondent 1)

Poor who use public facilities can pay from savings, income or relying on social networks

As was suggested by the exit survey data, respondents who used public hospitals could generally cope with the costs either through their savings and income or through borrowing from friends, family or employers:

"We paid using money that we had saved for Diwali. We do not have any relatives from whom we can borrow." (Respondent 1)

Poor who use private facilities use different coping strategies (viz. a viz. those who use public)

Poor respondents who used private facilities were more likely to report having borrowed money on interest or selling assets. This was the case, for example, for the following respondent who reported total expenditures of Rs. 26 500:

"He (my brother) owns land, which he mortgaged. We paid the money that we got after mortgaging the land. Even today I don't have any money saved. I roll cigarettes every day and earn money from this. But I spend this money on medicines." (Respondent 16)

Key differences in coping strategies between urban and rural poor

In the in-depth interviews, respondents from rural areas were more likely to report having borrowed from family members, while those in urban areas were more likely to have borrowed from friends or employers. The following urban respondent, for example, borrowed from neighbours:

"I borrowed some money from my neighbours...And we don't even have much income so that we can save (to repay this loan). Our neighbours are our best friends...We have not been here for long, however they have been very helpful." (Respondent 4)

In several cases, the rural poor reported selling or mortgaging land in order to cope with the costs of hospitalization (e.g. respondents 16 and 18) while some urbanites reported selling other assets:

"Sister, what can people like us do? She (Respondent 3) had two gold earrings, and I had to sell off one of these. I got 1400 rupees for the earring." (Spouse of respondent 3)

Key differences in coping strategies among recent migrants

Recent migrants to urban areas were less likely than permanent residents to report borrowing from relatives. For example, the following two respondents, both long-term residents of Vadodara city, borrowed from family:

"My brother helped me a lot. I bought medicines with the money I borrowed from him." (Respondent 8)

"We told my cousin about her (Respondent 11's) hospitalization and he immediately came over. I told him that I would need some money, so he went back and arranged for money." (Spouse of respondent 11)

In contrast, the following respondents, who had recently migrated to Vadodara city, used other coping strategies:

"We don't know anyone here, so who would give us money?...All our relatives are back at our village...So we had to sell our belongings." (Respondent 3)

"I cook at someone's home. I asked this employer for money to pay for my hospital expenses. They were very helpful...Our employers are (like) our relatives. Our real relatives are far away so they (the employers) are the ones who help us first." (Respondent 5)

Discussion and conclusions

Summary of findings

Users of public hospitals, in both urban and rural areas, were poor relative to users of private hospitals. Median expenditures per day were higher at private vs public facilities, and this difference was especially marked in urban areas. For hospitalizations at public facilities (both in urban and in rural areas), most respondents were able to pay out of their savings or income; or by borrowing from friends, family or employer. Those using private facilities were more likely to report selling land or other assets as the primary source of coping (particularly in rural areas) and they were more likely to have to borrow money at interest (particularly in urban areas). In-depth interview respondents (those below the 30th percentile of SES) who used public hospitals often did so because of their lower perceived cost. Poor respondents reported using multiple different coping strategies. Respondents from urban areas were more likely to have borrowed from friends or employers, while those in rural areas were more likely to report having borrowed from family members. Recent migrants to urban areas were less likely than permanent residents to report borrowing from relatives, but in some cases were able to borrow from neighbours or employers.

Discussion

Studies that have focused on the costs of inpatient care in India, and the related coping strategies, are relatively few. Consistent with previous studies, the current study suggests that the poor depend predominantly on the public sector for inpatient care. Peters *et al.* (based on National Sample Survey Organisation data) concluded that the poor rely on public hospitals more than the rich (Peters *et al.* 2002). For the poorest 25% of the population, 61% of hospitalizations are in public hospitals. Despite this, wealthier populations capture a disproportionate share of public health spending. For example, the richest quintile received more than three times the public subsidy received by the poorest quintile. In part, this reflects the much higher rates of hospitalization among the non-poor—the richest quintile of the population is six times more likely to have been hospitalized (in either a public or private facility) (Peters *et al.* 2002, p. 219).

On the one hand, use of (nominally) free public health care services is a common strategy for coping, protecting households from potentially burdensome health care costs. This is consistent with findings in other countries where consumers can choose between public and private sectors. Russell, for example, found that 'public health care services, free at the point of delivery in Colombo (Sri Lanka) protected the majority of poor households against high direct cost burdens, particularly the potentially high costs of hospital inpatient care and regular treatment of chronic illness' (Russell 2008, p. 112–3). Nonetheless, as is the case in many other low- and middle-income countries, there are significant out-of-pocket costs even at public facilities (McIntyre *et al.* 2006).

Given the much higher total costs incurred by those using private hospitals, it is interesting that the poorest (particularly in rural areas) do not rely on public hospitals to an even greater extent. The findings suggest that access and quality are among

the main reasons that poorer people turn to the private sector for inpatient care. Many previous studies have found that India's public health care sector is rife with problems (Peters *et al.* 2002). Among these problems are poor management, low service quality, staffing limitations (particularly in remote, rural areas), and limited drugs and supplies.

This study finds the median daily hospital expenditures to be almost three times higher among urban than rural respondents, and that this difference is due largely to higher daily expenditures at private hospitals. This is consistent with the findings of some previous studies. For example, the World Health Survey, conducted in 2003, found that the mean annual household expenditure on health care (goods and services) was Rs. 3304 in rural areas and Rs. 6384 in urban areas (World Health Organization 2006b), and the 60th round of the National Sample Survey (conducted in 2004) found that the average cost of a hospitalization was Rs. 6225 among rural respondents and Rs. 9367 among urban residents (National Sample Survey Organisation 2006). The difference found in our study may be explained in part by higher urban incomes. While data are not available for Vadodara district, according to the 63rd round of the National Sample Survey (2006–07) the monthly per capita consumption expenditure (MCPE) was Rs. 797 in rural Gujarat and Rs. 1422 in urban Gujarat (National Sample Survey Organisation 2008). The difference may also be due in part to higher quality (or more intensive) services provided at private hospitals in urban vs rural areas.

This study confirms that people often borrow from friends, family or employers to cope with the direct costs of inpatient care. Borrowing from one's social networks to cope with medical costs is common in other settings (McIntyre *et al.* 2006). The current study suggests that the poor in urban areas (including recent migrants) may be more likely to rely on employers or neighbours rather than relatives, but this finding is based upon very few observations. This study did not add evidence to Russell's finding that lower-income households had weaker social networks and could access fewer financial resources (Russell 2008). The findings are, however, consistent with those of Flores *et al.* (2008), who found that even the poorest households in the poorest districts of India coped with medical expenditures through borrowing and drawing on savings.

Aside from use of public health services, very few survey respondents reported use of formal social protection mechanisms. India's National Health Policy (2002) encouraged the setting up of private insurance companies and the introduction of government-funded district-based insurance schemes on a pilot basis (MOHFW 2002). In India, 75–85 million people are at present covered by health insurance—approximately 8% of the total population (Matthies and Cahill 2004; Gupta and Trivedi 2005). Social (mandatory) health insurance in India consists of coverage by the Employee State Insurance Scheme (ESIS) and Central Government Health Scheme (CGHS). The private insurance sector has grown tremendously in recent years; the number of people covered under voluntary, private health insurance schemes increased rapidly from 1995–96 to 2002–03, by 29% per annum (Gupta 2004). Community-based health insurance schemes (CBHI) cover only 3 million people (Gupta and Trivedi 2005), although the number of such

schemes is increasing. The private and community-based schemes primarily cover hospital care, and are usually subject to caps (i.e. limited indemnity) or deductibles.

The findings of this study suggest that there are several policy options that should be pursued in order to protect the poor from the costs of inpatient care. Governments should invest in improving the quality and access of public first-referral hospitals. This should be done in a selective manner—with a focus, for example, on rural areas and urban slum areas—in order to promote a more equitable distribution of resources. In fact, the Government of India is already making efforts to improve access to quality health care in urban slum areas under the National Urban Health Mission (2008–2012) (MOHFW 2008). Similarly, the National Rural Health Mission (2005–2012) aims to improve health care in rural areas of 18 states deemed to have the weakest infrastructure, in part by strengthening rural hospitals (MOHFW 2005; Mudur 2005). Given that these two schemes are still being implemented, it is unclear how successful they will be.

Efforts must also be made to reduce the cost of inpatient care at public facilities; this can be done in part by ensuring the availability of basic drugs and supplies at first-referral hospitals. Policy makers should continue to explore and support efforts to provide financial protection through insurance mechanisms. The Indian government and individual state governments are indeed pursuing expansions in publicly funded (or subsidized) coverage for rural populations as well as other vulnerable populations. For example, in April 2008, the Government of India launched the Rashtriya Swasthya Bima Yojana (RSBY). This voluntary scheme targets the 300 million people who are below the poverty line. In return for a premium of Rs. 30 per person per year, coverage is provided for hospitalization (either at public or private facilities), capped at Rs. 30,000 per family per year (Bhattacharjya and Sapra 2008). The balance of the premium, Rs. 750 per person per year, is to be borne by central and state governments. By the end of 2009, almost 9 million households were enrolled in the scheme (Ministry of Labour and Employment, undated) though this still represents a tiny proportion of the target population.

Past experience suggests that these efforts must be carefully monitored to ensure that the poorer among the insured are able to access scheme benefits, and that the quality and quantity of health care provided has to be monitored and regulated. In particular, there needs to be further discussion and debate as to whether or not it is a good idea to use public funding to improve financial access to private hospitals (as is occurring under the RSBY). In the absence of systems for monitoring and regulating private hospitals, such schemes risk exposing poor people to care that is unnecessary, of poor quality, or unnecessarily expensive. A study by Ranson and John (2001) documented the problem of unnecessary hysterectomies, often of poor quality, performed on members of a community-based health insurance scheme.

This study also suggests several areas where additional research is required. These include:

- Further study of health care costs in urban areas, to extend understanding beyond the one city studied here;
- Longitudinal assessments of the costs of medical care—both direct and indirect—and coping strategies;

- Documenting interventions that have been successful in improving the quality (or reducing the cost) of care at public facilities, and the factors that have contributed to success;
- Further research—possibly including larger, representative samples—exploring the challenges faced, and coping strategies used, by migrant workers and their families;
- Studies of social networks—for example, how these networks are affected by new, formal risk-sharing mechanisms (like the RSBY) and factors that help or hinder social networks in rapidly expanding urban areas;
- Further studies on strategic purchasing, to ensure that health care purchases by insurers are of acceptable quality and reasonable cost.

Strengths and weaknesses of the methodology

The main strength of the methodology is that it employed both qualitative and quantitative methods. This helped, for example, to ensure that the questions on coping strategies included in the exit survey were culturally and contextually appropriate (as they had been reported by participants in the preceding focus group discussions), and it enabled verification of exit survey findings through in-depth interviews with select respondents. Data on hospital expenditures and coping strategies are likely to have been recalled with good accuracy given that they were collected right at the time of discharge from hospital. This is one of very few Indian studies where investigators have been granted permission to conduct such an exit survey on the premises of both public and private hospitals. Finally, because the exit survey and in-depth interviews purposefully included strata of urban respondents, this is one of very few Indian studies that provide data on coping strategies among urbanites.

The study has a number of methodological shortcomings. First, because respondents were identified by exit survey (as opposed to a house-to-house survey, for example) the study excludes those who may have required hospitalization, but who chose not to seek care or who sought outpatient care only. Thus, the study may have excluded the very poor who did not seek care. Second, the exit survey was non-random, and the respondents therefore may not represent the wider population of hospitalized persons in Vadodara district. There is likely to be considerable variation in costs between different private hospitals, so selection of different facilities may have led to different results. Respondents at any one facility were non-randomly selected; respondents were interviewed during the same season and over a period of only a few days, and patients were excluded from the sample if they had used a private inpatient room rather than a general hospital ward. Third, there may be limits to the extent to which study findings can be generalized to other districts or states, given, for example, that Vadodara district is fast-growing and urban relative to many others. Fourth, the exit survey did not explore indirect costs (i.e. loss of household productive labour time and income). And the in-depth interviews, because they were cross-sectional, were more likely to capture fairly discrete and memorable coping strategies (e.g. borrowing from a money lender), and less likely to capture, for example, small reductions in household consumption or increases in time spent in productive labour.

Acknowledgements

We wish to thank Dr V R Muraleedharan (IITM, Chennai) and his team for their support throughout this project. Thank you to Nicola Lord (LSHTM) for logistical support. We thank Dr Amarjeet Singh, Commissioner of Health, Gujarat, for permitting us to carry out the study at the public hospitals. We are particularly grateful to the hospital representatives and staff who gave us support for the exit survey interviews. Also, thanks to the staff of Baroda Citizens Council, who helped us identify recent migrants and conduct focus group discussions with them. We also take this opportunity to extend our gratitude to the Faculty of Social Work, Vadodara who provided work space during the project. Most importantly, we wish to thank the field investigators who assisted in data collection; and all the respondents for sharing their experiences and responding to our questions.

Funding

This work was funded by the Wellcome Trust, United Kingdom (Grant number GR080101MA).

Conflict of interest

None declared.

Endnotes

- ¹ The poverty line is set for each state, and represents the level of consumer expenditure per capita required to ensure a calorie intake of 2100 per day in urban areas and 2400 per day in rural areas. In 1995–96, it was estimated that 20.5% of Gujarat's rural population, and 30.7% of the urban population, were BPL.
- ² For the purpose of this study, we considered recent migrants as those who had moved from their place of origin/birth (or usual residence) within the previous year (Census 2001). For the purpose of the in-depth interviews, non-migrants were those who had lived at their current place of residence since birth.
- ³ The latest poverty statistics for India suggest that in 1999–2000, 28.6% of the total population were living below the 'national poverty line' (World Bank 2010). We chose to compare coping strategies among the poorest 30% of respondents (vs the less poor 70%) as they might roughly be thought of as representing those who live below the poverty line (vs those who live above the poverty line). This is a rather arbitrary and imperfect cut-off, given that Gujarat does tend to perform slightly better than all-India on measures of poverty (and so is likely to have a poverty line lower than 30%) and, more importantly, given that respondents to the exit survey are not representative of the general population.

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Appendix 1 List of 26 assets and utilities variables included in the socio-economic status (SES) index, showing responses for each decile (1st being the poorest and 10th being the least poor)

No.	Variable	Deciles of SES									
		1	2	3	4	5	6	7	8	9	10
	<i>Number of observations (n = 797)</i>	80	82	78	81	78	81	81	77	80	79
1	Ownership of house	68.75	65.85	73.08	70.37	73.08	71.60	58.02	63.64	66.25	75.95
2	Housing with brick/stone with cement plaster	12.50	15.85	20.51	41.98	62.82	58.02	58.02	87.01	81.25	96.20
3	Owens electricity connection	52.50	86.59	85.90	92.59	89.74	83.95	75.31	80.52	77.50	84.81
4	Gas/kerosene as cooking source	1.25	18.29	19.48	39.51	48.72	54.32	72.84	68.83	90.00	94.94
5	Own mattresses	8.75	20.73	44.87	53.09	60.26	79.01	74.07	89.61	96.25	98.73
6	Own cot/bed	27.50	54.88	89.74	87.65	93.59	97.53	95.06	97.40	98.75	100
7	Own wristwatch	37.50	64.63	88.46	95.06	93.59	90.12	95.06	98.70	98.75	100.00
8	Own fans	26.25	87.80	87.18	96.30	100.00	98.77	100.00	98.70	100.00	100.00
9	Own radios	8.75	37.80	28.21	41.98	47.44	61.73	51.85	48.05	57.50	79.75
10	Own television	0.00	6.10	8.97	25.93	46.15	69.14	85.19	93.51	100.0	100.0
11	Own refrigerator	0.00	0.00	0.00	0.00	0.00	1.23	6.17	15.58	45.00	64.56
12	Own sewing machine	0.00	1.22	0.00	1.23	5.13	6.17	8.64	15.58	5.00	8.86
13	Own telephones	0.00	0.00	0.00	1.23	0.00	1.23	3.70	15.58	31.25	94.94
14	Own mobile-phones	0.00	3.66	11.54	29.63	34.62	58.02	83.95	89.61	97.50	100.00
15	Own two-wheelers	0.00	0.00	0.00	0.00	1.28	1.23	9.88	36.36	83.75	100.00
16	Own tractors	0.00	0.00	0.00	0.00	0.00	0.00	1.23	2.60	3.75	12.66
17	Own buffaloes	17.50	24.39	24.36	30.86	24.36	23.46	12.35	14.29	11.25	15.19
18	Own cows	1.25	7.32	8.97	9.88	6.41	11.11	4.94	5.19	6.25	6.33
19	Own bulls	1.25	8.54	12.82	19.75	16.67	11.11	6.17	11.69	7.50	16.46
20	Own pada	0.00	2.44	1.28	1.23	0.00	0.00	0.00	0.00	0.00	0.00
21	Own goats	33.75	21.95	14.10	17.28	14.10	6.17	2.47	6.49	1.25	1.27
22	Own hens	2.50	2.44	1.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	Own bullock carts	0.00	0.00	3.85	6.17	2.53	3.70	6.17	6.49	3.75	11.39
24	Own shops	0.00	1.22	3.85	2.47	6.41	9.88	18.52	23.38	27.50	26.58
25	Own lauri	1.25	7.32	5.13	7.41	6.41	6.17	12.35	11.69	10.00	6.33
26	Total no. of rooms	1.1	1.3625	1.6875	1.5949	1.7375	1.9024	2.1299	2.125	2.325	3.3797

Private obstetric practice in a public hospital: mythical trust in obstetric care

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Available online 25 January 2005

Abstract

There is evidence to suggest the decline of trusting relationships in modern healthcare systems. The primary aim of this study was to investigate the role of trust in medical transactions in Thailand, using obstetric care as a tracer service. The paper proposes an explanatory framework of trust for further investigation in other healthcare settings.

The study site was a 1300-bed tertiary public hospital in Bangkok which it provides two forms of obstetric care: regular obstetric practice (RP) and private obstetric practice (PP). Forty pregnant women were selected and interviewed using a set of guiding questions. A thematic analysis of the interviews was undertaken to generate understanding and develop an explanatory framework.

It was found that patients' trust in obstetric services was influenced by their perceptions of risk and uncertainty in pregnancy and childbirth, and that these perceptions were linked to their social class. Social class also influenced the accessibility and affordability of care to patients. Middle class pregnant women with relatively high-level concerns about risk and uncertainty preferred using PP service as a means to achieve interpersonal trust. These women thought that an informal payment would provide the basis for interpersonal trust between themselves and the chosen obstetricians.

In practice, however, obstetricians involved in PP rarely acknowledged this reciprocal relationship and hardly expressed the additional courtesy expected by patients. As a result, PP service only created an expensive impersonal trust that was mistaken as interpersonal trust by patients. Negative outcomes from PP often caused disappointment that could eventually lead to medical litigation.

The study suggests that there are some negative impacts of PP within the health system. Negative experiences among PP users may undermine trust not only in the specific doctor but also trust in health professionals and hospitals more generally. Steps need to be undertaken to protect and strengthen existing impersonal trust, which combine institutional trust based on good governance and service quality with trust in the professional standard of practice. The explanatory

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framework developed through this study provides a foundation for further studies of trust in different specialties and care settings.

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Keywords: Trust; Relationships; Obstetric care; Private practice; Public hospital; Thailand

Introduction

In modern healthcare systems, the traditional, paternalistic doctor–patient relationship is gradually being transformed to a provider–customer or consumerist doctor–patient relationship (Mechanic, 1998) through the application of new public management and market principles (Hunter, 1996). Medicine has been increasingly commoditized and medical litigation, involving confrontation of providers by patients, is increasing in many countries including Thailand (Mechanic, 1998; Wibulpolprasert, Hempisut & Pittayarungsarit, 2002). The changing nature of healthcare systems may undermine the role of trust within them. Yet without a trusting doctor–patient relationship, the healthcare system cannot achieve its goal of improving health in a holistic sense, considering its physical, mental, social, and spiritual dimensions (Mechanic, 1998).

With regard to healthcare seeking behavior, trust has an important influence over the choice of healthcare provider (Balkrishnan, Dugan, Camacho, & Hall, 2003; Hall, Camacho, Dugan, & Balkrishnan, 2002) and is based on beliefs or expectations about how others will behave in relation to oneself in the future (Gambetta, 2000; Gilson, 2003). In addition to monetary incentive, then, trust can be viewed as an important non-financial incentive affecting care providing behaviour (Franco, Bennett, & Kanfer, 2002). It is therefore crucial for policy makers to understand the roles of trust (and distrust) in shaping patients' experience and their satisfaction.

This study aimed to understand the roles of trust in medical transactions in the Thai healthcare system. It was expected that an analysis of trust (or distrust) in transactions between doctors and patients would provide the basis for developing a conceptual framework to allow better understanding of the roles of trust and other non-financial incentives in healthcare transactions. The conceptual framework developed through this study may be useful for investigating such issues in future studies.

To trust someone is to believe that they are honest, sincere and will not deliberately harm you. In addition to trust, risk and uncertainty also play crucial roles in health care decision-making and medical choices (Kapferer, 1976; Mechanic, 1998). While risk and uncertainty are inherent in sickness and illness, trust can be built and managed by patients and their relatives as well as by providers.

Gilson (2003) categorized trust into interpersonal trust, where two individuals known to each other rely faithfully on each other, while impersonal trust refers to trust in strangers or in a social system. These two forms of trust are dynamic. A stranger may become a known individual, as a result of personal interactions and accessing information by which one can judge how the other will behave in relation to one's interests. The behavioral characteristics that underpin interpersonal trust include technical competence, openness, concern and reliability (Coulson, 1998; Mechanic, 1998). Alternatively trust in strangers can be rooted in institutions that allow delegated or fiduciary trust to develop. However, trust always involves an element of risk derived from uncertainty regarding the motives, incentives and future actions of another on whom one depends (Coulson, 1998; Gambetta, 2000; Kramer, 1999; Lewicki & Bunker, 1996).

This study investigated trust in obstetric care. We selected obstetric care as the focus of inquiry for three reasons. First, it involves a continual contact between patient and doctor over at least six to ten months. It is possible that the same provider will be used for several pregnancies. Past experiences may also lead to selection of a new provider for each pregnancy. Obstetric care, thus, allows opportunities to build up, or break down, patient-provider trust. Secondly, pregnant women and their social networks have a certain degree of health information and know how to negotiate with providers over decision-making around antenatal care and the childbirth process. Thirdly, there are two different ways in which patients pay their providers for obstetric care in Thailand, namely regular and private practice. Difference in payment mechanism provides good grounds for investigating the role of trust in mothers' decision-making and for developing a related explanatory framework. In addition, it will allow some initial assessment of how the existence of private practice in public hospital impacts on trust in doctors and the public obstetric care system.

Private obstetric practice (PP) can be described as an informal relationship between a pregnant woman and an obstetrician in which the pregnant woman voluntarily pays money in exchange for personalised obstetric services. These services include the provision of antenatal care, support for delivery and postpartum care by the doctor him/herself. In contrast, regular obstetric practice (RP) does not involve any such special and

personalised agreement. It relies on the general and routine hospital obstetric services, payment for which depend on the patient's health insurance status and the related maternity benefit scheme.

Both PP and RP are commonly available in public hospitals. PP services are considered a source of extra income for obstetricians. An average public sector salary for an obstetrician was around 20,000 Baht per month in 2003¹ while the financial income derived from private practice was generally 3000–5000 Baht per birth for an average of 20–80 births per month. The financial income derived from PP may, therefore, significantly boost doctors' income given the relatively low level of public sector salaries.

In Thailand, there are approximately 800,000 births each year. More than 95% of births take place in hospital (Health Information Center, 2001). Public hospitals serve as the main provider of antenatal, intrapartum and post-partum services. In 2001, 41% of total deliveries took place in Ministry of Public Health (MOPH) district hospitals, 34% in MOPH provincial hospitals, 18% in other public hospitals and only 7% in private hospitals (Teerawattananon, Tangcharoensathein, Srirattana, & Tipayasoti, 2003). A 1998 survey of private practice in 29 MOPH provincial hospitals showed that 37% of all public hospital deliveries involved PP (Hanvorawongchai, Lertiendumrong, Teerawattananon, & Tangcharoensathein, 2000). However, the financial gains to providers resulting from PP may encourage its growth both for obstetric care and for other specialties. It is, therefore, crucial to understand if and how PP affects patient trust in providers and the health system more generally, in order to formulate further policy development.

Methods

As trust is a relational state, its investigation requires an in-depth analysis of people's relationships and interactions considering, for example, how patients feel and what they expect from their doctors and how both of them behave in relation to each other. Such investigation is most effectively undertaken through an interpretive analysis of patients' narratives of their obstetric encounters. Through the examination of patients' stories, trust-related words or themes can be identified and used in the construction of an explanatory framework. This study, therefore, applied a qualitative approach, involving thematic analysis of in-depth interview data.

The study site was a well-known 1300-bed MOPH tertiary hospital in Bangkok, which had celebrated its

50th anniversary just before the study. Originally providing only maternity services, the hospital has now expanded its services to include all other specialties. However, obstetric services remain particularly important. Thirty-six percent of all in-patients attend for obstetric care and the hospital carries out approximately 45 deliveries a day.

The hospital's catchment area is extensive, 55% of all patients being Bangkok residents and the remainder are migrant workers and cases referred from other hospitals. It has a well-established residency training program in all specialties. It also provides training for medical and nursing students in collaboration with other colleges and universities. Private obstetric practice is informal and has been commonly practiced for decades (indeed, two of the PP users mentioned that their mothers had PP services some thirty years ago at this hospital), with the PP fee changing over the time.

During December 2002, 40 pregnant women, with at least one childbirth, attending the antenatal clinic (ANC) were randomly chosen. Informed consent was obtained before recruitment. Choosing informants with previous pregnancy experience allowed us to study experiences on previous pregnancy and childbirth. An in-depth interview using a guiding list of questions was conducted in private in a comfortable room close to the ANC clinic by one of the researchers. Each interview took about 60 min and was tape-recorded, with permission. This was subsequently transcribed. Home telephone numbers were obtained in case further interview was needed.

Interview sessions were conducted in an informal manner. The informants were invited to describe their experiences on pregnancies and childbirths in their own narratives. Interviewer would ask questions to elicit further information to cover the following key areas: demographic and socio-economic data; general perceptions of pregnancy and childbirth; fear, worry or anxiety; expectations; past experiences of obstetric services; clinical outcomes and satisfaction. Informants' use of PP or RP was identified for the current and previous pregnancy. Those mothers with PP experience were specifically asked to describe: (1) the process by which they engaged in PP, (2) the reasons and factors influencing their decision to use PP, and (3) their understanding of trust (distrust) in the chosen obstetrician.

Those mothers with RP-only experience were also asked: whether they knew about PP; if so, why they did not choose PP service; and their opinions on private practice. By the end of the interview when informants became more comfortable, all informants were invited to disclose their feelings and opinions on their doctor–patient relationship; whether they made gratitude payments, either in cash or in kind; or provided any other forms of non-material reciprocity. In two final

¹Exchange rate 42 Baht per dollar in 2003.

questions, we asked our informants to describe the level of trust in their choices of PP or RP. For those having PP experience, they were asked if they would engage in PP again and/or would recommend their friends to do so. In addition to interviewing pregnant women, a few referring nurses, obstetricians and other staff members working in ANC and the labor room were also informally interviewed about their perceptions and practices related to RP and PP services.

The meanings of trust were examined by identifying groups of associated words and phrases in Thai that have a closely related meaning to trust: for example, confidence (*chueymun*), being assured (*munjai*), sense of security (*rusuek ploudpai*), certainty (*naenon*), belief (*chuey*), reliance or dependence on (the obstetrician) (*laewtae mow*). The themes that were commonly found and emerged from a majority of cases were further analyzed in order to develop the explanatory framework of trust.

Results

Service arrangement in the hospital

In the hospital studied, all ANC visits were seen by an obstetrician. While PP cases were always seen by their chosen doctors, the RP cases were seen by the obstetrician in-charge on the day. The premises and basic amenities available for labor and delivery were similar for both groups. In labor, PP cases were normally attended by in-charge nurses and were frequently visited by their personal obstetricians. The use of PP service implied that the whole delivery process would be conducted by the chosen obstetrician. The fee paid for PP services ranged from 3000–5000 Baht, based on informal agreement between patient and provider. This fee was not covered by medical insurance.

RP cases were normally attended by the obstetric nurse in-charge of the day and deliveries were assisted by any one of the available nurses. An episiotomy could be done by a nurse-teacher or obstetric resident or obstetrician on duty whilst suturing of the perineum would only be done by the resident or obstetrician on duty. A consultant obstetrician was available for complicated cases, if called in by the attending nurses. The principles and guidelines of clinical services as well as the availability of basic and advanced obstetric equipment provided to patients using the RP system was similar to those using the PP system.

Socio-demographic profile

The socio-economic profile of our sample is described in Table 1. Fourteen out of forty cases had used the PP

service for at least one childbirth, and 26 had experience of RP. Among the 40 informants there were 43 events of completed pregnancies and childbirth.

Compared to RP users, those patients choosing PP were generally older, more highly educated, earned higher incomes, owned their own homes, were employed with permanent jobs and entitled to medical benefits such as the Civil Servant Medical Benefit Scheme and Social Security Scheme. There were more unemployed housewives among RP users. A higher proportion of RP

Table 1
Sample Characteristics

	PP (n 14)	RP (n 26)	Total (n 40)
Mean age (year)	32.8	29.9	29.4
Parity including this pregnancy (%)			
Second	64	73	70
Third	21	23	23
Other	14	4	8
Education (%)			
Primary	14	77	55
Secondary	29	23	25
Undergraduate	29	0	10
Graduate	29	0	10
Occupation/insurance coverage (%)			
Government employee ^a	36	0	13
Private employee ^b	14	42	33
Own account work or self employed ^c	50	15	28
House wife ^d	0	42	28
Estimate monthly income in Baht (%)			
> 30,000	14	0	5
20,000–29,999	43	12	23
10,000–19,999	43	35	38
< 10,000	0	54	35
Home owner (%)			
Yes	64	4	25
Home town (%)			
Bangkok	50	15	28

^aGovernment employees and their dependents such as parents, spouse and children are covered by the Civil Servant Medical Benefit Scheme on a fee for service basis. Their medical expenses are fully reimbursed.

^bPrivate employees are covered by the Social Security Scheme, which provides a lump sum reimbursement of 4000 Baht per confinement.

^cOwn-account workers and self employed are not covered by Social Security and pay out of pocket for care.

^dThis group is covered by the recent universal health care coverage scheme, which includes a flat rate, capitation fee for ambulatory care and a case-based payment fee within a global budget for hospital services.

users were migrant workers whose hometown was outside Bangkok.

Concerns and aspirations

Although all respondents viewed pregnancy and childbirth as natural processes they also expressed serious concerns about the risk and uncertainty of the events. Tracing the words “fear” or “afraid of” and “worry” or “anxiety” throughout the narratives indicated considerable concerns over the risk of newborn abnormalities, labor pain and difficulties, prolonged delivery processes, injuries and bleeding, and life threatening experiences for both mother and child. The most common concern was the risk to newborn abnormality, as many respondents said,

I am very much afraid that my baby will not be *krob-sam-sib-song*². I think only obstetricians and technologies can help to prevent or ensure early detection of the problems for proper management.

Anxiety and serious concerns about having a healthy baby were more strongly identified among PP users. These mothers often requested additional services and technological interventions. For example, some PP users said that because of anxiety about their newborn's health they sought reassurance by attending the ANC clinic early and regularly, as well as seeking frequent ultrasonographies and an amniocentesis test. A few mothers also expressed apprehension about labor pain and wanted a quick response to their requests for analgesia by having a particular provider to count on. In general, these strong concerns about safety and risks had driven PP users to seek the best care by employing obstetric specialists particularly in PP service.

The interviews also reveal that while PP users saw cesarean section as important in assuring a safe delivery, RP users were generally more hesitant about this medical intervention. They often mentioned that many pregnant women delivered babies every year without any problem. They felt that if they were healthy, attended antenatal visits regularly and strictly followed the doctor's recommendations, any abnormality and problem would be detected at an early stage. RP users strongly believed that the hospital and personnel in-charge had the capacity to manage any problem with regard to their pregnancies. For these women, additional services were, therefore, considered unnecessary.

Moreover, it was noticed that although many had migrated to work in Bangkok, 19 out of 26 RP users were still bound to their traditional kinship networks

and had strong communal ties with their hometowns. They usually attended the ANC clinic in Bangkok, but at around the 8th month of pregnancy, they would return to their hometowns, carrying their ANC records with them, to deliver their babies. Important reasons for returning home for childbirth were the availability of social support and their preference for the traditional postpartum care provided by their parents. Two RP users expressed the following typical accounts:

Last pregnancy, I continued my work until the 8th month of pregnancy. My father came to take me back to give birth in my hometown. My parents, especially my mother, were quite worried about me. They were afraid that the baby and me would be at risk. They also went to a shrine and prayed for my safe childbirth.

I would like to give birth in my hometown, especially for the first pregnancy, where my mother lives, since I will be able to “*yu fai*”³ (stay in a fire place) for fifteen days and during that time my mother would look after my baby.

Most of the RP users that did not return to their hometowns were in their second pregnancies and had prepared to have their mothers come to stay with them in Bangkok.

Overall, most informants accepted that in modern medical encounters patients and doctors were almost strangers to each other. In line with Benoliel's findings (Benoliel, 1993), our study suggests that patients felt they were powerless and lacked confidence to voice their problems or to request information, reassurance or any specific care from their physicians. They were uncertain if the system would respond satisfactorily to their needs, and so felt they could not fully trust in such a system. PP users who expressed strong concerns over risk and uncertainty sought an adequate level of reassurance by attempting to establish an interpersonal relationship with a chosen obstetrician. RP users, in contrast, relied more on the support of their traditional and kinship networks.

Expectations of care

All pregnant women we interviewed expressed their desire to maintain their autonomy in their pregnancies and childbirths. They not only sought clinically competent providers but also specifically chose providers who they considered reassuring and responsive to their felt needs. These findings confirm that interpersonal trust

²“Krob-sam-sib-song” means a person who has no physical abnormalities nor is missing any body parts.

³*yu fai* is a traditional practice whereby the post-partum women stays on a bench with a wood fire nearby in order to “dry up the womb” and expedite involution.

was perceived as crucial for assuring good care. Trust in providers was constituted by the patient's perception of clinical competency, as well as the attitudes and reliability of the provider (Coulson, 1998; Mechanic, 1998).

Determinants of the PP service

The process of seeking PP services began with strong concerns about the risk and uncertainty of pregnancy and childbirth. The concerns of risk and uncertainty drove pregnant women, on the one hand, to demand higher quality of care and, on the other hand, to seek greater control over their situations. Feeling that regular services could not provide a satisfactory level of response to their needs, they sought PP services by first choosing an obstetrician on whom they could count. In choosing their obstetrician, PP users sought information and advice from friends or relatives who previously had PP experience. RP users, in addition to their limited ability to pay an extra expense for PP service, were short of information regarding PP options.

However, poor experience of either type of care had a strong influence on whether they chose the same care in a later pregnancy. Three respondents who had previously used PP services had changed to RP services for the current pregnancy due to problems experienced in the past. These problems included the doctor: arriving late for the delivery without a satisfactory explanation; suggesting a caesarean section against the mother's wish (who subsequently had a normal vaginal delivery); setting the time and date for induction of labor or an elective caesarean section at his own convenience without asking the mother's opinion. A mother's decision to change from PP to RP seemed to indicate her inability to maintain her autonomy or fulfill her expectations.

Four past RP users had changed to PP care for their current pregnancy. Bad experiences of the regular obstetric systems in other hospitals, such as the death of the baby and failure to diagnose an ectopic pregnancy, were reasons for the change. These mothers felt more confident under the PP system. However, affordability was also an important enabling factor in two cases where the mothers now had more money and so could better afford PP than in the past.

Answers to the interview questions confirmed that PP users who were satisfied with the outcomes of their experiences of care trusted their choices and would not change service type in the future. They said they would recommend this option to friends and relatives. In contrast, although most RP users expressed satisfaction with the services they had received, it seemed possible that there may be a trend of shifting to PP when and if increased income level allows.

Discussion

Trust in health care is a comparatively new area of inquiry. The aim of our research was to build a better understanding of various aspects of trust. The proposed framework is shown in Fig. 1 below. We found that perceptions, values and concerns about risk and uncertainty among healthcare users were important attributes differentiating trust in obstetric encounters. Trust was differently conceived by different groups of users and the roles various forms of trust played in the doctor–patient relationship were different between private patients and regular patients.

Since PP involved a relatively large amount of additional expense, ability to pay was an important determining factor for mothers who sought private care. Most PP users who found the private care affordable can be said to belong to the middle class stratum which has steadily expanded since Thailand's rapid industrialization in the latter half of the 1980s. This newly constituted middle class (MC) has been defined as an intermediate hub between the capitalist and the working class (WC) in Thai society (Piriyarangsarn & Phongpanichit, 1993). The Thai MC stratum can be divided into two major groups: the businessmen who mostly rely on the market for their wealth accumulation, and the professionals and white-collar workers characterized by high levels of education, or non-manual workers who rely on their professional skills and expertise for social mobility.

As described by Piriyarangsarn and Phongpanichit (1993), the Thai MC subculture has an inclination toward an individualistic worldview. They usually place a high value on education and base their decisions on systematic calculation and economic rationality. As their cultural worldview is also strongly influenced by the ruling class's concepts of merit, patronage and power (or *boon*, *baramee*, and *amnat* in Thai), they are not only more assertive and self-determined but also less committed to the idea of social equality (Aewsriwong, 1993).

As shown in Table 1, the characteristics of PP users, such as high education, white-collar work and high income, suggest that they belonged to the middle class, while RP users fell within the working class stratum. In addition to ability to pay, which enabled middle class mothers to attain private care, middle class cultural perceptions and values also played a determinant role in the decision to choose PP. Not only were PP users, with their higher education, more trustingly confident in specialist care and advanced medical technology, but also they were more assertive, self-determined, and wanted to be in control of their perceived risk and uncertainty.

As the accounts in our findings also indicate, their middle class view and value was also evident in the belief

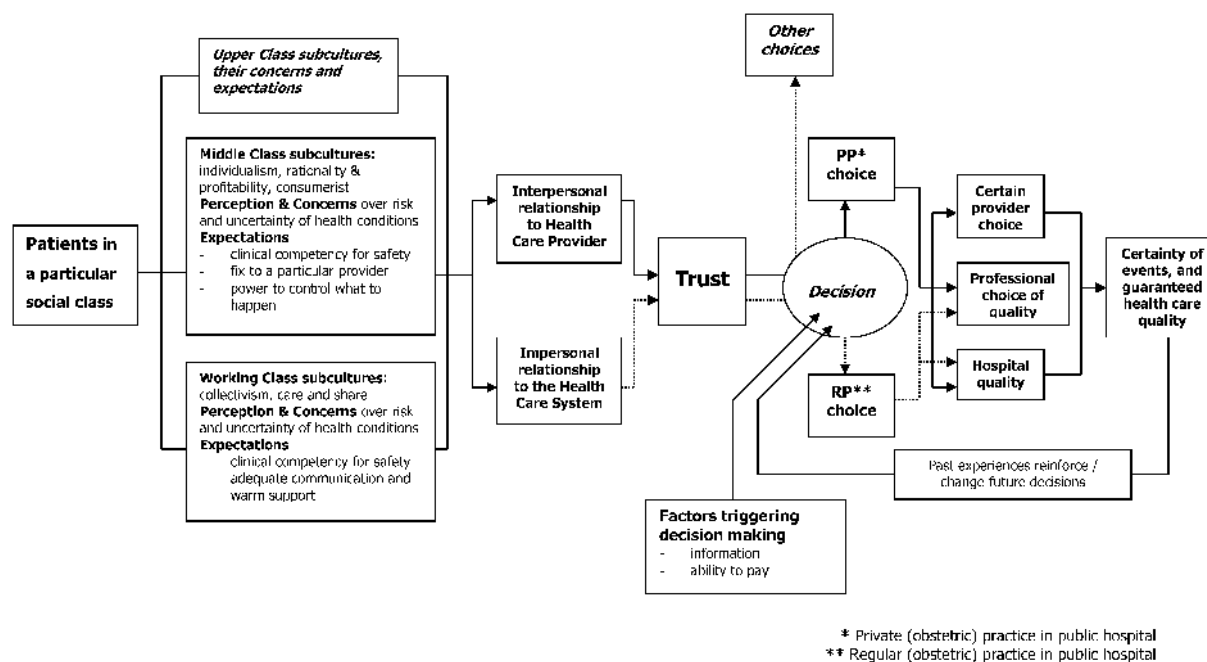


Fig. 1. Framework of healthcare trust.

of most PP patients that their engagement in PP was economically rational. As one PP case told us, "...my doctor told me a fee of 5000 Baht for his service, I thought it was affordable for me. It was not expensive compare to expenses in private hospital." While another said, "...spending 5000 Baht for the safety of my baby and myself was worth spending. I was not pregnant that frequently."

In contrast, RP users were bounded by a different cultural background. Instead of middle class individualism, the working class maintained traditional communal connections even after they migrated to urban areas for job opportunities (Piriyarangsang & Phongpanichit, 1993). Most RP users interviewed in this study maintained strong ties with their traditional social network, friends and relatives, even whilst they worked in Bangkok. As various accounts in our findings indicate, maternal and child-care was traditionally viewed as a collective activity to be managed and assisted by parents and members of extended families in their community settings.

It is clear from the findings that RP users did not rely entirely on professional and institutional care. The traditional knowledge and warm communal interaction formed a supportive system that gave them confidence. Such communal support means that it was more likely for them to return home for their obstetric care than to engage in PP care. Their use of RP services was, thus, partly based on their comparatively lower expectation from healthcare care system. However, it should also be

noted that since RP users belonged to a different social class to the obstetricians. They sometimes felt alienated and unable to bridge the class divide gap. With strong support from their family, relatives and friends who belonged to the same social class, the working class mothers were able to limit their interaction with the hospital and professional system to as little as clinically necessary. For RP users, perhaps the basic trust in the hospital system in conjunction with their trusting social support system was adequate to reinforce their confidence in times of uncertainty and risk.

The dynamic interplay of trust and the myth of interpersonal trust

As Fig. 1 outlines, this analysis of transactions in obstetric care suggests that pregnant women viewed trust in obstetric services at two distinctive levels: (1) trust in the health care system (including trust in the hospital and professional competency) and (2) trust in a particular person in-charge of caring.

In this study, all respondents knew about the reputation of the hospital and their basic trust in the hospital led them to choose its services for their current pregnancies. This level of trust in the hospital can be seen as a basic condition for seeking care. In addition, there was also trust in clinical competency, as expressed by the common preference for an obstetrician (with higher levels of training and licensing) rather than a

general practitioner or a nurse. Together these two categories of ‘basic trust’, namely trust in the hospital system and trust in professionals, are derived from a sense of assurance external to personal familiarity. This basic trust can be called institutional or impersonal trust (Gilson, 2003).

Trust in a particular person in charge of caring involved some combination of impersonal and interpersonal trust. Among RP cases, most patients trusted the persons in charge without knowing them personally. PP cases, however, assumed that by offering additional payments to an obstetrician they would be recognized and would develop a personal relationship with their doctors. This interpersonal trust represents the second level of trust identified by respondents.

However, PP users’ expectations of an interpersonal relationship were often not met. By offering a financial incentive PP users hoped to open the door to an interpersonal relationship with their obstetricians, ensuring that the obstetricians would be honest, sincere, and do their best to serve the patients’ best interests. However, in practice, three sets of experiences suggested that the interpersonal trust perceived by PP users might only have been an expensive impersonal trust mistaken as interpersonal trust.

Firstly, most PP users said they had never known their chosen doctor before. In other words, there had not been initial interpersonal relationship. Most obstetricians chosen by PP users were suggested by the patients’ friends or relatives. As the quote below indicates, most PP users were kept at arm’s length during the course of their encounters, and never got a chance to be acquainted with their obstetricians.

It was a suggestion by one of my relatives. When I asked to be his private case, the obstetrician did not say any words of acceptance. He just nodded and wrote his name and phone number on a corner of my ANC record.

Secondly, even by the end of their pregnancies most obstetricians remained strangers to PP users, and vice versa. Although the interactions between doctors and pregnant women lasted over a period of more than 6 months, each interaction involved only a short visit to the hospital, too short to build up interpersonal trust. Not surprisingly, two PP cases indicated that when they met the doctors who had attended them as PP users the previous year, the doctors could not remember them.

I was given the doctor’s telephone number and was told that I could call him for a consultation when I felt I needed. But I dare not call him because I was afraid I would be disturbing him too much. When I saw him at the ANC, most of our conversation was about obstetric care. There was very little courtesy

and the short encounter couldn’t make us familiar with each other.

Third, the doctors viewed their relationship with PP users as an ordinary professional matter and rarely acknowledged any agreement, or expressed particular courtesy in these relationships. This asymmetrical relation could be viewed as a “negative exchange” (Kapferer, 1976) in which PP users explicitly committed to provide financial incentive to the obstetricians but the obstetricians neither acknowledged nor acted in reciprocity. This meant that while the obstetricians could be certain that they would be paid an additional fee, the PP users could not shore up their confidence and thus still experienced some degree of uncertainty regarding the reliability of the doctors.

Overall, although PP respondents may have felt that they had trusting, interpersonal relationships with their chosen doctors, the limits on these relationships suggest that all pregnant women, PP and RP users, eventually ended up relying more on impersonal trust. The financial incentives involved in PP simply did not provide an adequate basis for building interpersonal trust. Given also that there is wider evidence to suggest that financial incentives may even undermine trust (Hunter, 1996), this study suggests that it is important to develop the mechanisms that can strengthen impersonal trust. These include professional control, an accreditation system, and the enforcement of ethical codes (Mechanic, 1998).

The impact of private practice on the healthcare system

Both the negative and positive patient experiences of PP may reflect deeper structural problems within the health system as a whole. The negative experiences of PP led to distrust in the obstetrician. The following instance from a PP user is illustrative:

“When my pregnancy was near term, the doctor told me to deliver before the New Year day, as he would not be around during holidays. I did not come as appointed because I did not have a labor pain. My labor pains started on the second of January during that long holiday, but my doctor did not come to attend immediately as I expected. Two days later in the labor room, a nurse delivered my baby and my doctor just came at the end to suture the perineum. There was not a single word of apology from him. However, I paid for his PP fee since I felt that I had promised to pay him even if not in words. No more PP for me.”

Given the high expectations of PP patients, the impacts of any negative experiences with PP will be exacerbated when there are serious complications, such as injuries, disabilities or fatalities. Such outcomes have

negative repercussions on trust in the hospital where the obstetrician works, and the wider healthcare system.

The positive outcomes of PP may, however, also have negative impacts on the healthcare system. As the use of PP services mostly begins with advice or suggestions from friends or relatives, positive experiences of PP can encourage more patients to engage in this practice. But as a doctor's time is a finite resource, it is likely to be impossible for a doctor to provide better care for his/her private patients while maintaining adequate care for complicated RP cases. There is a real danger that two-tier care will result.

It is noteworthy that among patients there were conflicting opinions about private obstetric practice. Some endorsed it as a personal right as long as it was affordable. Others opposed PP on the grounds that it would lead to unequal access to public resources, with the obstetricians acting as gatekeepers. As doctors in state hospitals are fully paid by the public sector, additional payments for privileged access to PP care were seen as similar to a bribe and, thus, as an unethical or corrupt practice. The practice was left unperturbed partly because most PP users preferred to keep it informal, while the doctors gained their extra income without any formal obligation or acknowledgment.

It is possible that the continued provision of unregulated PP services may undermine institutional and professional trust. When the outcomes of PP service are less than satisfactory, the patients may become disillusioned not only with a particular obstetrician but also with the hospital which allows PP in the first place, undermining the basic trust in the whole healthcare system.

Conclusions

This study illuminates the important role of trust in the health care seeking behavior of pregnant mothers in Thailand. Two levels of trust are important: impersonal trust in the hospital or healthcare system and interpersonal trust rooted in a personal relationship. Among the middle class mothers, attaining inter-personal trust is the main motive underlying their obstetric care seeking behaviour. Their ability to pay and the fears and anxieties about childbirth lead them to offer obstetricians an informal fee in return for personalised care (PP services). Working class mothers who are more content with regular obstetric care (RP services) rely on an impersonal trust in the hospital standard care. They also receive additional support during childbirth from their traditional kinship networks, and can neither pay for private care nor feel able to bridge cultural gap between them and the obstetricians.

Even among PP users, the interactions they have with their obstetricians are usually inadequate to provide a

strong basis for a trusting, personal relationship. Although the unofficial financial payment associated with PP is intended to provide a foundation for interpersonal trust, the doctors involved rarely acknowledge or commit themselves to the reciprocal relationship. The interpersonal trust associated with PP services, if any, is, therefore, quite fragile.

Our findings also suggest that the presence of private practice in public hospitals could have serious negative repercussions for healthcare generally. Positive private experiences might lead to an expansion of private practice not only in obstetric care but also in other specialties. As private practice expands, doctors are unlikely to be able to manage their time to ensure fair treatment of both PP and RP users. Negative PP experiences may not only erode trust in a particular doctor but also in professionals and the hospital system. Finally, financial payments may undermine genuine reciprocities, sincere expressions of gratitude, and the maintenance of societal non-monetary value within the healthcare system.

Given the fragility of interpersonal trust in the current context and the potential negative impacts of private practice for impersonal trust, we suggest that steps must be taken to protect and build the current levels of impersonal trust in Thailand's obstetric services. We specifically recommend that the two components of impersonal trust must be strengthened: namely organizational or hospital trust through hospital quality accreditation process and trust in healthcare professional institutes to function as a regulatory control body of medical ethical conduct. Although it is difficult to stop private practice completely in public hospitals, policy makers and hospital administrators must develop guidelines to limit the extent of private practice allowed, and so ensure social accountability to users of the regular services. In promoting trust in the healthcare system, account must be taken not only of the socio-cultural characteristics of patients and providers, but also of the organizational cultures of hospitals, which strongly shape provider-patient interactions.

Further investigation of trust in health care settings is required to provide a stronger foundation for policy guidance. We hope that the explanatory framework developed here can be applied more widely in other specialties and settings. The future research agenda around private obstetric practice includes generating greater understanding about obstetricians' trust in patients and hospitals, the magnitude of reciprocity in private practice, and consideration of how to contain or prevent the negative impacts of private practice. At a more general level, further studies are needed to understand the role of trust at different healthcare levels (primary, secondary, and tertiary care) and in different healthcare settings (rural, urban, local cultural orientation), as well as perceptions of trust among healthcare

providers and healthcare administrators. Understanding the process of trust formation and factors that could undermine trust will also be important in strengthening non-financial incentives in the healthcare system.

Acknowledgements

This study was supported by the Thailand Research Fund to Senior Research Scholar Program in Health Systems and Policy Research. We appreciate its continuous supports to this Program. Institutional grant support to the IHPP from the Health Systems Research Institute is also highly appreciated. Lucy Gilson is a part-time member of the Health Economics and Financing Programme of the London School of Hygiene and Tropical Medicine, which is supported by the UK Department for International Development. The UK Department for International Development (DFID) supports policies, programmes and projects to promote international development. A workshop on Trust and Health Systems organized by the University of Witwatersrand and London School of Hygiene and Tropical Medicine, in September 2002, inspired us to investigate trust in healthcare.

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System dynamics approach to immunization healthcare issues in developing countries: a case study of Uganda

Agnes S. Rwashana, Ddembe W. Williams and Stella Neema

This article critically examines the challenges associated with demand for immunization, including the interplay of political, social, economic and technological forces that influence the level of immunization coverage. The article suggests a framework to capture the complex and dynamic nature of the immunization process and tests its effectiveness using a case study of Ugandan healthcare provision. Field study research methods and qualitative system dynamics, a feedback and control theory based modelling approach, are used to capture the complexity and dynamic nature of the immunization process, to enhance a deeper understanding of the immunization organizational environment. A model showing the dynamic influences associated with demand and provision of immunization services, with the aim of facilitating the decision making process as well as healthcare policy interventions, is presented.

Keywords

causal loop diagrams, healthcare services, immunization demand, immunization healthcare, system dynamics, Uganda

Introduction

Stagnant and falling immunization rates in most sub-Saharan African countries have resulted in renewed international attention, and the effectiveness and sustainability of immunization programmes have become key issues of policy debate [1]. Increasing immunization coverage to prevent childhood diseases is an important developmental issue [2–5] and an area of critical research [6–11].

In a study to evaluate new trends and strategies in international immunization, Martin and Marshall [12] suggest that 'failure to immunize the world's children with life saving vaccines results in more than 3 million premature deaths annually'.

There is an urgent need to improve immunization coverage around the world. The World Health Organization has targeted measles for eradication in several regions of the world by the year 2010 but, despite an effective vaccine, there are still estimated to be 30–40 million measles cases and 800,000 deaths per year [13]. In Uganda, despite numerous immunization campaigns through the media, health visits and improved health services, coverage rates are generally still low (less than 60%) [13].

Various approaches have been applied to understand immunization coverage problems. However, there are still acknowledged deficiencies in these approaches, and this has given rise to research into alternative solutions, including the need to adopt new technologies to address the imbalance between immunization demand and provision of health services. Understanding of the immunization coverage system and its problems may be helped through system dynamics methods [14]. System dynamics provides us with tools which help to better understand difficult management problems such as faced by the immunization programme in Uganda.

Background to immunization coverage in developing countries

Preventable childhood diseases such as measles and premature deaths still occur, particularly in the developing countries, due to low immunization coverage [5]. According to the World Health Organization (WHO) [15], global coverage for measles immunization stands at 77 per cent. In 2005, 28 million infants worldwide had not been vaccinated with DPT3 (diphtheria pertussis tetanus, third dose), with 75 per cent of these being in developing countries. Immunization coverage is lowest in poor countries and among poor populations such as Africa and Asia [16]. Globally, it was reported that the goal of fully immunizing 80 per cent of the world's children was reached in 1990; however, coverage in Africa for that year was 55 per cent. The United Nations Children's Fund (UNICEF) and the World Health Organization [17] further state that immunization coverage rose significantly since the launch of the expanded programme for immunization in 1974, from less than 5 per cent of the world's children in the first year to around 76 per cent by the end of 2003. Governments, donor agencies and projects have made contributions towards the improvement of immunization rates through the improvement of health infrastructure, financing, supplies, staffing and management of national immunization programmes.

Figure 1 shows the immunization coverage rates in Uganda over time. In Uganda, BCG immunization rates are higher than those of polio 3 (polio, third dose), measles and DTP3 due to the fact that BCG is administered at birth, while the rest are administered after some weeks as scheduled. There is a general upward trend in immunization coverage rates which is sustained by continuous campaigns to challenge negative responses towards immunization.

Research design

The study employed the dynamic synthesis methodology (DSM) developed by Williams Ddembe which combines two powerful research strategies: system dynamics (SD) and

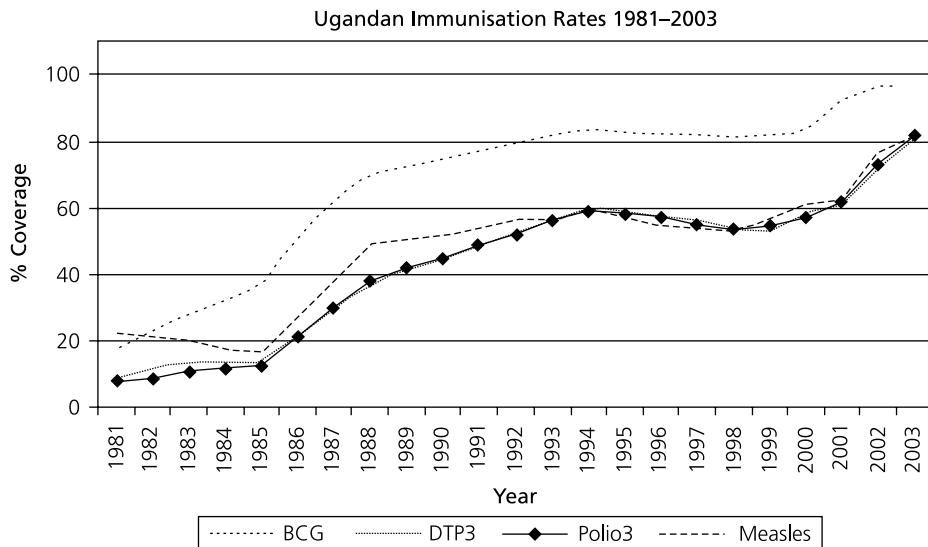


Figure 1 Ugandan immunization rates 1981–2003

case study research methods [18]. Combining simulation and case study methods is beneficial in that the case study enables the collection of on-site information about the current immunization system, owners and user requirements and specifications used to develop the generic model.

The system dynamics methodology illuminates key principal effects such as exogenous shocks, systemic feedback loops, systemic delays and unintended consequences typical of the immunization system as follows:

- 1 The immunization system presents exogenous shocks (factors external to the system), such as changes in demand for immunization (which may occur as a result of immigration) and the emergence of epidemics such as measles.
- 2 The immunization system contains feedback loops, communication paths and methods that impact behaviour. A feedback loop is a control system where the output of the system is fed back into the system [19]. For example, immunization knowledge enhances utilization of immunization services which in turn results in more knowledge.
- 3 The immunization system has systemic delays (time lags) which develop over time in response to internal and external influences. Examples of such delays are those arising from delivery of health services and cold chain maintenance (ensuring that vaccines maintain the right temperature during distribution), especially to rural communities, as well as delays in uptake of immunization.
- 4 Policy changes, feedback loops and behavioural changes in the immunization system result in both intended and unintended consequences which can be investigated using the SD methodology.

The problems faced by the nation's immunization system policy can be interpreted in terms of the information, actions and consequences which the system dynamics viewpoint presents [20–23]. The research design is shown in Figure 2.

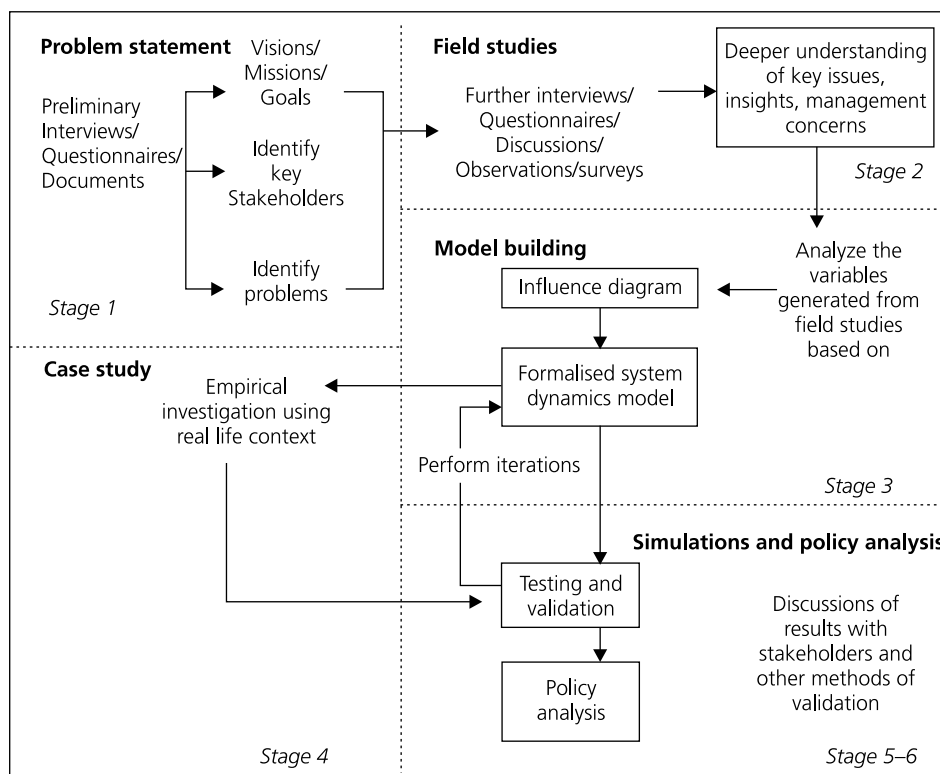


Figure 2 The research design (source: [28])

In order to understand factors that influence immunization coverage and their relationships, survey research supported by semi-structured interviews was conducted to understand the intricate information flows, delays and other competitive challenges. In stage 1 (Figure 2), information related to immunization issues and associated problems was initially collected from related literature and documents. Management and staff of the national immunization programme (UNEPI) and Mukono District Health Services were interviewed in order to establish the current problems faced by delivery and uptake of immunization services. Field studies were used to determine the full range of activities and challenges associated with immunization coverage (stage 2). Data obtained from the study were analysed with the SPSS statistical package (stage 3). The factors affecting immunization coverage, as well as national immunization policies used for immunization coverage, were critically analysed and used to develop causal loop diagrams (Figures 4 and 5) using Vensim modelling software.¹ The causal loop diagrams were presented to stakeholders for comments and improvements. Feedback from consultations was then used to develop the quantitative model. Stage 4 involved empirical investigation into the current Ugandan immunization healthcare services. Data obtained from the empirical investigation was used to populate the model. Stage 5 involved scenario modelling and testing of various policies as well model validation. Stage 6 involved the proposition of

intervention strategies towards improvement of immunization coverage. Key information and processes required for immunization coverage improvement were derived.

Field studies

Field studies were carried out to determine the full range of activities and events that are associated with immunization coverage, and to examine the various acknowledged factors associated with the provision and utilization of immunization services [24]. The study was both qualitative and quantitative. The study was carried in Mukono district which lies in the central region of Uganda. Mukono was selected as the area of study since it has a good mix of both rural and urban populations. The people of Mukono district reside both on the islands (one county) and the mainland (three counties) and the population consists of more than 18 tribes. Data were collected through interviews using semi-structured questionnaires from various stakeholders interested in the current immunization system: mothers, health workers, district health officials, implementers of policy (UNEPI), policy makers (government) and community leaders. Field observation of some activities was also carried out, and other sources of data, especially those that would be able to highlight historical, social, political and economic contexts, were collected.

Mothers. In each county of the selected district, 200 mothers were interviewed. A multi-stage sampling method was used to define a target sample size of 800 mothers. The sample size was determined as follows:²

where:

- n is the required sample size.
- z is the standard normal deviation corresponding to the level or degree of confidence selected. Two confidence intervals normally used for the population mean are 95 and 99 per cent. This study selected the 95 per cent confidence interval as suggested by Hutchins et al. [25]. For 95 per cent confidence interval, $z = 1.96$.
- p is the fraction of population normally covered by immunization, i.e. 0.7.
- q is the fraction of population not covered by immunization, i.e. $(1 - p) = (1 - 0.7) = 0.3$.
- e is the error caused by observing a sample instead of the whole population or the permissible error which is less than or equal to 10 per cent.

Hence $n = 80.7$. Taking into account a non-response rate of 20 per cent, this gives a figure of 100 respondents. A design effect consideration resulted in 200 (100×2) respondents for each county, thus making the number of respondents in the four counties equal to 800. In each county, the planned number of interviews was at least 200 mothers. A structured questionnaire was used.

Health workers. Three private and five government health facilities were selected by simple random sampling from the district. Those that were selected included one government hospital and one private hospital, and the rest were health centres and dispensaries. At each sampled health unit, two people were interviewed, one vaccinator and one officer-in-charge of vaccines; this brought the total interviewed to 16.

Officials. At the district level, several meetings with various officials from the health and administrative services were held. Local community leaders and national officials, as well as consultants with UNICEF, were interviewed.

Data analysis

A thematic approach was used to compile and analyse the qualitative data. Socio-economic and demographic variables were treated as independent variables, while attitudes and knowledge were treated as both dependent and independent variables. The data were analysed using SPSS 10.0 for Windows. The analysis employed descriptive statistics, including frequencies, percentage distributions, cross-tabulations and correlations. Cross-tabulations were used to further analyse the data by considering a combination of information on two or more variables.

Analysis of the Ugandan immunization system

Healthcare services in Uganda, including immunization services, are provided through a decentralized system consisting of geographically spread health centres and regional hospitals which are categorized into health districts and health subdistricts. A system diagram, a high level map showing the overall architecture of the immunization system, was developed as shown in Figure 3.

The immunization system diagram shows four key subsystems which are explained as follows:

- 1 The *immunization management subsystem* is responsible for the management, monitoring and supervision of immunization services at the national level. Collaboration with the government/donor agencies effects proper budgeting and flow of funds. Management ensures that vaccines are ordered and delivered to the vaccines management subsystem for distribution.
- 2 The *vaccines management subsystem* is responsible for the management and delivery of quality vaccines to the healthcare service subsystem for distribution to the districts and health facilities. This involves maintenance of vaccine efficacy which is done by ensuring that the vaccines are kept at the right temperature.
- 3 The *healthcare service subsystem* is responsible for the provision of immunization services to the population. The health service is concerned with the management of resources (health workers, vaccines and equipment) as well as providing health education to the community.
- 4 The *community subsystem* represents the population that utilizes the immunization services. The community is obliged to take the children for immunization, follow the immunization schedule and report any incidences concerning immunization.

The key external agents (outside the boundary) include the *government and donor agencies* that provide the funds necessary to run the immunization programmes, the *vaccine manufacturing organizations*, and the *community leaders* who carry out mobilizations in the communities.

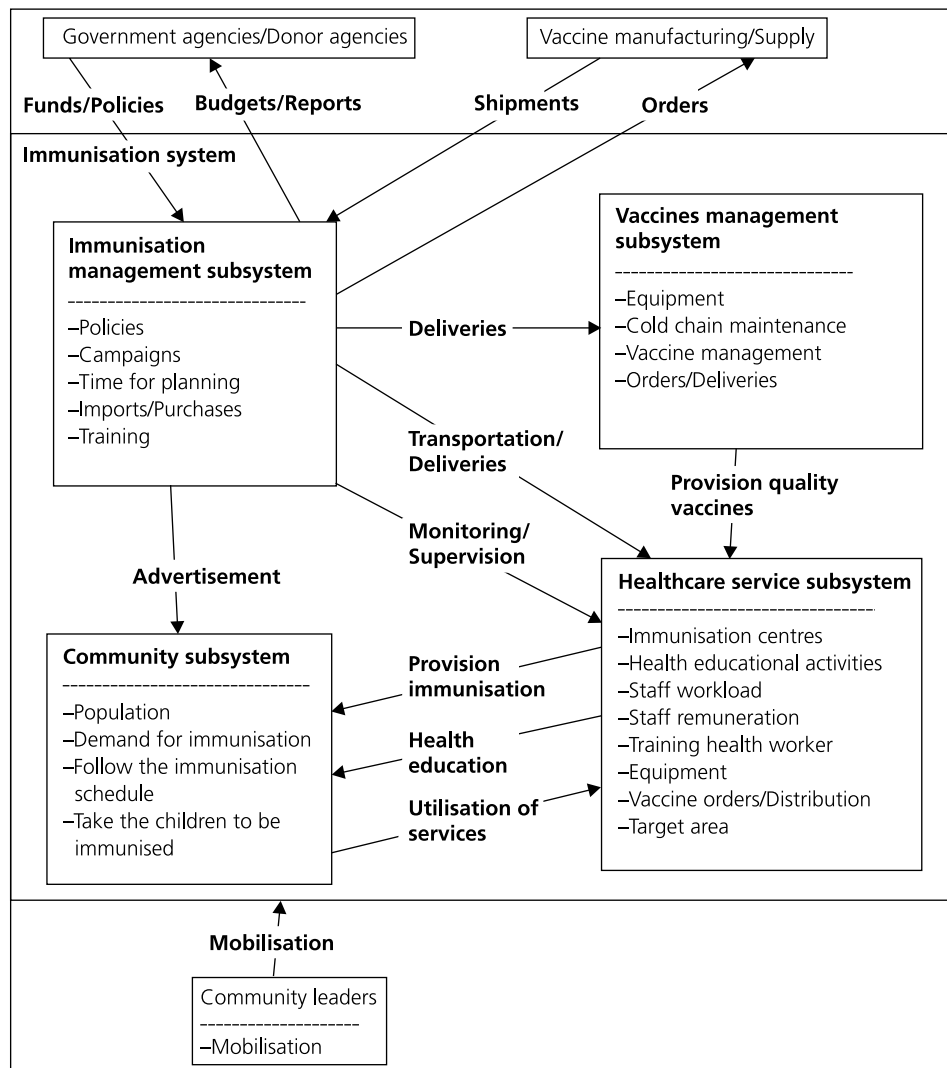


Figure 3 Immunization system diagram for Uganda

The system diagram conveys information on the boundary and levels of aggregation in the model by showing the number and type of different organizations or agents represented. Key processes and flows of information are shown. However, the diagram does not show the influences and causality which provide a deeper understanding of the immunization system.

Causal loop diagrams

Causal loop diagrams (influence diagrams) are circular chain diagrams of cause and effect which are used to represent relationships between variables which are often difficult to

describe. A relationship between two variables is represented by an arrow showing the direction of influence. A positive sign on a link implies that a change in one variable results in a change in the same direction, whereas a negative sign denotes a change in the opposite direction. A feedback loop occurs when arrows connect a variable to itself through a series of other variables. A feedback loop may be reinforcing (R) or balancing (B). A reinforcing loop is defined as a positive feedback system that represents a growing or declining action, while a balancing loop is a negative feedback system that is self-regulating [26].

Findings from the field study, as well as immunization studies of other researchers [3, 5, 7, 27], are represented in the causal loop diagrams of Figures 4 and 5. The figures show the factors associated with demand for immunization and the provision of healthcare services, as well as the key issues that need to be taken into consideration.

Figure 4 illustrates the intricate and complex relationships among factors affecting immunization coverage from a parental participation perspective and a number of feedback loops which may help to explain different immunization coverage levels [28]. It is this feedback structure that gives rise to complexity, non-linearity and time delays in immunization coverage.

Figure 4 presents two balancing loops B1 and B2 and one reinforcing loop R1. Loop B1 is a balancing loop which shows that, with increased level of awareness, the demand for immunization increases, which increases the number of children immunized, thus creating a herd immunity which, in turn, results in fewer occurrences of epidemics [27]. Increased epidemic occurrences, on the other hand, result in an increased disease burden; this necessitates more awareness campaigns which, in time, lead to increased awareness levels.

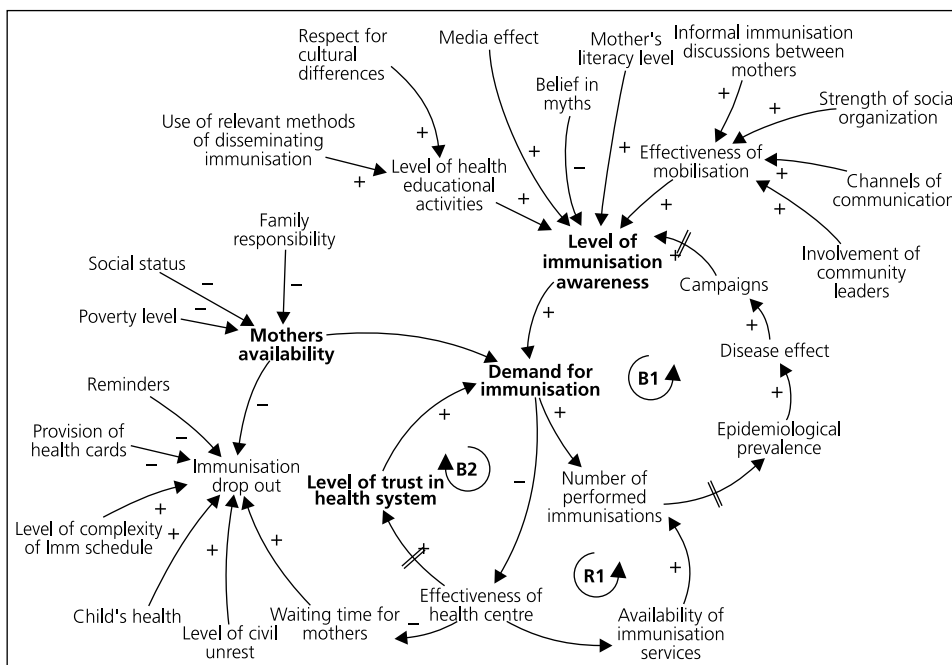


Figure 4 Causal loop diagram for demand for immunization dynamics

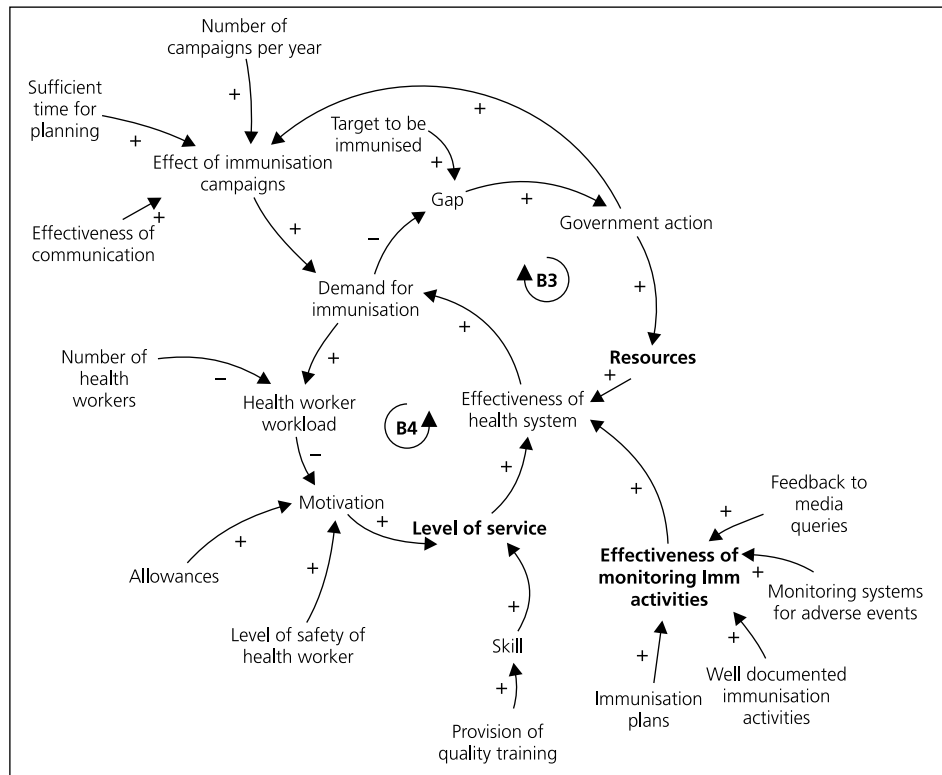


Figure 5 Causal loop diagram for healthcare service provision

Loop B2, a balancing loop, represents the dynamics involved in the effectiveness of healthcare systems. With a time delay, increased effectiveness results in increased level of trust, thus increasing the demand for immunization services. However, as the demand for immunization services increases, the resources are depleted and the workload increases, thus causing a reduction in the effectiveness of the health systems. Loop R1 is a reinforcing loop which shows a growing decline in the number of immunizations performed due to inadequate provision of immunization services. As the number of children to be immunized increases, there is need to increase the capacity of the healthcare services.

Figure 5 presents two balancing loops B3 and B4. Loop B3 seeks to achieve the set immunization targets by focusing on health service delivery. The difference between the targeted number of children and the actual number of children immunized creates a gap which triggers an increase in government funding for immunization programmes. An increase in funding results in increased resources and health centres which, when coupled with a high level of service, will increase effectiveness; this, in turn, improves the demand for immunization.

Loop B4 is a balancing loop, which represents the limiting factor resulting from increased demand as far as the effectiveness of the healthcare system is concerned. An increase in demand results in increased workload which reduces health worker motivation, resulting in reduced level of service, which affects the provision of healthcare services.

The effectiveness of the health system can be achieved through a combination of factors such as availability of resources (health centres, vaccines, transport), level of service of health workers (skills, workload) and effectiveness of monitoring systems.

Insights from the causal loop diagram

From the causal loop diagram, a broad integrated view of the system is provided for stakeholders to prioritize and set policies. The different policies and interventions that need to be developed for the improvement of immunization coverage can then be generated from a clear understanding of the complexity of the system.

Parental participation subsystem

The parental participation subsystem is based on the case study that was undertaken and the immunization studies of other researchers [7, 27, 29, 30]. From the study, the key issues that affect parental participation are grouped under the following, as shown in the causal loop diagram in Figure 4:

- Effectiveness of health centres results in increased availability of immunization services to mothers, which in turn increases the number of performed immunizations.
- Mothers' availability is associated with family problems (single parenting, number of children in the household), high poverty levels and social status (mothers' work, work schedule).
- Level of trust in the health system is increased as the effectiveness of the health centres increases. Increase in level of trust results in a change in attitude towards increased demand in immunization. Issues that are associated with the effectiveness of health centres include hygiene, levels of injection safety, number of health workers at the health centre, and health workers' response to the mothers.
- Level of immunization awareness is associated with mothers' level of literacy, belief in myths, effect of media, level of education and effectiveness of community mobilization.
- Immunization dropouts (infants who take initial doses but do not complete the immunization schedule) are associated with the level of civil unrest (presence of wars), children's health, level of complexity of immunization schedule, provision of health cards and reminders.

Healthcare subsystem

The healthcare subsystem is based on field studies carried out in a number of health centres in the Mukono district and various other studies. The key issues associated with the healthcare system are grouped under the following, as shown in the causal loop diagram of Figure 5:

- Level of service is associated with health worker motivation resulting from the provision of allowances, level of safety and workload. Increased skill level resulting from the provision of quality training increases the level of service which in turn increases the effectiveness of the health system.

- Effectiveness of monitoring of immunization activities involves the following: monitoring systems for adverse events, documentation of immunization activities, display of immunization activities, reporting of immunization activities and reviews of immunization plans.
- Effectiveness of immunization campaigns is affected by the number of campaigns in a year, availability of allowances, sufficient time for planning and effectiveness of communication.
- Efficiency of health facilities is affected by the availability of resources (finance, equipment, logistics) as well as monitoring of immunization activities.

Validation

The initial causal loop diagram generated from the field studies was presented to various stakeholders for their comments and feedback on understanding of immunization coverage problems. Thereafter, specific interviews were conducted with health workers, district health workers and mothers to improve the resulting causal loop model, and further qualitative analysis led to refinement of Figures 4 and 5.

Conclusions and future work

Systems dynamics has been used to capture and analyse complex interactions between behavioural, technical, policy and cultural issues. This provides a broad integrated view of the immunization system which facilitates communication and caters for the different stakeholder viewpoints. The synthesis of the various theoretical concepts through the use of causal loop diagrams facilitates the understanding of the immunization system which enables agreement on different policies and priorities. Examining causal loop diagrams enables decision makers to focus on the root causes of shortcomings and not the symptoms alone. It is through such understanding that effective decisions and policy interventions that are suitable for communities such as those in developing countries can be designed.

Ongoing work involves development of the quantitative model and applying simulation modelling to test different healthcare policies using 'what if' analysis, with the aim of improving policy analysis in immunization coverage. The causal loop diagrams are converted into stock and flow diagrams which are defined by mathematical equations where variables are given initial numerical values emanating from historical data. The aim of developing the model will be to show the relationships, trends and effects of key variables by testing various scenarios.

Notes

- 1 <http://www.vensim.com/software.html>.
- 2 How to determine a sample size: <http://www.extension.psu.edu/evaluation/pdf/TS60.pdf>.

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Discursive gaps in the implementation of public health policy guidelines in India: The case of HIV testing

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ARTICLE INFO

Article history:

Available online 29 September 2010

Keywords:

India
Public health policy making
Implementation
Public health guidelines
HIV testing
Policy analysis
Interpretive analysis

ABSTRACT

The implementation of standardized policy guidelines for care of diseases of public health importance has emerged as a subject of concern in low and middle-income countries (LMIC) globally. We conducted an empirical research study using the interpretive policy analysis approach to diagnose reasons for gaps in the implementation of national guidelines for HIV testing in Indian hospitals. Forty-six in-depth interviews were conducted with actors involved in policy implementation processes in five states of India, including practitioners, health administrators, policy-planners and donors. We found that actors' divergences from their putative roles in implementation were underpinned by their inhabitation of discrete 'systems of meaning' – frameworks for perceiving policy problems, acting and making decisions. Key gaps in policy implementation included conflicts between different actors' ideals of performance of core tasks and conformance with policy, and problems in communicating policy ideas across systems of meaning. These 'discursive' gaps were compounded by the lack of avenues for intellectual intercourse and by unaccounted interrelationships of power between implementing actors. Our findings demonstrate the importance of thinking beyond short-sighted ideals of aligning frontline practices with global policymakers' intentions. Recognising the deliberative nature of implementation, and strengthening discourse and communications between involved actors may be critical to the success of public health policies in Indian and comparable LMIC settings. Effective policy implementation in the long term also necessitates enhancing practitioners' contributions to the policy process, and equipping country public health functionaries to actualize their policy leadership roles.

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Introduction

The policy-practice gap in public health

This paper investigates the problem of gaps in the implementation of standardized public health practice guidelines in India, using the issue of HIV testing as an illustrative case study. The formulation of evidence-based guidelines has emerged as a key approach in health care policy globally, and particularly for diseases of public health concern. Guidelines and the ideas they contain often assume emblematic status in the global public health community and become a great part of the policy lexicon in their respective fields (Ogden, Walt, & Lush, 2003). Guidelines are widely seen as benchmarks of quality of care, and adherence to them by frontline providers is regarded to be requisite for the success of

public health initiatives and programmes (Brugha, 2003; Das & Hammer, 2004).

There is however significant evidence that the practices of frontline health care providers do not always correspond with standard policies for care of important diseases. For instance, insisting on HIV tests before hospital admission or surgery, breach of confidentiality of HIV status and testing patients without specific consent count among the common infractions of national policy guidelines by doctors in India. In a study in Pune city, India, Sheikh et al. (2005) documented that private practitioners prescribed HIV tests in large numbers and often indiscriminately, and forty percent reported mandatory HIV testing before conducting invasive procedures. In a multi-centre study of 2200 health care professionals in private and public hospitals and health centres (Kurien et al., 2007) 67% of the doctors reported that they screened patients for HIV before elective surgery, and only 30% reported obtaining written consent for the test regularly.

Das and Hammer (2004) assessed private and government doctors' practices in treating infant diarrhoea, pharyngitis, tuberculosis, depression and pre-eclampsia, observing significant

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deviations from recommended standards of practice in Delhi. Kamat (2001) reported widespread instances of presumptive treatment of malaria by private practitioners in a Mumbai suburb. Chakraborty and Frick (2002) have reported shortcomings in private practitioners' treatment of acute respiratory infections in children, evaluated against a standard of WHO-recommended guidelines. Gross variations in tuberculosis treatment among private practitioners have been reported frequently in India, notable studies including Uplekar, Juvekar, Morankar, Rangan, and Nunn (1998) and Prasad et al. (2002).

The phenomenon is also well documented in other low and middle-income countries (LMIC). Health professionals' treatment of malaria in Sudan, childhood diarrhoea in Thailand and sexually transmitted infections (STI) in South Africa respectively has been reported to diverge from standardized norms (Mannan, Malik, & Ali, 2009; Howteerakul, Higginbotham, Freeman, & Dibley, 2003; Schneider, Chabikuli, Blaauw, Funani, & Brugha, 2005), while in Somalia practitioners have been found to disregard global recommendations for tuberculosis management (Suleiman, Houssein, Mehta, & Hinderaker 2003). There is also evidence of widespread divergence from policy recommendations in the case of dengue diagnosis (Ng, Lum, Ismail, Tan, & Tan, 2007) in Malaysia, management of chronic obstructive pulmonary disease in Morocco (Benouhoud, Trombati, Afif, Aichane, & Bouayad, 2007), and antimicrobial prescription for paediatric respiratory tract infections in Argentina (Aznar, Mejia, Wigton, & Fayanas, 2005) respectively.

What underlies this ubiquitous phenomenon of policy-practice gaps? Frontline practitioners' divergences from standardized policies have also been reported in high-income country (HIC) contexts, with developed regulatory mechanisms. These are typically ascribed to contests around policy content – the evidence base for, or appropriateness of a particular set of guidelines (Chiao et al., 2010; Warwick, 2010). However, viewed in LMIC contexts, given the greater prevalence of diseases of global public health importance, and the general recognition of deficient accountability systems and health market failures, the problem has naturally assumed a greater significance. Prevailing diagnoses of policy-practice gaps from LMIC include the bearing of manifold influences on the behaviour of frontline practitioners (Howteerakul et al., 2003; Paredes, de la Peña, Flores-Guerra, Diaz, & Trostle, 1996), and the failings of health systems, particularly regulatory systems (Haines, Kuruvilla, & Borchert, 2004).

In the Indian context – Das and Hammer established that doctors in Delhi often did not comply with regulations in spite of being aware of them (2004), and suggest that incentive structures for doctors in both private and government sectors do not promote their uptake of standard guidelines. Kamat (2001) observed that private doctors are unduly subject to patients' expectations in unregulated and highly competitive markets, and Kielmann et al. (2005) and Datye et al. (2006), reporting from the same study, have explained private doctors' divergences from recommended practices in terms of reactions to varying market, policy and social pressures, underlined by the challenge of keeping abreast with knowledge in a rapidly changing field. Other studies have associated Indian hospital practitioners' divergent practices with their reference to

values and beliefs which sometimes come into conflict with policy norms – respectively in the cases of HIV testing (Sheikh & Porter, 2009) and neonatal care (Miljeteig & Norheim, 2006).

Inefficiencies of government health departments and lack of capacity to execute their regulatory functions have also been implicated as reasons for poor implementation of public health policies in India (Das Gupta, Khaleghian, & Sarwal, 2003; Muraleedharan & Nandraj, 2003). Bhat and Maheshwari (2005) have highlighted vulnerabilities and lack of capacity of government departments to engage meaningfully with private sector actors. Muraleedharan and Nandraj (ibid) also implicate the absence of, or lack of detail in, legal frameworks for medical care standards (nationally and in different states and municipalities), as a context for perverse practices in the private medical sector.

From the existing literature, it can be concluded that while documentation of policy violations by frontline practitioners in India is common, there is little by way of systematic understanding of reasons for the problem. Explanations of policy-practice gaps have tended to be partial and/or conjectural, and in-depth empirical investigations of the phenomenon are lacking.

The putative architecture of implementation

How are national guidelines for health care supposed to be implemented? Table 1 charts the key groups of actors involved in the implementation of public health guidelines in India, with their putative functions indicated in italics. Firstly, medical practitioners are obliged to conform to national guidelines in managing their patients. For the purposes of this study, we have focused only on recognised practitioners in urban government and private hospitals, trained in the allopathic (Western) system of medicine. Within hospitals, administrators including heads of departments and superintendents are responsible for staff behaviour. The National AIDS Prevention and Control Programme (NAPCP) publishes and promulgates policies and guidelines for various aspects of HIV care and control, including for HIV testing. Finally, international donors and technical organizations have a professed role in the development and propagation of public health guidelines.

It cannot be assumed that actors' participation in policy implementation is shaped solely by formal rules and policies. Policy theorists Hjern and Hull (1982) contend that in real-life contexts implementation processes frequently do not coincide with the "written constitutions" which define actors' putative roles. In order to investigate problems of implementation, it becomes necessary to undertake empirical research to elaborate "how policy problems are defined and addressed" by the actors involved in the implementation process (ibid). In this study we adopt precisely such an approach, of investigating gaps in the implementation of public health policy guidelines from the perspectives of the participant actors.

Interpretive policy analysis

In exploring the reasons for policy–practice gaps in this study, the interpretive approach of policy analysis is adopted, in which events and phenomena are viewed through the lens of the interpretations of

Table 1
Policy actors interviewed, and their putative roles in implementing public health guidelines.

	<i>Development</i>	<i>Propagation and Education</i>	<i>Supervision and Monitoring</i>	<i>Conformance</i>
Medical practitioners (32 participants)				✓
Public health authorities				
National health programme officials (3 participants)	✓	✓	✓	
Hospital administrators (7 participants)			✓	
International actors (4 participants)	✓	✓		

participant actors (Yanow, 2000). This approach relies on in-depth qualitative research methods and is derived from constructivist epistemologies in social research which aim to “include multiple voices and views in their rendering of lived experience” (Charmaz, 2000, p. 525). The approach requires the analyst to be immersed in the beliefs of participants to understand their purposes and motivations for actions. In accessing these interpretations of actors, interpretive analysis can account for the role of various factors including beliefs, assessments of realities, values, self-interest and dominatory power in shaping their actions and interactions.

The concept of ‘systems of meaning’ is integral to the interpretive approach, signifying how different actors construct their realities, define problems and identify solutions for the problems (Yanow, 2000). Policy theorist Vickers (1965) had previously proposed that policy actors form ‘appreciations’ of given problems, a concept analogous to ‘systems of meaning’. Appreciations consist of actors’ judgements around the facts of the problem (reality judgements) combined with value judgements answering the question “what ought to be?”, which together inform their decisions around action – action judgements. Reality, value and action judgements represent categories on the basis of which actors’ explanations of their actions can be thematically organized (see Fig. 1) – this framework finds application in organizing the results in this paper. Collectives of actors belonging to the same groups and organizations may share cognitive mechanisms and decision-making processes, and use similar language to discuss policy problem, hence forming ‘communities of meaning’.

Methods

The study was conducted in nine hospitals in five Indian states, using in-depth social science research methods. Principles of maximum variation were applied in respect to identifying hospitals for the study, based on two criteria: type of hospital and geographical zone. Nine urban hospitals were selected with representation from the government, private, and charitable sectors; and located in five cities, one each from the North, West, South, East and Central Zones of the country. Four government hospitals, three private hospitals and two charitable hospitals were identified purposefully. In these five hospitals 32 practitioners working in specializations associated with HIV testing were selected, also purposefully, ensuring distribution across specializations, gender and experience. Additionally 14 senior officials representing hospital authorities, national health programmes, and international organizations were interviewed.

In-depth interviews were conducted with all study participants by the first author of this paper over 18 months in the years 2005–2007. Appointments were sought telephonically, by email or by personal visits. All participants were interviewed in hospitals or offices which were their usual places of work. Topic guides consisted of queries around respondents’ participation in the implementation of HIV testing policies. We focused on the following aspects of the national HIV testing policy (NACO 2003), which have been reported to be infringed widely by medical practitioners:

- The requirement of *specific written informed consent* from a patient before conducting a HIV test
- Prohibition of HIV testing as a pre-condition for performing a procedure, such as surgery (also referred to as *mandatory or pre-surgical testing*)
- *Strict confidentiality* of HIV test results, including from health workers not directly involved in the care process.

Respondents were encouraged to discuss the topics at length, and interviews were guided by probes. Data collection was concluded when representatives of all the groups identified as being involved in implementation had been interviewed – no “new” names of organizations were being identified by respondents.

The “framework” approach for applied policy analysis, combining inductive and deductive approaches was used to organize and analyze the data from interview transcripts (Ritchie & Spencer, 1994). A thematic framework consisting of three levels of thematic codes was developed: *a priori* themes drawing on the topic guide, emergent issues arising from interviewees’ responses and analytical themes based on patterning of emergent themes (see Table 2). The analytical theme categories were organized around the meanings that actors attached to implementation processes, in keeping with the interpretive approach (see above). Vickers’ formulation (1965) of the appreciative dimensions of policy actors’ responses was useful in classifying respondents’ explanations of their actions (see Fig. 1). The framework was applied systematically to the data, using the qualitative data programme Atlas Ti 4.2. Coded chunks of data were retrieved, organized into charts and written up.

The ‘framework’ demonstrates the systematic nature of the analysis – a criterion of reliability. Care was also taken to ensure that a multiplicity of perspectives is represented, and that the views of a particular group are not presented as the sole truth about a situation. Preliminary findings were presented to study participants, to ensure their credibility or trustworthiness (Yanow, 2000), a key standard of quality in interpretive research.

Institutional ethics clearance was obtained from committees of the academic institution where the study was originated, and by a local ethics review committee. All interviews were conducted and recorded following verbal consent and presentation of a standardized information sheet. All transcripts and recordings were accessible only to the authors, and care was taken while writing up to delete particulars of individuals and institutions which may have led to their identification.

Results

The perspectives of different groups of actors on their own participation in the implementation process are presented

Table 2
Thematic framework of code categories.

A priori themes	Expected role in implementing policies Actual experience of participation in policy implementation (respondents other than practitioners) Actual experience of implementing each aspect of HIV testing policy (practitioners only)
Emergent themes (action judgements)	Accounts of own actions in implementing policies, or not Explanations for actions
Analytical themes	Reality judgements: pragmatic considerations influencing actions Value judgements: value orientations influencing actions

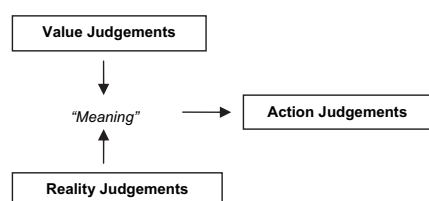


Fig. 1. Vickers' framework of judgements to characterize actors' 'systems of meaning'.

sequentially, thus allowing and leading up to the diagnosis of policy implementation gaps.

A. Medical practitioners: primacy of performance

Actions

While all the doctors were aware of the guidelines, a majority reported that they contravened guidelines for informed consent (30/32) and confidentiality (27/32) on occasion. Pre-surgical HIV testing although practiced by fewer doctors (20/32) was probably as frequent a practice. Most surgeons reported routinely ordering pre-surgical HIV tests for their patients. If these were proscribed by hospital authorities they resorted to subversive means such as sending their patients to nearby private laboratories to be tested, or conspiring with hospital pathologists to perform tests unofficially. In other instances, practitioners reported that they complied with the national HIV testing guidelines. However, surface conformance did not always imply engagement with underlying principles of the guidelines, especially in the case of informed consent.

We have always taken informed consent. How much information the clients have understood is a separate issue. How do we validate or verify that? *Humne to bata diya* [We did what was required]. Now how much they have ingested, understood, we can't say that, we can't guarantee that. (Senior microbiologist, government hospital)

Paradoxically, practitioners sometimes treated the consent procedure as a means to persuade, even coerce the patient into taking the test.

In their explanations of these different actions, practitioners in both private and public hospitals emerged as a distinct 'community of meaning' (Yanow, 2000), sharing particular cognitive mechanisms, engaging in similar acts and using similar language to discuss policy problems. Their divergences from policy norms are explained by a mix of values which were often at odds with the emphasis on autonomy and patient choice which underpin HIV testing policies, and by pragmatic considerations. An overarching theme is that practitioners tended to be preoccupied with the *performance* of core clinical tasks, often at the expense of conformance with policy guidelines. Table 3 summarizes practitioners' explanations of their divergent actions.

Practice values and goals

Informed consent. Doctors' emphasis on clinical outcomes and cure represented the value placed on expediting clinical tasks with efficiency. The first of these tasks is diagnosis and in this context, procedures such as informed consent for a HIV test were

sometimes seen as unwelcome obstacles. A related observation is that the doctors generally approached problems from the position of belief in the innate beneficence of medical intervention, and hence asking for consent from patients presented a paradox (see Fig. 2). Doctors saw diagnosis as a duty towards patients, and part of their embedded functions within healing institutions.

This business of taking informed consent from a patient before doing a HIV test... I don't know where this has come from. A patient has come to you. He is sick, he needs your help. Will you be thinking about this or about treating him? (Physician, private hospital)

The impulse to diagnose a patient was also indicative of the high valuation of the scientific challenge of the clinical procedure. Different diagnostic tests were ordered to maximise knowledge about a patients' condition – a gynaecologist reported the importance of 'knowing where we stand' in order to be able to 'take all the measures' for further management. This inclination to investigate may have frequently overridden considerations of patient autonomy in choosing to be tested.

In managing their patients, doctors typically followed unwritten rules of prioritization of time and resources, based on the seriousness of patients' conditions. In general hospitals with patients with a wide range of serious illnesses, the needs of patients with HIV/AIDS were often not the most imminent. For some doctors, the 'exceptional' set of rules (e.g. specific written consent, confidentiality) and allocation of resources (e.g. counsellors) around HIV testing militated against prevailing logics of patient equality and need-based prioritization.

For counselling, we need a man, a patient, a sofa and a cup of tea, and a room. And there in the emergency, you have three patients on one bed, one is alive, one is dying and one is dead. I am not against consent and counselling. What I am saying is the ground realities are entirely different. (Senior physician, government hospital)

Relationships between patients and medical practitioners were often fundamentally asymmetric, and patients frequently asked doctors to make their decisions for them. While this may have been contrary to the reciprocal logic of informed consent procedures which required patients and doctors both to be autonomous and mutually aware of their rights, it was seen by a number of doctors as a sign of essential trust, and valued by them.

They all say 'well doctor if it is your child what will you do? Whatever you would do for your child, do the same. We leave it to you'. So there is a different relationship. That's one of the great things of working [in India]. (Surgeon, private hospital)

Table 3
Medical practitioners' systems of meaning.

		Action judgements
Value orientations	Clinical efficiency	Superficial compliance
	Innate beneficence of medical care	Contravention
	Duty to diagnose	Discretion/flexibility
	Scientific challenge of diagnosis	
	Trust between patient and provider	
	Patient equality	
	Professional thoroughness	
	Economy	
	Right to safety	
	Perception of personal risk	
Reality judgements	Perception of deprivation (government/charitable)	
	Patients' expectations	
	Co-worker expectations	

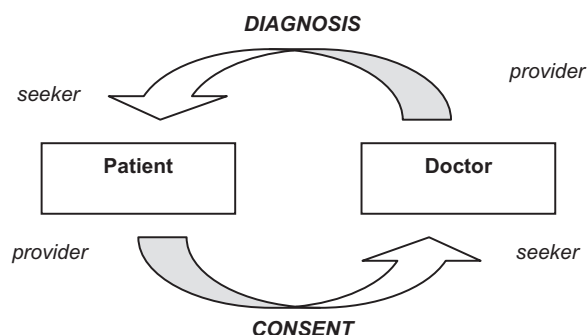


Fig. 2. Paradox of seeking consent to provide a service.

Mandatory testing. In the case of surgeons, role perceptions were even more narrowly focused on the specific task of completing the surgical act successfully. Mandatory HIV testing for some was one of many necessary steps in preparing for the surgery, and regulations preventing mandatory testing were widely regarded by surgeons as obstacles in the way of performing their primary defining role.

In some instances pre-surgical testing was regarded as an essential part of a thorough clinical work-up for patients. It was advocated in private hospitals as part of a package of infection control interventions, and was seen as a signifier of quality in the workplace, and linked to professional values around hygiene and safety. In under-resourced public hospitals, costs for protective equipment for surgeons are typically borne out-of-pocket by patients, and in government and charitable hospitals, practitioners promoted mandatory testing as a cost-saving alternative to adopting universal precautions during surgery.

Confidentiality. Lastly, a key value consideration upheld by doctors was that of teamwork and solidarity between co-workers. The rights of all health workers to optimal protection from infection were invoked in defence of practices of mandatory testing. Fairness in allowing all health workers access to patients' HIV status was a consideration which contradicted confidentiality policies.

Reality judgements

Informed consent. Patients' actions and attitudes were key reality considerations for doctors. Reportedly patients often approached the clinical encounter trusting the doctor to make the best decisions for them, and hence asking for written consent represented a rejection of that expectation. Further, patients' expectations were said to be usually oriented around alleviation of their physical ailments, and formal procedures for consent and counselling were often regarded by them as time consuming diversions. Some patients were reportedly offended by the presumed implication of promiscuity in asking them to consent to a HIV test.

Mandatory testing. An important "reality" for doctors was the risk of infection by a HIV positive person through needle-stick injuries or during interventional procedures. Although the likelihood of their being infected in scientific terms was very low, the fear of infection was considerable among most doctors, and particularly surgeons, and motivated indiscriminate HIV testing by doctors, especially pre-operatively by surgeons.

Save ourselves! The patient comes later... There is a saying in Hindi "*bhookhe pet na hoye bhajan gopala*" [I can't express my devotion to God, with an empty stomach]. If we are hungry, if we are sick, if we are down, then how we will serve? (Senior surgeon, government hospital)

These notions of high risk were compounded by the variably accurate perception that protective equipment available to prevent injury and HIV infection was inadequate. This was characteristic of a generalized sense of deprivation that prevailed among doctors,

frequently comparing their conditions against an imagined ideal of standards of facilities in Western countries.

Confidentiality. In some instances, staff who worked in operation theatres with surgeons expressed their objections to participating in surgery without knowledge of patients' HIV status. Supporting staff are vitally important in the successful undertaking of surgical procedures, and their perspectives were important in motivating mandatory pre-surgical HIV testing. Concerns around the risk of HIV infection through needle-stick injuries for nurses, paramedical staff and hygiene workers were also voiced by doctors in all sectors of hospitals.

Maintaining confidentiality is one issue... but at a lot of times, simple waste disposal becomes a problem. We are supposed to have segregated waste, but at times, we do not get the bags. If we look at a sweeper, taking away the waste from the hospital, you will realise how dangerous it is for him. He is carrying all that waste which has got a lot of fluids, lot of sharps, he is dripping the waste on the floor. How dangerous it is! Just because he is not aware of these things, and how dangerous it is for him. (Junior surgeon, government hospital) (32)

Reportedly health workers also widely felt that they needed to know which patients were HIV positive, for which they resorted to labelling of case files or beds. Such practices, while breaching confidentiality norms, were widely tolerated by doctors with a sympathetic perspective of the needs of their co-workers.

Apart from a shortage of resources, doctors described their constraints in terms of lack of time and manpower and of excess of patients. For instance the idea of strict confidentiality in a crowded consulting room with large volumes of patients and limited hours was described as 'completely impractical', by one gynaecologist in a government hospital. Given a low staff to patient ratio, relatives of patients were usually co-opted to perform various basic tasks of care provision, in the context of which confidentiality of patients' HIV status was highly improbable.

B. Public health functionaries: negating regulatory roles

Actions

Hospital administrators, and health and HIV/AIDS programme officials too did not perform many of their putative regulatory functions in ensuring the implementation of public health policy guidelines. Superintendents and heads of department in government and private hospitals alike displayed considerable leniency towards infringements and took few measures to streamline HIV testing practices among their staff. HIV/AIDS programme officials too reported widespread problems in implementing guidelines, particularly in the private medical sector.

These public health functionaries also cited a broadly homogenous set of meanings and motivations for these divergent actions - the specific explanations of two groups of functionaries are summarized in Table 4. A central observation here is that these actors found more meaning in supportive and developmental

Table 4
Public health functionaries' systems of meaning.

			Action judgements
Value orientations	Hospital administrators	HIV/AIDS programme officials	Focus on developmental tasks Neglect of regulatory tasks
	Supporting practitioners' rights	Supporting care provision 'Development' ethic Disengagement with policy principles Lack of regulatory capacity Non-integration with general health services Intellectual subordination to international actors	
Reality judgements	Delicate relationships with staff Lack of support from senior authorities		

activities, than in their regulatory functions. The relative neglect of their roles in enforcing and regulating standards was also linked to overriding pragmatic considerations such as their inability to dictate the behaviour of practitioners and the apparent lack of resources and capacity to enact regulations.

Value orientations

Among hospital authorities, role identities were typically focused around ensuring the efficient delivery of clinical care, and tasks such as ensuring guideline implementation were seen as secondary, and sometimes as impediments. Being medical professionals themselves, it was evident that in practice administrators often encouraged or supported practitioner discretion rather than uniform compliance to policy. Heads of department also cited solidarity with their subordinates as explanations for their lack of enforcement of policies for mandatory HIV screening and confidentiality.

There are senior doctors and junior doctors and everybody would like to know about the patients' (HIV) status. Probably it would not be fair if I knew and I did not tell my junior doctor, because that means I am taking the precautions and she is not. (Head of department, government hospital)

The HIV/AIDS programme officials also expressed their preference for supportive rather than regulatory-type engagement with medical providers. One official specifically opposed the institution of laws around HIV testing, contradicting the official stance at the time.

Frankly speaking if you put some kind of regulatory mechanism, at least in India I think, that may not serve the purpose... because it is democratic you know. If we keep insisting on a HIV law, every hospital should have this, should have that, then people will come out with their own ways... (Senior official, national HIV/AIDS programme)

Programme officials generally emphasised their role in promoting voluntary change in practitioner behaviour, by providing enhanced educational and workplace resources. They idealized the growth and expansion of HIV care services and project activities, and were preoccupied with financing and instituting new services and facilities (for testing, treatment, training), in the context of which the 'command and control' philosophy of regulation appeared inimical. A state level official remarked that it was not desirable to combine the programme's preferred role of institution builders and resource providers with a policing function.

Remarkably, lack of conviction about the appropriateness of the policies was a common theme among HIV/AIDS programme officials, who were ostensibly owners and promulgators of the policies. Many programme officials shared the reservations expressed by practitioners around the emphases on patient autonomy and on procedural formalities such as written consent and counselling. '[Practitioners'] doubts [around the guidelines] are absolutely valid, and whatever practices they are doing, they have a reason, it is not unnecessary', averred a national programme official.

Reality judgements

Frequently, the functionaries' departure from regulatory tasks was explained by their incapacity to perform these tasks in the face of situational constraints. Administrators in both government and private-run hospitals emphasised the importance of maintaining harmonious relationships with the practitioners in their employ, in order to ensure efficient hospital functioning. Relationships with subordinates were delicate and some department heads perceived a lack of acceptance of their regulatory functions, by staff as well as administrators. One hospital officer in charge of HIV and infection control reported a lack of support from superior authorities in implementing policy guidelines which prevented him from performing his duties

All these things are not on the priority list of administrators. There is no culture of this - public health work is not recognised [in hospitals] (Head infection control, government hospital)

Lack of true authority over the behaviour of medical providers, was also a resonant theme among HIV/AIDS programme officials. HIV/AIDS programmes represent administrative structures parallel to the general health services, and doctors in government hospitals are not in direct relationships of accountability to HIV/AIDS programme officials (see Fig. 3). Due to the prevailing balance of power, programme workers (such as technicians and counsellors) stationed in hospitals were unable to exercise control over doctors' practices, and programme officials did not have the necessary authority over hospital administrators to be able to enforce norms. In the case of private providers, programme officials renounced a regulatory role altogether. A state programme official emphasised that the physical task of regulating private providers' practices was beyond the resources and means of the programme.

Another key relational dynamic, which may have contributed to programme officials' lack of engagement with the principles of HIV testing policy, is their intellectual subordination to international

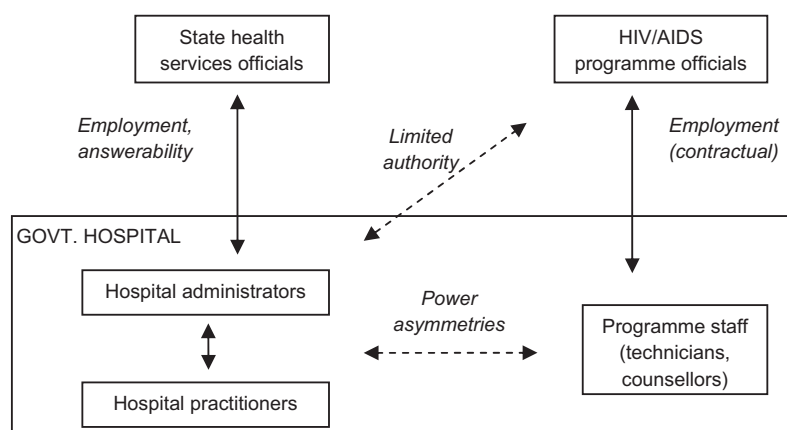


Fig. 3. Health services and HIV/AIDS programme – parallel authority structures.

actors. A senior official commented that national policy guidelines had not developed through means within his control, and cited the World Health Organization and other international agencies as influential sources of guidance in this respect.

C. International actors: streamline and standardize

Representatives of technical agencies were influential in determining the contents of national HIV testing policies. They valued ideals of patient autonomy in medical care as contained in the HIV testing policies and favoured the standardization of medical practices on these lines, but experienced problems in communicating policy messages to implementers.

Value orientations

The international actors interviewed widely perceived their role to be that of setters of norms and standards. They felt that it was important to enforce standards for consent and confidentiality, which they considered to be universal principles. They tended to place a high value on conformance and on streamlining the practices of doctors to meet global norms. The officials interviewed typically expressed strong belief in the principles underlying the HIV testing guidelines, particularly on the importance of patient autonomy in medical care interactions.

(T)here should be confidentiality, there should be systems of counselling or informing the patient. Even that is not happening here. Why? In the West, people make sure that the patient is the one who decides. The doctor tells you the options and you decide what you want.... Eventually in India, people will demand that you treat me with decency, with respect (Officer in a United Nations (UN) technical agency)

They were largely dismissive of doctors' explanations for infringements of HIV testing policies, which they believed to be spurious.

Reality judgements

Technical agencies have a clear mandate to influence the contents of national policy guidelines. However the officials' efforts to exercise this mandate were occasionally impeded by a lack of communication and comprehension. One UN official recounted a discussion with HIV/AIDS programme officials in which "routine offer of testing" was conflated with "routine testing" (with contrary connotations) – indicative of generalized problems of conveying underlying principles of guidelines to implementing actors who did not share the same beliefs and ethical frames of reference.

D. Diagnosing the gaps

Disparate meanings

Implementing actors' inhabitation of discrete world-systems of meaning and purpose – symbolized by amalgams of philosophical and pragmatic considerations – represents a fundamental obstacle for the universal implementation of standardized policy guidelines. A central observation here is that doctors' and public functionaries' perceptions of the purpose of their work tended to focus on *performance* of core tasks rather than on *conformance* with policy guidelines. For both these groups of actors, their decisions were highly contingent on such factors as their relationships with contiguous actors, the variable adequacy of resources, and inconsistent support from administrative structures.

In these contexts of uncertainty, they similarly reported finding most meaning in the performative and entrepreneurial aspects of their roles, and conformity with restrictive and regulative tasks and with the precisely articulated rationales of HIV testing guidelines

was not always a priority. Said a government hospital gynaecologist: 'because we know that we are not able to maintain confidentiality, so we take it loosely.' These (policy guidelines) are ideals which have to be strived for, not necessarily to be achieved', said one government pathologist.

The problem of communicating ideas contained in the policy guidelines across disparate 'communities of meaning' is best exemplified by the case of informed consent. While international actors – with their value orientations fixed on patient autonomy – regarded informed consent norms to be of paramount importance, practitioners preoccupied with performative goals were confused by the paradoxical logic of consent and regarded it chiefly as an impediment to care. Their adoption of guideline norms often remained specious and superficial, without intrinsic engagement or comprehension of their value.

Unshared platforms

'Communities of meaning' – the discursive worlds of medical practitioners, of public health functionaries, or of international actors, are formed in contexts of their shared working environments, common goals and similar logics of action. The insularity of these communities and rigidity of their thoughts and ideas were reinforced by the lack of opportunity to engage in mutual meaningful dialogue. By several accounts, there was little communication between the different government departments involved in implementing the guidelines. Private sector practitioners particularly expressed a sense of intellectual seclusion, with little academic engagement of any description with other institutions, public or private. Said one private hospital practitioner: 'for private [doctors], there are not many options [to train in HIV care]. There is no effort to involve us'. Government practitioners too reported that there were few opportunities for formal dialogue and deliberation within their hospitals and with representatives of the HIV/AIDS programme, even on contentious aspects of the HIV testing policies.

Problems of power and authority

Gaps in implementation of policy guidelines were compounded by complexities of power relationships between groups of actors, which did not reflect the 'expected' hierarchy of policy implementation. The most apparent of power imbalances observed was medical professionals' ability to resist authority in all its forms. In the poorly regulated private sector, there was little recognition of the authority of government agencies, and administrators perceived no reason to enforce the guidelines among their staff. '[The HIV/AIDS programme] has no jurisdiction over us', emphasised a private hospital administrator. In government hospitals, administrators appeared to express little more than notional authority over practitioners' HIV testing practices.

The asymmetric power dynamics in transferring HIV testing policies from international agencies to national programmes may be important in determining the manner of their implementation. The intellectual dominance of international technical agencies in setting standards for HIV testing was largely unquestioned, and HIV/AIDS programme officials reported a lack of engagement with the contents of the guidelines. Another critical, related obstacle to guideline implementation lies in the rift between lines of hierarchy in the HIV/AIDS programme and the general health services (see Fig. 3). Hospital personnel are employees of general health services and not of the HIV/AIDS programme, and programme officials were largely unable to exercise real authority in hospitals.

Discussion

In the global context of LMIC health policy, frontline practitioners and other health systems actors have been viewed primarily

in terms of their instrumental roles in the implementation of public health policies (Peters, 2003; Rowe, de Savigny, Lanata, & Victora, 2005). The main contribution of this study is in understanding health policy implementation in India from the “emic” perspectives of the various participant actors. We have elaborated the perspectives of discrete ‘communities of meaning’ constituted, respectively, of medical practitioners, public health functionaries and international actors, and diagnosed the implementation gaps as resulting through a combination of disparities in different implementing actors’ systems of meaning, deficient avenues for dialogue between actors and unaccounted power balances in the implementation process. The study is based on individual accounts and hence biased towards individualized explanations, to the relative neglect of broader structural factors and contexts. We cannot also claim that the setting of hospitals in five cities in different geographical zones encapsulates the entire Indian situation. Nevertheless the empirical findings gleaned from a systematic research process represent credible insights into public health policy processes in India.

While there are no other studies in LMIC which attempt to understand implementation gaps holistically from the perspectives of different involved actors, there are a few which have focused on particular groups of actors. Howteerakul et al. (2003) and Paredes et al. (1996) respectively elaborated how Thai and Peruvian doctors’ interpretations of policies to be implemented are informed by their values and experiences. Kapiriri and Bondy in a study on Ugandan health planners and practitioners (2006) have observed that their decisions were guided as much by personal experience and discussions with colleagues as by formal guidelines.

Viewed in the Indian context, our findings support the hypotheses of Kielmann et al. (2005), Danye et al. (2006) and Kamat (2001) of the highly contingent nature of medical practice, in which following policies is often not a preeminent consideration for practitioners. Our observations also resonate with Sheikh and Porter’s study on mandatory HIV testing (2009) and Miljeteig and Norheim’s study of neonatal care (2006), each of which document how Indian doctors’ ethical orientations differ from accepted Western bio-ethical norms. Our findings also demonstrate that practitioners’ divergence from putative roles cannot automatically be conflated with failures of ethics or commitment to service (Das & Hammer, 2004) – disparate values and ‘meanings’ may be as significant an explanation of divergent practices.

The ‘meanings’ of Indian public health functionaries, also heavily focused around ethics of performance and hinging on uncertain upstream and downstream relationships with other actors, are largely unexplored in the literature, and hence our findings represent unique contributions in these areas. The vulnerable position of these functionaries, entrusted with the key role of implementing national policies but doubly subjected to the obduracy of practitioners and the ascendant voice of international actors, is a troubling commentary. The perspectives of international actors and their relationships with Indian national health functionaries also represent a poorly explored domain.

Conventional prescriptions for implementation gaps in LMIC are often concentrated on enhancing central control over implementation of guidelines, by means such as the introduction of stronger regulations and laws, and strengthening supervision and audit (Bhardwaj & Divan, 2005; Rowe et al., 2005). These strategies typically do not account for implementing actors’ varied and sometimes divergent ‘meanings’, notions of purpose and accomplishment, and prevailing dynamics of interrelationships. Our analysis highlights that it is pertinent to look beyond short-sighted ideals of ensuring that frontline practices mirror the

intentions of policymakers, towards deeper, more particular systemic solutions.

A deliberative mindset

The diagnosis of discursive gaps suggests that policy-planners would be advised to acknowledge the deliberative possibilities of implementation, and take steps to enhance the quality of and opportunities for dialogue between different groups of actors implementing public health policies, including between different government departments engaged in implementation. Deliberation also has the virtue of making actors’ concerns, needs and interests transparent and can help curtail the role of prevailing power imbalances (Healey, 1993). An emphasis on communication and cross-learning is critical if public health policies are to be reconciled with the disparate worldviews and motivations of actors engaged in administering and delivering health services, and with the socially entrenched functions and operations of health care institutions through which they are implemented.

Including voices from the field

In high-income countries, it is often the norm that practitioners’ experiences inform the development and revision of practice guidelines (Chiao et al., 2010; Warwick, 2010). In this analysis however, practitioners’ engagement with existing guidelines was tenuous, and the ‘alternative’ perspectives they espoused remain ‘underground’, and untested for ethical and scientific validity. Support for in-service training and participatory educational programmes for practitioners, and the institution of participatory policy fora to deliberate practice guidelines can help to develop cultures of debate, and also practitioners’ capacities to represent legitimate local concerns. Instituting systems for the representation of users of health care in policy development and refinement potentially represents a longer-term goal.

Empowering implementers

Finally, the vulnerable position of public health functionaries vis-a-vis both practitioners and international actors reflects the acute need to strengthen country institutional structures for effective stewardship, and to set agenda for national health. Country-level public health functionaries in particular are in an advantaged position to bridge the practical knowledge of practitioners and the universal knowhow of international agencies, and must be supported financially, materially and morally to provide balanced leadership to policy initiatives.

Acknowledgements

The authors are grateful for the financial support received from the Aga Khan Foundation’s International Scholarship Programme, the DfID TARGETS Consortium at the LSHTM, and the University of London’s Central Research Fund, towards conducting this research.

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2. The case-study approach

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The case-study approach is a research strategy entailing an empirical investigation of a contemporary phenomenon within its real life context using multiple sources of evidence, and is especially valuable when the boundaries between the phenomenon and context are blurred (Yin, 2009). It is widely used in research fields and disciplines of relevance to HPSR, such as political science, public administration, planning studies, organizational and management studies, community psychology and sociology.

There are three main reasons why this research approach is particularly relevant to HPSR. First, health policy and systems experience is strongly influenced by, and is often embedded in, contextual factors that must themselves become part of the focus of inquiry (Gilson et al. 2011). For example, health worker motivation is influenced by a range of personal, organizational and societal factors, as well as relationships with others; and, in turn, many aspects of the provision of health care are influenced by the motivation of health workers (Franco, Bennett & Kanfer, 2002). Similarly, patients' decisions to use services or adhere to treatment advice represent responses to many influences, such as:

- their own understandings of illness, and how best to treat it
- advice received from friends and family
- past experience of health providers
- the availability of cash to cover costs
- the gender dynamics influencing household decision-making.

On any health policy and systems issue there are also multiple interpretations of the same experience as different people bring their own contexts to bear on its interpretation.

For example, individual health workers may respond differently to the same set of incentives; and patients vary in their response to treatment advice.

Second, as the examples of motivation and health seeking behaviours show, HPSR questions often require study of the complex behaviours of, and relationships among, actors and agencies; and how those relationships influence change, including change over time. The case-study approach is particularly relevant to such experiences (Thomas, 1998).

Third, as discussed in Part 2 of the Reader, the case-study approach can be used both to support and analyse policy development: it can generate information *for* policy (for example see Rolfe et al., 2008 in this section) or be used to analyse past policy experiences in detail (see, for example, Shiffman, Stanton & Salazar, 2004 in this section).

Case-study work is also very flexible. In terms of overarching research purposes (see Part 2: Step 2), it can:

- support *exploratory* inquiry to gain a better understanding of certain situations or to generate ideas and concepts for use in follow-up work;
- allow detailed *description* of particular experiences;
- enable the investigation of 'how' and 'why' *explanatory* questions, supporting analytic generalization through cross-case analysis (see Part 1: Section 7);
- be used as a study approach in *emancipatory* work, such as action research and participatory inquiry.

Finally, case-study work can involve either single cases (of health policies, for example) or a number of individual cases of the same type (a case-study of different health facilities, for example), or an embedded case approach, where one type of case is nested within a broader case or encompasses other cases. An example of the latter would be the case of a single health policy process that is investigated by examining the overall process and experience at a number of case-study sites within the health system (such as regions, districts, and/or facilities); or the case of a primary health care facility that is recognized as nested in a district health system, requiring investigation of the case at both levels.

The range of 'cases', the unit of focus, relevant to and considered in HPSR, therefore, is quite varied. It includes (Robson, 2002; Thomas, 1998; Gilson & Raphaely, 2008):

- individuals, communities, social groups, organizations;
- events, relationships, roles, processes, decisions, particular policies, specific policy development processes, research studies;
- health system decision-making units, particular health-care facilities, particular countries.

Rigour in case-study work

In general terms, the rigour of case-study work is secured by full reporting on the methods of data collection and analysis, so that readers can assess whether the analysis and interpretation is credible. As discussed in Part 2: Step 3, the judgement of credibility is, in essence, one of whether the research procedures suggest that the conclusions derived are trustworthy. Table 10 provides

an overview of procedures within the different phases of case-study work that help to ensure trustworthiness (see also Gilson et al., 2011).

Given the areas of weakness in the current body of HPSR work (Gilson & Raphaely, 2008), key areas that require attention in future case-study research in the field include:

- the use of theory to support and enable analysis
- case selection to support analysis
- case contextualization, especially in single cases
- in studies with multiple cases, comparative analytical strategies that support analytic generalization.

These issues are discussed further below, in relation to the papers selected for this section.

Readers are also encouraged to review available texts (for example Yin, 2009; Thomas, 1998) on good case-study practice to strengthen HPSR case-study work.

Table 10 Procedures to ensure trustworthiness in case-study research (Source: Yin, 2009)

Criterion of trustworthiness	Case-study tactic	Phase of research
Confirmability	• Conduct literature review, identify key concepts • Use multiple sources of evidence • Establish chain of evidence • Ask key informants to review draft research report (member checking)	Research design Data collection Write up of analysis
Dependability	• Develop case-study protocol (so that others can see the decisions made in developing the study, and why you made them) • Develop case-study database (complete set of data, that others could review)	Data collection
Credibility	• Look for patterns in data and across cases (pattern matching) • Consider explanations for experiences analysed (explanation building) • Consider rival explanations (alternative explanations for the patterns identified) • Use logic models to think through causal mechanisms • Triangulation – compare and contrast data across respondents, data sources, data types and cases • Consider negative cases (explicitly seek out experiences that contradict your main line of argument, to test that argument and refine it)	Data analysis
Transferability	• Use theory in single case studies • Use replication logic in multiple case studies (test ideas from one case against subsequent cases)	Research design

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Overview of selected papers

The papers included in this section were chosen to address a range of issues related to health policy and systems and to show the different cases that can be used in HPSR case-study work, as shown below.

- Atkinson et al. (2000) examine experiences of Brazilian decentralization in three local settings, seeking to understand the ways in which the contextual features of social organization and political culture influence these experiences.
- Murray & Elston (2005) examine the single case of obstetric care in Chile, to understand the influence of a macro level intervention (privatization in both financing and provision of care) over health system organization (meso level) and clinical practice (micro level).
- Mutemwa (2005) examines multiple cases of district level decision-making in the context of Zambian decentralization and in relation to information systems.
- Rolfe et al. (2008) document and categorise the existing experience of private midwifery care across multiple districts in the United Republic of Tanzania, to generate information to guide future regulatory policy development.
- Russell & Gilson (2006) examine, across multiple households, the consequences of health care seeking behaviour for the economic situation, or livelihoods, of households in a low-income Sri Lankan community and the factors influencing this behaviour.
- Shiffman, Stanton & Salazar (2004) examine the single case of the safe motherhood policy in Honduras to understand how and why this policy became a political priority.

Although most papers primarily draw on qualitative data, Russell & Gilson (2006) report a mixed-method study (see also cross-sectional papers) in which an initial structured cross-sectional household survey, representative of the local community, generated findings that provided an overview of household experiences related to the key concerns of the study and the basis for more detailed qualitative work. The survey was specifically used to inform the selection of a small number of household cases for inclusion in a second phase of work, in which detailed understanding of the households'

experiences was generated through application of multiple data collection methods (a combination of qualitative and quantitative data). The analysis also combines data from both phases of the study.

These papers also offer insights into rigorous practice for case-study work, in relation to the four key current areas of weakness in HPSR case-study work, as outlined below.

The use of theory. Exploratory and descriptive case-study work may build theory as the basis for more detailed, future inquiry into the issue of focus (see Mutemwa, 2005). However, explanatory work should seek to use theory to design the investigation as well as seeing it as a product of research (Atkinson et al., 2000). When designing the investigation and conducting the analysis (Shiffman, Stanton & Salazar, 2004) theory can help to gain a deeper understanding of the issue, as well as to contribute to the longer term process of theory testing and building (see also Part 1: Section 7).

Selecting cases. Unlike survey work, case selection is never based on the logic of representivity. Instead, the choice depends on the main aim of the study and some examples are given below.

- In exploratory work, the aim may be to find as many different types of case as possible to allow limited description of many cases and the generation of categories (see Mutemwa, 2005 and Rolfe et al. 2008).
- In a single case, the aim is to explain how and why something happens by looking in detail at the inner workings of the case. Therefore, the case may be chosen because it is broadly interesting; or is thought to be typical of that type of case (Shiffman, Stanton & Salazar, 2004); or because it is not typical and, indeed, may represent an extreme case that challenges existing ideas or the theory guiding the study (Murray & Elston 2005).
- In multiple cases the aim may be to test theoretical ideas through comparing and contrasting different cases (see Atkinson et al., 2000) or to select different cases to allow analytic generalization on an issue (Russell & Gilson, 2006).

Contextualization. All descriptive and explanatory case study work requires 'thick description', that is, interpretation of the phenomenon of focus by reference to contextual features (see the section on the ethnographic lens; also see Atkinson et al. 2000; Murray & Elston, 2005; Russell & Gilson, 2006; Shiffman, Stanton & Salazar, 2004);

Analysis and generalization. Rich analysis of context, as well as clarification of conflicting perspectives and interpretations of different actors, is particularly important in single-case studies as the value of such work lies in unpicking the complexity of the phenomenon of focus in a detailed narrative of how and why things happen so they can be seen more clearly (Murray & Elston, 2005). Single-case studies can also generate persuasive and rich insights when combined with theory testing (Shiffman, Stanton & Salazar, 2004). Meanwhile, analysis of multiple case studies is based on the principle of replication. Data are *not* pooled across cases and then analysed by issue; instead each case is treated as a unitary whole and comparison and contrast across these cases supports the development of general insights and conclusions that are considered to have sufficient universality to apply to other settings (see Atkinson et al., 2000; Rolfe et al. 2008; Russell & Gilson, 2006). The principle of replication is central to this process of analytic generalization in that the process of analysis is undertaken iteratively, to see if the analysis of the first case is replicated as expected in the second, third, fourth case, etc. (see Rolfe et al. 2008).

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Going down to the local: incorporating social organisation and political culture into assessments of decentralised health care

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Abstract

The social organisation and political culture of the society in which an organisation is embedded can have major effects on the way in which organisational policy is implemented and on how that organisation functions. Research on health sector reforms has paid scant attention to this aspect. If the claims made for decentralised management in the health sector are to be evaluated seriously, it is critical to develop concepts and methods to evaluate not only the formal organisation and the outputs of the health system, but also the aspects of local social organisation and political culture within which that local health system is embedded that may mediate their relationship.

The paper explores three cases of district health systems in Northeast Brazil in order to identify aspects of local social organisation and political culture that appear to influence the implementation of the reforms and thereby potentially impact upon the quality of the care provided. The results of the study indicate the importance that aspects of local social organisation and political culture may exert on the operations of a decentralised health system. Key aspects identified are: the space for autonomy; the space for local voice in political life; personalised and institutionalised influences on autonomy and local voice; differences of involvement of health staff with the district; different spaces of acceptable practice and accountability.

These factors are seen to moderate the intent of the health reforms at all stages in their implementation. Three possibilities are discussed for the nature of the interaction in terms of cause and effect between the formal organisation of the health system and its local context. Seeing this relationship as one of a dialogue offers some cautious optimism for the potential of the reform agenda. The paper closes with suggestions on how to take this line of research forward. © 2000 Elsevier Science Ltd. All rights reserved.

Keywords: Health reforms; Social organisation; Political culture; Decentralisation; Brazil

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Decentralised management of health care is a key strategy for restructuring health systems the world over. Although some reservations have been noted (see for example Collins & Green, 1994), decentralisation is mostly presented and accepted as the way to go by all

colours of the political spectrum. However, as yet, few studies have taken up the challenge of assessing whether the promise decentralisation seems to offer translates into reality (Bossert, 1995; Collins, 1995). Bossert says that there are two key questions in assessing the impact of decentralisation:

“(1) does decentralization improve equity, efficiency, quality of services, health outcomes and democratic processes? and if it does, (2) which forms, mechanisms and processes of decentralization are most effective in achieving these outcome and output objectives” (Bossert, 1995, p. 190).

Although the definition of concepts and methods to measure the dependent output variables given by Bossert may be debated, there is nevertheless a growing body of work on designing or adapting existing instruments for application to health services research in developing countries (Roemer & Montoya-Aguilar, 1988; PRICOR, 1988; Garner, Thomason & Donaldson, 1990; Engelkes, 1990; Bryce, Toole, Waldman & Voigt, 1992; Forsberg, Barros & Victora, 1992; Paine & Wright, 1988; Bruce, 1990; Bruce & Jain, 1991; Jain, 1992; Kanji, Kilima & Munishi, 1992; Atkinson, 1993; Weakliam, 1994; Haran, Dovlo & Offei, 1994; Gattinara, Ibacache, Puente, Giaconi & Caprara, 1995). What has been addressed very little is the definition of concepts and methods for the independent variables in such an evaluation, that is for the aspects of organisational arrangements that may vary between and within health systems. What has been addressed even less is the potential influence that local social organisation and political culture of the environment in which a health system is embedded may have on how decentralisation transforms into practice in different local contexts (Atkinson, 1995).

Literature on health sector reform manifests a certain unease with regard to the somewhat nebulous aspects of local social organisation and political culture. Increasingly, the influence of these factors is acknowledged but we do not really know what to do with this observation in practical terms. The result is a schism in the literature. On the one hand, there is the social scientist illuminating local politics in all its fascinating detail but with little indication for practice. On the other hand, the health systems researcher focuses on the mutable and manageable aspects of health care and whilst acknowledging political aspects, sometimes with evident frustration, ultimately leaves these to one side as something that is not amenable to change from the health sector. Bossert (1998) has laid out a scheme for comparing the effects of decentralised management of health care on health system goals of equity, efficiency, quality and financial soundness between different countries, and which does include reference to the

dynamics of local power. Yet even Bossert himself tends towards putting local social dynamics to one side. For example, in relation to Robert Putnam's work on social capital in Italy, Bossert (1998) writes,

‘The weakness of this approach is that it does not provide easy policy relevant conclusions... We are left then with the possible conclusion that decentralization will work only in areas with strong histories of social capital and that the rest of the country should be centralized — a conclusion that is not likely to be politically viable’ (p. 1516)

But if factors such as whether a district has a long tradition of local civic organisations and trust are the major influences on which districts will fare best under decentralised government, surely we have to open a dialogue regarding the policy implications of this and possible lines of action. It is our contention that although we have no answers as to what to do about the influence of local social organisation and political culture, it is inadequate to leave them under-discussed and under-researched by those interested in the practice of health care.

This paper then aims to complement Bossert's framework by exploring in more depth the social and political environment in which health reforms are taking place at the local, within country scale in order to identify aspects which influence the implementation of the reforms and thereby potentially impact upon the quality of the care provided.

Decentralisation, health system performance and the local context

The avowed benefits of decentralised management are presented with both frequency and consistency and can be defined as both managerial and political (Con-

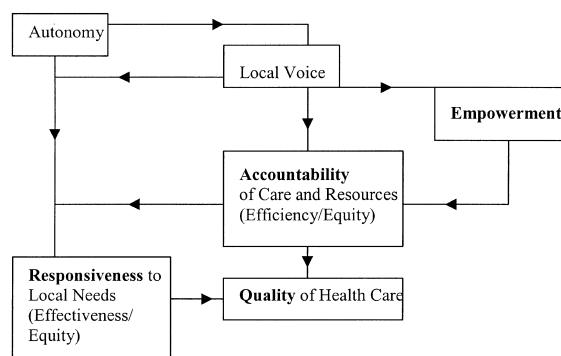


Fig. 1. The avowed benefits of decentralised management of health care.

yers, 1986; Mills, Vaughan, Smith & Tabibzadeh, 1990; Flynn, 1993; Bossert, 1998). The key features of the arguments for decentralisation suggest that increased local autonomy over decision-making combined with inputs of voice from the population to be served will increase the responsiveness of health care to local needs, accountability of the actions of the health system to its client population in terms both of the quality of care offered and the use of health system resources and also to social development goals of popular empowerment. This argument is summarised in Fig. 1.

Where decentralised management of health care has been evaluated, studies most often simply compare aspects of health care provision within a country between districts decentralised and those not (for examples Thomason, Newbrander & Kolehmainen-Aitken, 1991; Secretária de Saúde, Ceará, 1992). There are two main problems with this approach. First, those districts chosen for early decentralisation within a region may have distinctive qualities from those not decentralised. In particular, they are likely to be those considered to be providing health care well and to have a strong local management team. Secondly, and more importantly in the long-term, the term decentralisation acts as shorthand for little more than the formal legal status. Beyond this term, a wide range of organisational arrangements may be put into effect locally as part of decentralisation. A simple dichotomy of decentralised/not decentralised fails to explore the variation in organisational arrangements under which health services may be improving and thus has limited practical value in identifying what does and does not work.

There are studies which have aimed to document some of the variation associated with decentralisation, usually by comparing the formal legal and organisational structures and procedures put into place across different countries (WHO, 1995; Collins & Hunter, 1997). These studies move understanding a long way forward by recognising that the formal organisational arrangements associated with the blanket term of decentralisation may show great variation. However, working at the scale of cross-country comparisons means that the main focus will be on the official formal structures and procedures together with aggregated indicators of outputs. The gap that is well known to exist between what is said to be being done by official policy and how organisations actually function in practice can be picked up, but only broad brush indications of major problems can usually be identified. Research from organisation studies and policy analysis has indicated time and time again the power of local scale social and political processes to influence implementation (Pressman & Wildavsky, 1973; Lipsky, 1980; Bolman & Deal, 1991; Pfeffer, 1992), indicating the need for detailed micro-scale studies to

complement national comparisons. There is a third group of studies where the realities of implementing a decentralisation policy have been documented and analysed through detailed case studies. In these cases, the researchers often come from the social and political sciences with a study focus on micro-politics, aspects of bargaining and negotiation that occur in organisations as part of the implementation process (for example, Flynn, 1993; Atkinson, 1997). Thus the link to the quality of the health care provided has not been a concern.

We identified only two studies where organisational components of decentralised units have been linked to quality of care indicators. In Israel, the researchers developed a model to link the formal structures of decentralised management of individual primary care clinics to measures of quality of care in those clinics (Gross et al., 1992). Other studies of quality of care may implicitly have revealed relationships between decentralised management and quality without having necessarily labelled it as such. Studies of individual health facilities, whether primary care clinics or hospitals, are likely to prove easier than studies of local district systems, and may furnish settings in which to develop concepts regarding informal structures. However, the main focus of decentralisation in most countries remains the district and thus it is the structures at the district level that must be described in order to assess their relation to measures of health care quality. In Ethiopia, decentralised health care falls under the management of the elected local government. Barnabas (1997) explored the relationship between formal organisational structures, such as composition of the local government assembly, in terms of gender, occupation, educational level and so forth, and performance in terms of basic coverage indicators (ante-natal care and vaccinations).

No study has been found that tries to identify aspects of social organisation and political cultures and their potential influence on health care quality.

Study design

Organisational theory has long stressed the importance of the influence of the wider environment in which an organisation is located (Lawrence & Lorsch, 1969; Hofstede, 1991). We have found it useful to divide this organisational environment into two categories with regard to exploring influences on the implementation of local health systems. First, there are the geographic and demographic characteristics of districts including the following: urban/rural, district size, ecological type, population size and composition, main economic activities. Except in times of sudden population movements, these are largely stable over the

medium-term and it is relatively easy to collect information on them. The second category comprises the dynamic aspects of local social organisation and political culture within which a new policy will be implemented, including the following: social networks, social mores and values, nature of leadership, nature of 'influence', relationship of local public workers to the local district. Such factors may also prove stable and resistant to change in the medium-term but it can be difficult to get accurate information in the short time-frame of most surveys. Fig. 2 depicts the formal structure of the local health system embedded within these two domains of the geo-demographic and the socio-political.

The results for this paper are one part of a much larger study of the interactions of government policy reform through the health system with local social organisation and political culture. Three local social scientists spent fourteen months each living in one of the districts in order to accompany the day to day happenings in the district and in the district health system. Data have been collected through observations, informal conversations and more formal open interviews, and have been recorded in the form of transcriptions of taped interviews, daily field notes and diaries and the official documentation of the local government. Interviews have been held with health professionals, local councillors, leaders of local organisations, community health workers and women living in more deprived areas of the three districts. Observations have been made at health centres, at meetings within the health sector such as staff meetings, local health council meetings, at the public meetings of the local government council chamber and at political meetings during the local government election campaign. Since the field researchers lived in the district, they also have had many informal conversations with local people providing information on local opinions about health sector

activities and personnel and on social interrelationships.

For the purposes of this paper, the data analysis has focussed on one specific aspect, that is identifying health service-related activities of different actors or groups of actors which might impact upon the quality of the health services and which seem to vary between different districts. The data have been collated for this purpose in three ways. First, the first author held formal interviews with the three field researchers on the experiences they have been witnessing. Secondly, we have read back through the field researchers' own diaries to identify processes and procedures that are taking place around the health sector of each district. Thirdly, we have analyzed the transcripts of taped interviews to identify the concerns of those interviewed following an approach put forward by Spradley (1979) and Atkinson and Abu El Haj (1996).

The next section sets the context of health reform in Brazil followed by a description of the three study sites in terms of the geo-demographic environment and some basic indicators of health care quality. The main dimensions of social organisation and political culture we consider most important are defined according to three criteria: their likely variation between different districts; potential for impact on health care quality; the ease of identification and collection of information elsewhere without extended periods of fieldwork.

Political culture and health reform in Brazil

A new constitution was passed in Brazil in 1988 as part of the return to civilian rule after some twenty years of military dictatorship. The existing health system was highly stratified by socio-economic groups involving: private care for those able to afford it; a public network, largely of curative care, provided by the Ministry of Social Security for those formally employed and thus paying into a social insurance scheme; a mixture of basic health clinics and health programmes provided by the Ministry of Health, state and district health sectors and charitable institutions for those otherwise not covered. During the dictatorship years, community-based organisations, health professionals, students and some segments within the Catholic church formed various local alliances to lobby for improved services for the poor (Machado, 1993). This built into wider social movements amongst which the health reform movement was particularly strong and achieved an explicit commitment in the new constitution towards greater equity in health care provision. The overall policy vision expressed in the Constitution is that health is the right of every citizen and the duty of the State. The key articles within the

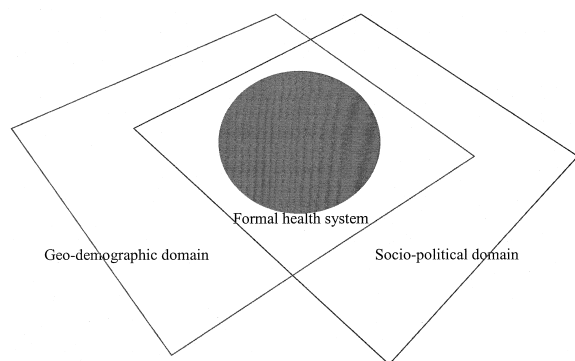


Fig. 2. Locating of the formal structure of a district health system within its geo-demographic and socio-political environmental domains.

Constitution for health reform are translated in Table 1.

Four main strategies were laid down by which reform of the existing health sector would come about: integrating the different public providers into one single system, greater emphasis on preventative rather than curative care, decentralised management of health care provision to the district level and popular participation in the management of the health care system at all levels (Brazilian Constitution, articles 196–200, 1988). The legal framework for health sector reform nationally was developed in the following years through two health laws (Lei Orgânica de Saúde, nos. 8.080/90 and 8.142/90; de Carvalho and Santos, 1992). The model of decentralisation for the management of

health care combines a mixture of sectoral autonomy from and subordination to the local district government. The district health sector contracts its formal decentralised status with the federal union and is allocated financial resources in accordance with that contract. The three different forms of contract (*incipiente*, *parcial*, *semi-plena*) operating at the time of the field study are shown in Table 2 (these were revised in 1997). Funds go through a district health fund which falls under the administrative procedures of the district local government. Thus ultimately, the vision of decentralisation is to a geographically defined local government, coordinating and integrating the various sectors, rather than to a sectorally defined district health system relatively independent of the other local activities.

Brazilian society has been built on, and has built up, a tradition of social and political relations characterised by indifference, personal links and paternalism. This has been particularly strong in the Northeast of Brazil since the beginning of this century where oligarchic power, based on ownership of large estates, has built up the system known as *coronelismo* (Leal, 1975; Faoro, 1991). Despite much talk about restructuring the political domain and opening up the space for popular participation, there is a view that the oligarchic relationships in the Northeast remain unaffected. This lack of impact in the Northeast of Brazil has been attributed to political inertia by the state level governments. This, however, has not been the case in the state of Ceará in which there has been continued political commitment to change by the state government since 1986, through three consecutive governments covering twelve years and continuing still for a further four. In particular, they have institutionalised greater autonomy for local district governments through decentralisation (see Tendler, 1997 for a full discussion of the issues of good governance in Ceará).

Ceará adopted a staged approach in that a selected number of districts were municipalised first (personal communication Silvia Mamede, 1993, then director of planning, State Secretariat of Ceará). As part of its commitment to improving health care, Ceará state has built and equipped a new 'school' for in-service training and research in public health (the Escola de Saúde Pública) within the state secretariat of health. The School aims to provide refresher courses both on clinical and preventive care and on various aspects of health service planning and management at the district level. By the time of the field study (1996), 80% ($n = 149$) of the 184 districts had municipalised at least to the *incipiente* level. Twelve districts in Ceará state had achieved *semi-plena* status and each year more are succeeding in their applications. Of our three study sites, one had a *semi-plena* contract (a traditional urban district) while the other two (a metropolitan and a rural district) only had *incipiente* status.

Table 1

Key articles in the Brazilian Constitution, 1988, for Health Reform

Article 196

Health is the right of everyone and the duty of the State, guaranteed via social and economic policies which aim for the reduction of the risk of disease and other injuries and universal and equal access to activities and services for its [health's] promotion, protection and recovery.

Article 198

The activities and public services of health are integrated into a regionalised and hierarchised network and constitute a single system, organised according to the following principles
1 – decentralisation, with a single management in each sphere of government

2 – integrated attendance, with priority to preventive activities, without prejudicing medical services

3 – community participation

The single health system will be financed in terms of article 195, with resources from the social security budget of the Union, the states, the federal district and the municípios, over and above other sources.

Article 199

Health care is open to private sector initiative

1 – private institutions can participate in a complementary form to the single health system, following its principles, through contract of public law or convênio, with preference for those entities which are philanthropic and without aims of profit

2 – it is forbidden for public resources to end up, through aid or subsidies (auxílios ou subvenções), going to private institutions with profit making aims

3 – the direct or indirect participation of businesses or foreign funds is forbidden in health care in the country apart from those agreed by law

4 – the law will regulate conditions and needs for the removal of organs, tissues and other human substances for transplant, research and treatment, as well as the collection, treatment and transfusion of blood and its derivatives, forbidding any type of commercialisation

Study sites

Formal structures, geo-demographic environment and health care quality

The three different types of districts were selected on the basis that they might present differing social realities. Data on each district are summarised in Table 3.

The first district is an industrialised area on the periphery of the state capital and is part of the greater metropolitan region. The area is relatively small but densely populated. Work is to be found in the industrial area, in the large fruit and vegetable market, in local commercial outlets or by travelling into the city centre. The local health district had a sizeable staff and was organised clearly into different departments. The

Table 2
Main characteristics of the contract types for decentralisation

Contract type	Responsibilities	Requirements
Incipiente	Register and authorise providers; Plan and authorise in-patient and ambulatorial procedures to be provided by each facility; Monitor and evaluate in-patient and ambulatorial services in public and private not-for-profit facilities; Demonstrate willingness and ability to take on the management of the public ambulatorial facilities existing in the municipio; Integrate the network of basic services and activities — nutrition, education, epidemiological and hygiene surveillance; Develop activities of occupational surveillance	Demonstrate interest in taking on these responsibilities; Regulate, convene district health council; produce minutes/6ms; Regulate, manage district health fund; produce statements/6ms; Develop proposal for integration and management of those public ambulatorial facilities (state or federal) to come under the district; Guarantee appointee responsible for financial payments is not a beneficiary nor linked with any provider contracted; Set up conditions to plan, monitor, control provision of services; Maintain records and monthly remittance of data on live births, mortality, compulsorily notifiable diseases, register of establishments and products of interest to health etc.
Parcial	Take over planning, authorisation and use of in-patient and ambulatorial procedures to be provided at each facility; Take on management of public ambulatorial facilities in the district; Take on formulation, execution, monitoring of activities of occupational surveillance; Be paid any difference between the financial ceiling established for the district and the payments made by the federal level direct to the hospitals and ambulatorial facilities (public or private not-for-profit)	Present an annual report of activities in relation to the district health plan; Present an annual report regarding management activities; Demonstrate annually that counterpart funds from the district treasury have been given to health; Present evidence that the district is developing or has developed a plan for human resources in the health sector
Semi-plena	Take over total responsibility for managing the provision of services - planning, registration, contracting, monitoring and payment of in-patient and ambulatorial service providers, public and private-not-for-profit; Take over management of the whole public health network in the district, apart from referral hospitals under state management; Take over monitoring activities in health, nutrition and education and epidemiological, hygiene and occupational surveillance for the district; Receive and control the total financial resources for in-patient and ambulatorial services in line with the established financial ceilings.	Present a plan of the annual targets to be achieved as approved by the district health council; Present indicators of achievement by which to evaluate plan; Failure to meet goals over two successive years can lead to the loss of semi-plena status; The processes of entitling municipios to the semiplena level made at State level will be reviewed at Federal level for final approval; Maintain an information system on in-patient and ambulatorial allocations of financial payments.

district was only in the first stage of municipalisation and had established few participatory mechanisms. There is an extensive network of large public health centres offering a wide range of services as well as numerous private clinics, hospitals and pharmacies. On observation, the health centres appeared of good quality in terms of physical infrastructure, the sophisticated range of services offered and quantity and quality of staff employed. Nonetheless, the ratio of both number of health facilities and number of beds to population size is comparatively low by state levels. Open interviews with local members of the population indicate a low level of satisfaction with the health services provided. It is noted that other studies have shown that

expectations of health care quality are higher and satisfaction therefore sometimes low compared with poorer rural populations (Haran et al., 1997). However, output and outcome measures also indicate a poor quality of care or at least a poor level of impact on the population's health (see Table 3).

The second district is a traditional urban district in the interior of the state, located in a hilly area. These districts have a majority of the population based in an urban centre, but also have an important rural component. This town grew as a centre for coffee trade in the last century and was the first town to be linked to the state capital by train. It remains an important centre for the surrounding region. The town has a pri-

Table 3

Study sites: Background information on formal health system structures, geo-demographic data and provision of health care^a

Legal status	Metropolitan Incipiente	Urban Semi-plena	Rural Incipiente
The formal system			
Organisation with respect to the health reforms	No local council	Local council	Local council
	Health Plan and Fund	Health Plan and Fund	Health Plan and Fund
	No staffing plan	No staffing plan	No staffing plan
Public resources	Structured secretariat	Structured secretariat	Limited secretariat
	31 facilities:	10 facilities:	6 facilities:
	4 hospitals, 16 centres, 4 specialist centres, 5 labs, 2 resource banks	1 hospital, 1 centre, 2 birth centres, 6 posts	1 mini-hospitals, 5 posts
	357 beds - 0.22/hab	102 beds - 0.35/hab	37 beds - 0.27/hab
	CHW = 109	CHW = 55	CHW = 30
Functioning of health facilities	Good	Family health team = 3	Good
Private facilities	30 pharmacies	Good	Poor
	many private clinics, laboratories, hospitals	4 pharmacies	1 pharmacy
		4 private clinics, 1 laboratory	no private facilities
Geo-demographic environment			
Ecology	Urban	Hills	Sertão
Area (km ²)	98.60	347.30	791.70
Population/km ²	1624	85.03	17.41
% urbanised	99.52	60.24	45.46
% Illiteracy rates	9.39	25.7	38.90
Sources of income	Industry, Commerce, Informal activities	Agriculture, Animal husbandry, Commerce	Animal husbandry, agriculture
Quality indicators			
IMR	37	29	32
% Measles coverage	100	100	89.6
Efficiency (\$ spent:planned)	Average to good	Poor	Poor
No. clinical consultations/cap	1.36/hab	2.59/hab	1.66/hab
No. clinical procedures/cap	0.03/hab	0.20/hab	0.03/hab
No. dental consultations/cap	0.47/hab	0.86/hab	0.35
No. radiological exams/cap	0	0.18	0
No. clinical lab. Tests/cap	0.44/hab	1.00/hab	0.69
Population Satisfaction (<i>n</i> = 100 in each)	Poor < 50%	Good > 50%	Poor < 50%

^a Sources: Iplance (1997); State Secretariat of Health; Primary data from the study.

vate-not-for-profit hospital and a public health centre. The local health system has a further network of basic health posts around the district. On observation, the various health facilities functioned according to plan. The district had just achieved full municipalisation as we started our study. This was the district where the local health managers spoke the language of the reforms and best established the formal structures and procedures according to the guidelines indicated by the Ministry of Health and the State Secretary of Health. There was an active local health council and a new programme of family health teams that operated in the most needy areas. The local population indicated a better satisfaction with the health care offered than in the other two districts. Health statistics indicate a relatively good quality of health care on the whole (see Table 3).

The third site is a poor, rural district very typical of dry interior region of the Northeast of Brazil called the *sertão*. The district has one small central town and a couple of other small centres located within a large area of scattered rural settlements. Such rural towns developed historically around sites where those bringing their cattle to the capital for sale would stop to water them en route. The district was only at the first stage of municipalisation, had few formal structures within the local health system. There was a local health council established which did meet reasonably regularly. The town had a small hospital able to cope with uncomplicated births and simple illnesses plus ambulance transport to the adjacent district, an important urban centre. There were four other health posts within the district visited by physicians on certain days of the week and an extensive network of community health workers. On observation, the health centres functioned badly with poor attendance of staff and lack of resources from the district. Assessments of the quality of care from both the population and from health statistics indicate a poor quality of care or health impact, although surprisingly comparable with the metropolitan district (see Table 3).

Aspects of social organisation and political culture

The benefits of decentralisation (see Fig. 1) should derive from two primary strategies: the space created for autonomous decision-making and the space created for the voice of the local population to be incorporated into local planning. The social organisation and political culture within which the implementation of these two strategies is embedded affects not only how these strategies operate in reality but also the processes that mediate the intended impact of these strategies on the output in terms of the responsiveness of health care

planning, local accountability, quality of care and popular empowerment.

The three study sites proved to be very different from one another in many respects. There is of course, no one correct way of grouping the dynamics experienced and observed. The categories given here seem to us useful in that they group interactional factors under headings that can be related both to the reform process and to organisational frames of reference and in that they provide conceptual dimensions for which indicators may be sought in order to relate these to indicators of health care quality.

Different spaces for autonomy in planning and decision-making

The local context directly affects the space that exists in reality for autonomy in planning and decision-making in at least three ways.

Sources of income

Although the formal contract with the Federal Union denotes a district as municipalised to a greater or lesser extent, in reality the use of the finance allocated from the Ministry of Health as part of that contract is already tightly determined through formulae. The finance is allocated to pay for ambulatorial (referred to as SIA/SUS) and in-patient care (referred to as AIH) and is calculated with reference to facilities, staffing and population. Thus, regardless of the kind of contract with the Federal Union, in reality a district has relatively little control over the use of these funds. However, the district secretariat of health may also gain income from the State, which may provide finance for specific programmes or projects, and from the district local government. The degree of autonomy that the district health secretariat has over its expenditure therefore depends more on the extent to which its income comes from the Ministry of Health compared with state, or most importantly, district funds. Those districts winning State funding over and above that given for State-wide programmes such as the community health workers programme, tend to be those whose local governments are politically affiliated with the State government. The allocation of district finance to health will depend not only on the political will of local government to support local health related activities, but also on the absolute revenue of the district in the first place. Local revenue comes from various taxes on commercial activities, and these activities are more extensive in the urban and peri-urban districts than the rural ones. The real space for autonomous planning of expenditure is therefore greatly influenced by the political relationship with the state government and the potential for local tax raising, which in turn is generally greater in urban and metropolitan districts than the

rural ones, particularly the more impoverished rural districts.

Local government

Whether a potential for autonomous planning created by local tax revenue or state funding transforms into a real space for autonomous planning depends on the local government. Although finance for health care, whatever its source, goes into a district health fund, it is nonetheless ultimately the responsibility of the local government administrative system. This means that not only is the total budget size dependent on the commitment of local government to allocating resources to the health system, but also on the inclination of local government to delegate control over that budget to the district health secretariat. The relative advantages and disadvantages of the local health system being ultimately under the local government administration can be long debated (see Barnabas, 1997 for a discussion), but what is certain is that there is space for great variation in the extent to which the local health system has control over its own resources independently of the local government. In our rural study site, the local government essentially managed the health system, leaving the district health secretariat with control over little more than the community health worker programme, which is funded from the State level. All other decisions were made from the local government office. By contrast in the other two study sites, although purchasing and so forth had to be passed through the local government administrative system, there was no control from the local government over how the health system spent its money.

Information for planning

Following on from this, whether a space for local autonomy will be used to plan health care that is more responsive to local needs in part depends on the district health system's own capacity to identify its own health problems in order to plan the allocation of resources. All districts have to collect information monthly which is submitted to the State. This includes the productivity bulletins of patients seen on which payment is dependent, cases of notifiable diseases, deaths and births, as well as data on the activities of the community health workers. Information on mortality profiles of the districts, particularly on Infant Mortality Rate (IMR) and Maternal Mortality Rate (MMR), are available at the State level. However, the extent to which the district health secretariat itself maintains an information system, is aware of even basic indicators such as ante-natal care or immunisation coverage and is able to identify priority health issues for the district as a whole and for specific target areas or population groups within the district varied enormously between our three study sites. Although

not directly a reflection of local political culture or social organisation, the capacity for information handling is likely to reflect the importance that has been given to information systems in terms of funding and the commitment of health professionals to local planning. The influence of an absolute availability of resources was evident; the richer metropolitan district had a reasonably sophisticated information base, the urban district kept records of its own basic indicators, but no local information was available in the rural district.

The ability to plan locally and respond to local needs is one of the main arguments put forward for decentralised management of health care and thus it is particularly important to assess differences in the space for autonomy. In Northeast Brazil, it is evident that at least three dimensions of local political culture affect the potential and real space for autonomy: the sources of income, the relationship with the local government and the attention given to local data.

Different spaces for a local voice in planning

After twenty-five years of military dictatorship, probably the most important aspect of political reform in Brazil has been the push for more democratised institutions. Various types of community-based organisations emerged during the dictatorships as alternative social groupings to the traditional institutions of political parties and unions, which were repressed during this time. These alternatives provided a means through which pressure for improved access to resources and services could be expressed (for examples see Escobar & Alvarez, 1992). Political reform in much of Latin America explicitly attempts to build upon these social movements towards new forms of political involvement in which all groups in society may potentially be represented. In the Brazilian health sector, participatory and decision-making health councils have been established at all levels of the health system (district, state and federal). The existence of a council is a formal requirement for decentralisation, with a fifty-fifty representation of health professionals and lay members. But, beyond this requirement the size, detailed composition and actual functioning can vary immensely. In addition, the previous history of social mobilisation may be critical to outcomes. A long-term study of decentralisation with participation in Italy found that those districts which already had a number of civil, community-based organisations functioned better than those less organised, thus over time increasing inequities between districts rather than the opposite (Putnam, 1993).

In our study, we experienced three very different expressions of the policy directive for participatory district health councils. The urban study site was the

district at that time most clearly committed to the reform programme both in the extent to which district secretariat staff used the reform discourse and in the amount of reform-related activity going on. Here the district health council had been set up to operate in the spirit of the health reform intentions. The council met every month regularly, were consulted about use of funds, were consulted about health programmes and although class and gender differences were evident as influences on participation, many of the lay representatives debated issues keenly and actively. Lay members were selected to represent geographical sub-divisions of the district and civil organisations within the district. There was a reasonable level of civil organisation through residents' associations, agricultural unions and church groups.

In the rural district, a council existed with a formal fifty-fifty professional-lay membership and met reasonably regularly each month. Civil organisations in the district were few and not much represented through the council. The most important was the agricultural reform movement which did not link much directly with the health council. Residents' associations were not important. Lay members other than the community health workers were local councillors from geographical sub-divisions of the district. However, since the local government had taken control of managing the health system apart from the community health workers, these normally came along to all the meetings also and in effect the council functioned as a forum in which to tell the community health workers what their activities should be for the forthcoming month.

By contrast, the metropolitan district had a whole mosaic of different civil organisations including strong residents' associations. However, here the district health council was no longer meeting. The district health secretary took the view that the accounts and so forth were so complicated that even the accountants had difficulties understanding them and thus the idea that either the health professionals or the lay members could make decision about them was ridiculous. The secretary felt the idea of a district health council was just a bureaucratic invention and he was not prepared to waste people's time on it. A further reflection of this view of the council as a waste of people's time is that when the health council had existed earlier, it had comprised only health professionals, not lay representatives, despite legal requirements to the contrary.

Thus only in the urban study site did the council appear to meet in line with its agreed formal composition and functions. Awareness of the existence of the councils was poor in all districts. However, named persons to whom people would turn for advice or assistance for health-related problems were often local leaders who were also members of the health councils, so the lack of explicit awareness of the council may be

less significant as regards flows of information from the population to the district health secretariat than at first appears. An extension of this point is the observation that the district least concerned with calling health council meetings was almost certainly that with the greatest number and variety of existing civil and community-based organisations already in existence, suggesting other fora for expressing health-related needs might also have been operating.

The proposal that decentralised management of health care will be more responsive to local needs in part depends on decentralisation being accompanied by increased involvement by the catchment population in some way in order to define those needs. The variation between districts in the composition, frequency of meetings and functions of their health councils and the extent of other existing community-based organisations is evident, but the effect of this, if any, on planning or on health service quality needs to be explored. Thus, the relationship of the district health councils to health services and to the catchment population needs to be assessed in terms of which neighbourhoods and community-based organisations are represented and what proportion of the population this represents, the extent the population is aware of the council and its activities, and what channels people think they would draw upon in order to complain against or lobby for the delivery of health services.

Personalised and institutionalised influences on autonomy and local voice

Management style

Any formal organisational structure such as indicated by an organogram will show discrepancies with who is really controlling or making critical decisions. A key factor is the management style the district health secretary adopts in terms of the extent of delegation to, consultation with or participation of others in decision-making and planning in the district. The metropolitan district could be termed participative with regard to the health staff (the extent of participation of the population is discussed in the next section). The health system was formally structured into different departments and in reality the management of those departments was delegated to their heads. Meetings were held regularly amongst health system staff to discuss progress and problems and so forth, both at the level of the health secretariat and between the health secretariat and the health facility staff. The urban district could be termed consultative in that the health secretary maintained much of the decision-making power but consulted other staff members and the district health council on many matters. In the rural district the power for decision-making was kept firmly by the prefect over most matters, as already indicated in

the previous section. The leadership style of the prefect was thus highly centralised while the style of the secretary of health was largely irrelevant at this time.

Personalised leadership

Brazilian society traditionally, like most in Latin America, has been structured along vertical lines of clientelism in which underprivileged members of society align themselves with those in power or aspiring to power who they will support politically in exchange for personal favours (Eisenstadt & Roniger, 1984). These networks of patron–client relationships operate specifically at the local level, such that a prefect, local councillor or other local political figure or any candidate to such position will be expected to assist people to resolve day-to-day problems through a personalised relationship.

Local elections took place during the fieldwork in October, 1996. An issue raised was that many of the political parties in those districts considered most advanced in operationalising the health reforms had failed to get their candidate for prefect re-elected. Clearly, one explanation is that it takes time for benefits from the health reforms to be perceptible to the population, while another is that the reforms may not in fact be benefiting the population. However, one informant drew attention to the importance of this tradition of personalised leadership. The population has expectations that the prefect and secretaries of the different sectors will be personally involved in individual problems and will personally undertake to resolve them. The informant argued that where local government, including the health system, had put more emphasis on trying to institutionalise new procedures to improve service quality, this has not been so highly visible nor so highly valued. A driver explained to us how good he thought one prefect was because he personally knew which driver should be out in which car on any specific day. Examples were given time and time again by lower cadres of health staff, when explaining why they considered someone a good health secretary, about personal intervention by that person in helping them to resolve a work problem. The importance of a personalised leadership style was evident in all three of our districts. However, in the metropolitan and urban districts there was a strong sense of the leader having obligations to the population, whereas in the rural district the personalised nature of leadership was how things were and indicated the only way to get anything done.

One of the arguments made for the benefits of decentralisation is that a local management layer in the health system will allow for greater consultation with both staff and other sectors which in turn facilitates the planning of more appropriate and responsive services. The tradition of a personalised leadership

style does not promote a delegative, consultative style and is unlikely to promote sustainable improvements in service provision. Thus the relationship between leadership styles, consultation and the quality of the health services needs to be evaluated.

Individual and collective behaviour patterns

The previous section discussed the effect of personalised leadership on the workings of the health secretariat. The other side of the same feature is the effect on health-seeking behaviour of the catchment population. Many examples emerged during the fieldwork of people resorting to ‘patrons’ in order to resolve their immediate health problems. A patron is someone who has local influence, often involved in local politics, and in exchange for favours, the ‘client’ will give political support in elections. The patron may help with transport either to the health centre or further afield to a hospital in another district, with money to pay for a private consultation, examination or treatment not available at the local health services or by using influence at the health centre to ensure a consultation straight away. Although the use of patron–client networks was found in all three study sites, this was more frequent in the rural district with regard to transport needs and queue hopping, and more common in metropolitan and urban districts with regard to payments for private consultation, examination or treatment. Overall, resort to a patron–client network was least common in the urban district.

The importance of using individual strategies to resolve immediate health problems is that this may well diminish the necessity to engage in collective pressure to get the local health services improved. Thus, the extent to which people draw on patron–client relationships in order to access health care can have an influence on the quality of the health services provided. An additional important point is that where people have succeeded in using such an individual strategy and resolved the health problem, they may well express satisfaction with the health care system and thus user evaluations need to compare the levels of satisfaction of this group with those without patron help.

Differences in personal involvement with the local district

The degree of involvement that health staff have with the district may have an influence on whether a space for autonomy is transformed into a more responsive health system. This observation reflects a body of work following Lipsky’s pioneering study on Street Level Bureaucrats (1980) which recognises the power of actors within systems to realise, transform, subvert or completely block policy intentions. The

study sites in Northeast Brazil indicated two striking and related aspects to staff involvement with the district: commitment and continuity.

Commitment

Decentralised management is in essence about providing health care within a defined geographical area within which it is assumed local interrelationships will provide the driving force for responsiveness, appropriateness and accountability. However, health professionals may have little long-term interest in the specific district. This varied greatly between the three study sites.

All three sites were within a few hours drive of the state capital, which in itself exerts an important influence. In the poor rural district, none of the health professionals lived in the district itself. The health secretary, who had been in post for eight years, did herself come from the district and from an important local family, and as such has interests and commitment to the district both in terms of property ownership, political ambitions for self and relatives and in terms of family traditions. Nonetheless, the secretary lived in the state capital and came to the district only two times a week to work in the small district hospital. Similarly, the prefect at the time of the study had property in the district, but a more important business in the state capital and was hardly ever seen in the district. The prefect elect was perceived much more as a local man who was committed to the district as his home. By contrast, the urban district had a core group of physicians resident in the district who vied with one another for political positions, who worked in the local district hospital (a private not-for-profit facility) and some of whom had their own private clinics in the district also. Nurses and other health staff also lived in the district permanently. A far greater long-term commitment to the district was apparent amongst the health staff in this district. In the metropolitan district, many of the health staff had been working there for many years although not that many were actually resident in the district, being as it was adjacent to the state capital. The staff thus fell into two camps, those who had worked here long-term and those not. A similar pattern was seen between the two district secretaries of health appointed during the research. The secretary of health for most of the study was neither from the district nor resident in the district, although was regularly there and conscientious in his work, whereas the secretary appointed to take over with the in-coming local government had a long history of working in the district and had already been the health secretary under a previous local government.

Continuity

It is evident from the observations above that the

continuity of the staff working in a district interlinks with their commitment to the district's health system development. There are three actors or groups of actors who can affect the continuity of health care provision locally: local government, the health secretary and the health professionals.

First, the local government is elected every four years. Sector heads such as the secretary of health are appointed directly by the prefect and are either political or personal allies or both. This type of appointment is called a 'post of confidence' (*cargo de confiança*) and can be terminated at any time without any need for notice. Thus, all sector heads are closely aligned to the local government and all will change after four years if that party is not re-elected. In two of the study sites (urban and metropolitan), the district health secretary had changed during the four years and changed again after the four years.

Secondly, an elected prefect at this time could only hold office for one term at a time, so even if the same party is re-elected, the person who is the prefect will be different and thus, given the culture of personalised management discussed above, the sector heads may also change. On the other hand, in poorer districts where professionals are limited, a secretary may continue through different local governments. In our rural study site, the secretary of health had already been in post for eight years continuously and was appointed for a further four. As a physician from an important local family, the secretary brings political support for whoever is in power and thus has been able to negotiate the post with different parties.

The third group of actors are the physicians and nurses working in the health facilities. Many health professionals in Brazil will have more than one job, a typical contract being for twenty hours a week. Although most work within the public sector for part of the time, the second contract may not be in the same district and may not be in the public sector. Mobility between jobs even within the public sector can be high, particularly in districts near large urban centres. The continuity of the health professionals in any one district may therefore vary enormously. There are also different types of contracts for health professionals, which have different implications for likely continuity in any one district. Contracts may be held at Federal, State or District level. Entry into the public sphere is officially via a kind of civil service examination (called a *concurso*) which once passed assures a job for life, although the specific posting and associated perks and bonuses may vary. However, very few districts have established a *concurso* procedure and thus staff employed by the district do not have such job security. Where there is dramatic change of all top administrative staff every four years, where practitioners are dependent on the goodwill of the health

secretary for their contract continuing and where the health personnel are highly mobile, the probability of good practices in health care delivery continuing over time will be dependent on the action of individuals rather than on procedures being institutionalised into the local system. The factors affecting whether a local system that promotes responsive and good practice locally will be sustainable across the vagaries of local politics has received little attention in research to-date.

Different spaces of acceptable practice and accountability

A final consideration with respect to social organisation and political culture is to define where different groups of actors delineate the boundaries of unacceptable practice by public employees within the health system. In the State of Ceará, after the 1996 local government elections, fifty out of the 184 districts were taken to the State Tribunal under suspicion of malpractice to answer queries regarding their accounts. Cases such as these become highly visible but otherwise identifying local corruption in research studies is almost impossible to do within a practical time limit. On the other hand, variations in norms and values regarding more cotidian practices can be evaluated and their relation to health provision explored (see Sheaff & West, 1997 for an example of a study made in the UK National Health Service). During the fieldwork we recorded various practices in local health systems that in principle violate official procedures. Although cases can always be found of blatantly corrupt practices, serving only the interests of certain members of the system, most fall into a far greyer area ethically regarding acceptability.

Practices such as a health professional referring a patient to their own private clinic can be in the interests of the patient as well as the health professional. This of course can only occur where health professionals have a private clinic in the district. This was the case for the urban and metropolitan districts and no-one from either the staff or the population criticised this practice. We have already commented above on the widespread practice whereby those with political aspirations help potential supporters gain access to health services and health professionals. The acceptance of this was much more ambivalent, depending of course on whether you had access to such a patron or whether you missed getting a consultation because someone jumped in ahead of you. The major complaints came from the rural district and some from the metropolitan. There were few from the urban district. The use of community health workers by politicians in political campaigns is not allowed officially, yet those workers may have political views of their own and want to campaign for a political party in their capacity

as a member of the community. Health staff on the whole did not think this acceptable. The community informants and the community health workers had mixed feelings about it. The issue was mainly raised in the rural district. Examples abound of certain individuals keeping medicines at home which they distribute to local people who know to come and seek help there. Such practice is often carried out with a political aim to gain favour locally, the drugs may come from the public health posts and the people distributing them are untrained, and yet in rural areas where there are few health posts and limited transport, this practice can be highly advantageous for the local population. This practice was common in the rural area and no members of the population thought this unacceptable. A number of the health staff objected particularly since the health posts themselves had few drugs in stock.

Although a very complex area meriting detailed study in its own right, it is worth trying to access some indication of variation between districts in the norms of acceptability of such practices and its relationship to health care provision. In this study, there was a very broad tolerance towards all kinds of practices beyond official procedures in the rural district. The metropolitan area was somewhat tolerant and the urban district produced relatively few cases.

Going down to the local

The descriptions above illustrate ways in which aspects of local social organisation and political culture can differently affect the implementation of health reforms and the processes by which such reforms improve health care quality across districts. In the case of Brazil, the two main reform strategies are to increase space for local autonomy and local voice. The extent that such spaces are created is clearly dependent not only on the formal contract with the Federal Union but also on a range of more locally determined factors. The processes by which these strategies are assumed to transform into greater empowerment, accountability, responsiveness and quality of health care are moderated at every point by the local social organisation and political culture in which the local health system is embedded. The lines of influence are shown in Fig. 3.

In order to provide a simple summary of the thick description of social organisation and political culture and the aspects of formal organisation and health care quality already presented in Table 3, the three districts are ranked for their performance on all of these and presented in Table 4. The selection of indicators to represent the formal organisation and to evaluate quality of the care is to a large part determined by what

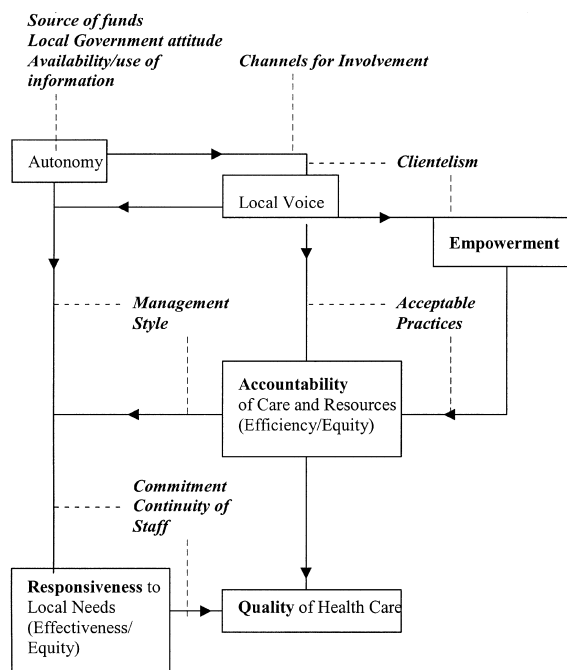


Fig. 3. The influence of selected aspects of social organisation and political culture on the benefits of decentralised management of health care.

data are available from the districts, the State Secretariat of Health and the State Statistical Institute (Iplance, 1997). These data do however reflect the state's own definitions of both quality and the important aspects to the formal system. A clear pattern emerges across these three districts.

The urban and rural districts come out consistently well and badly respectively across all three categories. The metropolitan district is rather more interesting in that the formal organisation is comparable with the urban district but the quality of care is surprisingly poor. The extent to which aspects of social organisation and political culture enable or hinder implementation indicates a mixed influence but one which is sufficiently negative to suggest that local social organisation and political culture mediate the gap between formal organisation and resulting quality.

These observations between the three categories of action raise cause and effect questions about the nature of these patterns.

- An environment in terms of social organisation and political culture that favours health reform implementation is the main determinant of the formal organisation of the local health system, successful practice and resulting quality of care.

- A district that puts the formal organisational structures into place may influence the local social organisation and political culture towards a more enabling environment for implementation.
- Neither one is the primary determinant of the other; there is a close dialogue between them that operates as a feedback loop which can escalate the good or bad effects of local health system activities.

The first of these three options is highly pessimistic. No-one working within health reforms would care to reach this conclusion and, as Bossert (1998) noted (cited above), such a conclusion would also be politically unacceptable. The unacceptability of such a conclusion to researchers, practitioners and politicians is not, however, a sufficient reason to deny that it is a possibility. The results from our three case studies can be interpreted in this way. The second of the options is how the health reforms are presented in policy rhetoric and in practice this is the model most practitioners and health systems researchers work within implicitly. The results of this study suggest, not surprisingly, that this is overly optimistic. The experiences of the local health system in the rural area in particular demonstrate how deeply entrenched aspects of social organisation and political culture can dominate how the health reforms are implemented. The third option may offer the most promise in its optimistic caution. Here the importance of local factors is recognised and the likelihood that, without care, decentralisation may serve to increase differences between districts rather than the opposite, as documented by Putnam in Italy (1993). In this study, there are indications that the activities of the health system in turn empower the local population to expect a given quality of health care, but only in the urban district where the social organisation and political culture offer a facilitating environment. However, the dialogic nature of the association does theoretically leave room for influence to go in both directions. In this option, therefore, there can be space for the formal health system to influence local social organisation and political culture and offer a potential for change.

In order to take analyses on these kinds of questions forward, two kinds of further research are needed.

First, where some idea of the important aspects of social organisation and political culture is known, extensive surveys incorporating indicators for these can identify factors associated with good health care provision across a wide range of districts. A list of indicators that have been used in Northeast Brazil based on this study is given in Table 5. A study of this nature would aim to cluster districts by the geodemographic and social organisation/political culture indicators and explore whether certain constellations of formal organisational arrangements emerge as associated with good quality of care. Research outputs in

Table 4
Ranking of the three districts for quality, formal organisation and social organisation and political culture

	Metropolitan	Urban	Rural
Quality outputs			
IMR	3	1	2
Measles coverage	1	1	3
Efficiency in use of funds	1	3	2
Clinical consultations	3	1	2
Clinical procedures	2	1	2
Dental consultations	2	1	3
Radiology	2	1	2
Population satisfied ($n = 100$ in each)	3	1	2
<i>SUM</i>	17	10	18
Formal system			
Legal status	2	1	2
Organisation: Health council	3	1	1
Secretariat structure	1	2	3
Resources			
Facilities: no/size/services	1	2	3
Human resource calibre	1	2	3
No. Beds/cap	2	1	2
No. CHW	1	2	3
No. Family health teams	2	1	2
Health facility functioning	1	1	2
<i>SUM</i>	14	13	21
Social organisation and political culture			
Untied funding	1	2	3
Local government delegation	1	1	3
Local information system	1	1	3
CMS function	3	1	2
Clientelism for health care	2	1	3
Management style	2	1	3
Personalised leadership	1	1	2
Commitment	2	1	3
Continuity	2	1	3
Boundaries on practice	2	1	3
<i>SUM</i>	17	11	28

this form can be used in two ways, echoing the discussion above. In a more pessimistic approach, the results can provide a list of options for organisational arrangements that seem to work well in certain types of settings for other districts to draw upon. This assumes that only the formal aspects of health system management are really amenable to controlled change and that social organisation and political culture have to be treated as part of an unalterable given context. It is vital, at the very least, to make explicit recognition of factors that are not amenable to managed change by the health sector. A more cautiously optimistic approach is to use the results as an opportunity to open a dialogue locally with the population, with political leaders and so forth as to what is and is not amenable to managed change, and whether and what activities outside the jurisdiction of the health system might be instigated to provoke change in local social

organisation and political culture. Formal activities of the health system might in turn play an important part in such changes.

Secondly, intensive case studies similar to these in different countries can identify a comparative list of aspects of social organisation and political culture that emerge as important for health systems. Brazil, it has been noted before by other writers, may be particularly adept at modifying and transforming formal organisational structures and procedures within its political culture (Hess and DaMatta, 1995; Caldas and Wood, 1997).

'Many categories and assumptions normally employed in Organization Studies may be of little use or even not applicable within the Brazilian context.' (Caldas & Wood, 1997, p.518)

However, Caldas and Wood also note that they can

Table 5

Indicators of aspects of social organisation and political culture in the context of the Brazilian health system reforms

General aspect	Specific aspect	Indicators
Space for autonomy in planning and decision-making	Source of income	% of district health budget from MoH(SIA/SUS) % of health budget from district itself
	Local government	Total budget of district % of total district budget allocated to health Who decides use of health budget Who approves use of health budget Who are the signatories to the health fund
	Information locally for planning	Agreement on IMR, MMR, coverage levels Agreement on where problem areas are Extent of data use in local priority setting
Space for a local voice in planning	Participation	Existence of community-based organisations Extent of community participation in those organisations Representation of community organisations on the district health council Awareness of community members of the district health council Perceived functions of the council Frequency of council meetings Attendance at council meetings Who/where people would go if wanted to complain about services
Personalised and institutionalised influences on autonomy and local voice	Management style	Perception of health staff of secretary's style Who makes decisions about (3–9 key issues) Who staff go to if want to complain about conditions of work or colleagues Frequency of secretariat meetings Frequency of meetings of secretariat with health facility managers Community perceptions of secretary's style
	Individual/collective behaviour patterns	Extent of resort to patron to resolve health care needs
Personal involvement with the local	Commitment	Birth place and residence of prefect Birth place and residence of health secretary If prefect or health secretary are physicians, do they work in the district (public +/or private) Length of time staff have worked in the district Extent staff are resident in the district
	Continuity	Forms of staff contract — hours, who with Existence of district public service exam Political parties in power since 1988 Health secretaries since 1988
Space of acceptable practice and accountability		Attitudes to specified practices in terms of acceptability/non-acceptability

see similar tendencies in other Latin American countries and propose wherever a managerial discourse is being introduced from a different culture (usually northern European/North American), a rupture between discourse and praxis, or appearance and substance, is likely to be provoked. The nature of these ruptures in different settings is something international researchers and practitioners in systems development need to know much more about. Although the requirements of ethnography are demanding both in costs and time, such studies are of vital importance to build up a base of knowledge about the contexts of health systems development as a complement to the international work on how to assess quality of health services. Without a body of work documenting the realities of policy implementation in context, we have no record of what is really being changed, we do not know what we are monitoring through quality indicators and we cannot assess relevance of regional and national experiences from one context to another.

Acknowledgements

The research is part of a project funded by the British Government Department for International Development and hosted at the Escola de Saúde Pública, Ceará, Brazil.

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HMIS and decision-making in Zambia: re-thinking information solutions for district health management in decentralized health systems

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At the onset of health system decentralization as a primary health care strategy, which constituted a key feature of health sector reforms across the developing world, efficient and effective health management information systems (HMIS) were widely acknowledged and adopted as a critical element of district health management strengthening programmes. The focal concern was about the performance and long-term sustainability of decentralized district health systems. The underlying logic was that effective and efficient HMIS would provide district health managers with the information required to make effective strategic decisions that are the vehicle for district performance and sustainability in these decentralized health systems.

However, this argument is rooted in normative management and decision theory without significant unequivocal empirical corroboration. Indeed, extensive empirical evidence continues to indicate that managers' decision-making behaviour and the existence of other forms of information outside the HMIS, within the organizational environment, suggest a far more tenuous relationship between the presence of organizational management information systems (such as HMIS) and effective strategic decision-making. This qualitative comparative case-study conducted in two districts of Zambia focused on investigating the presence and behaviour of five formally identified, different information forms, including that from HMIS, in the strategic decision-making process. The aim was to determine the validity of current arguments for HMIS, and establish implications for current HMIS policies.

Evidence from the eight strategic decision-making processes traced in the study confirmed the existence of different forms of information in the organizational environment, including that provided by the conventional HMIS. These information forms attach themselves to various organizational management processes and key aspects of organizational routine. The study results point to the need for a radical re-think of district health management information solutions in ways that account for the existence of other information forms outside the formal HMIS in the district health system.

Key words: HMIS, information forms, decentralization, strategic decision making, district health systems

Introduction

Since Alma-Ata in 1978, most developing countries have implemented health sector reforms. In almost every case, a central feature of the reform strategy has been a process of structural decentralization: the aim being to vest greater decision-making responsibility in the district health systems. The underpinning primary health care notion is that decentralization thrives on the essential involvement of primary-level health management units in the delivery of health services (WHO 1978). Although the geo-politics vary from country to country, the district tends to be the last formal unit of local government and administration (Mills 1990). Across the variations of decentralization in developing health systems (Mills 1990; Vaughan 1990), the success of decentralization has predominantly been considered to rely significantly on the capability of the district health system to effectively exercise its assigned

authority and play its role in the reformed health structure. Thus, there has been a deliberate movement to strengthen the management capacity of district health systems (for instance, Cassels and Janovsky 1996).

One area of focus in district health management strengthening programmes has been health management information systems (HMIS) at the district level (for instance, Acquah 1994; Ankrah and Djan 1996; Lippeveld et al. 1997; Bodart and Sapirie 1998). There are challenges in clearly defining what is meant by HMIS (Lippeveld and Sauerborn 2000). In this study, HMIS is used to refer to the predominant concept of a formal and structured health information system set up to support and facilitate health management decision-making at different levels of any health system (for instance, Ankrah and Djan 1996; Danish Bilharziasis Laboratory 2002; Gladwin et al. 2003). In that light, HMIS is designed to carry both

epidemiological information (health prevalence, incidence, mortality, morbidity statistics) and administrative information (resource inputs and service utilization).

The rationale for HMIS has been that the availability of operational, effective and efficient health management information systems is an essential component of the required district management capacity. The logic is that effective and efficient HMIS will provide district health managers with the information required to make effective strategic decisions that support district performance and sustainability in these decentralized health systems.

However, the arguments for HMIS are not based on unequivocal empirical evidence, or tested theory, that the information carried in HMIS makes a difference, but rather represents a normative view of management capacity. A review of empirical literature reveals a prevalence of HMIS failure problems across a range of country situations in the developing world (Lippeveld et al. 1997), as well as in developed health systems (for instance, Southon et al. 1999; Snyder-Halpern 2001).

Other specific difficulties with far more conceptual implications pertain to the widely recognized problems with the decision-making behaviour of managers in organizations in general, at least when that behaviour is set against normative theories of management and decision-making practice. For instance, empirical studies suggest managers use information for political capital, using information to seek legitimacy for their decisions rather than to make or clarify those decisions (Feldman and March 1988; Guldner and Rifkin 1993). More crucially, it is widely acknowledged that managers use information other than that provided by formal organizational information systems such as HMIS; and this other information may take *verbal* and *observational* forms, or may be embedded in the *training* and *experiential* background of managers (for instance, Mintzberg 1975).

This paper, therefore, addresses the challenge of reconciling the rhetoric for HMIS in district health systems with observed problems that contradict it, threaten its very integrity, or, at minimum, recognize its limitations in relation to management tasks. The paper describes a comparative study of two district health systems in Zambia, and its main intention is to highlight one major implication of the study findings. The paper describes the core research problem, key objectives of the study, the methods and key findings. It then concludes with a discussion of the major practical implication of the study findings, for HMIS design in developing health systems.

Background

The key research problem confronted by the study was that the interaction between theory and empirical evidence so far indicates that organizations, public or private, still understand little about the nature and behaviour of information within the organizational environment.

This problem has to some extent been acknowledged in existing literature. For instance, Liebenau and Backhouse (1990) have pointed out how little we understand about what information is and how it affects us in organizations. More fundamentally, March (1988) and Mintzberg (1975) noted the general gap that exists between findings of research on decision-making and the assertions of classical normative decision-making theory that underpins the current argument for information in organizations. March (1988) argues that this gap is 'partly attributable to limitations in the theories, rather than limitations in the (decision-maker) behaviour'.

The implications of these critical observations for developing health systems ought to be appreciated sensitively. These are resource-poor economies where new technologies should be continuously and rigorously evaluated in terms of value creation for the health system, for each dollar invested. Yet, the theory-practice gap being flagged up by empirical literature on information and decision-making presents potential problems for cost-benefit analysis in these developing health systems. With divergent trajectories or outcome-projection functions, between theory and actual practice, there is an absence of the necessary agreement on the measurement of benefits, success or indeed failure. The result has been a landscape replete with a plethora of frameworks for measuring information system failure or success (Skok et al. 2001). This condition has not been helpful to practitioners in developing health systems. Developing health systems often set out to strengthen their HMIS based on normative decision theory principles (Acquah 1994; Gladwin et al. 2003), but later have to deal with measuring theoretically unanticipated informational phenomena in evaluation stages of their HMIS programmes.

The theory-practice gap that constitutes the root of this problem is essentially defined by the way in which information is 'problematic' in the organizational environment. An expeditious review of literature on information and decision-making reveals three major forms of this 'problematic' presentation of information. These three forms of presentation are briefly outlined here.

Functional versus symbolic use of information

The principles of normative decision theory are predicated on the functional use of information by decision-makers where, since the onset of Frederick Taylor's (1911) 'scientific management' paradigm, decision-makers use information objectively in making rational decisions. Yet, such works as those by Feldman and March (1981), Feldman (1988), and Dean and Sharfman (1993) represent now common knowledge that people distort and manipulate information for their own goals, and that this is a pervasive phenomenon in organizational life. Information is often used as a symbol of competence, or merely as a signal of appropriate decision-making to secure legitimacy for decisions made. Guldner and Rifkin (1993) observed from their field observations in Vietnam that data were being widely used to *justify* rather than *clarify* decisions.

Thus, the symbolic use of information directly defies the traditional logic of the functional value of information to the production process. From the perspective of health systems, information is hence manipulated for goals not necessarily compatible with the explicit aspirations of decentralization.

Use versus non-use of information

Embedded within the logic of normative decision theory is the presumption that decision-makers actually do use information when it is made available, and they behave that consistently towards it. However, for decades now it has been well acknowledged, from observations, that decision-makers gather information and ignore it; they make decisions first and look for the relevant information afterwards (for instance, March 1982). A study by Finau (1994) in the South Pacific highlighted similar problematic behavioural tendencies, that local decision-makers ignored installed formal health information systems and, instead, preferred “gut feeling”, hearsay and ad hocry’.

Again, this is a condition that poses HMIS evaluation problems for the health system planner. How credible would any form of systemic performance attributions to the installed HMIS?

Formal HMIS versus other forms of information

Contemporary philosophy of organizational management information systems (including HMIS) is centred on formal structured information systems with, among others, specified formal encoding, transmission and decoding rules that govern those structures (Liebenau and Backhouse 1990; Ward and Griffiths 1996; Boman et al. 1997). As Simon (1957) pointed out, formal information systems are based on formal channels of information which may be characterized by ‘hard’/paper and/or electronic forms of transmission in the organization. In the study, these forms were collectively referred to as the *written* form of transmission or information, which includes HMIS.

However, other forms of information have been identified in empirical literature as being present in the organizational environment. In his study of managers, Mintzberg (1975) found that apart from formal management information systems, managers used ‘soft’ information and favoured *verbal* over *written* information. The above-mentioned study by Finau (1994) points to similar observations. Mintzberg’s study further indicated that managers also use *observational* information in their work. *Experiential* and *training* forms of information are widely acknowledged in the literature as well (for instance, Simon 1976; Melone 1996). All these forms of information are significantly recognized in naturalistic decision theory (a perspective on how decision-making occurs in real world situations). Yet, there still remains conspicuous ignorance of how these information forms operate within the organizational environment. Hence, presently, their practical recognition in HMIS design considerations has

been insignificant. This study focused particularly on this third *problematic*, with a fairly confident theoretical hunch that the informational phenomena presenting the first two problems would still be explainable from this perspective that recognizes the existence of other forms of information outside the formal HMIS.

Study objectives

The aim of the study was, first, to establish the presence of *written, verbal, observational, experiential* and *training* information forms in the strategic decision-making process. The focus on the strategic decision-making process represents a major concern for the management capacity of decentralized district health management systems and their sustainability. Local strategic decisions are central to the definition of district health management capacity and the determination of district health system sustainability, in decentralized health systems (Mutemwa 2001).

Secondly, the study aimed to establish the nature of the micro-processes through which the above five information forms influence the strategic decision-making process. The third and final aim was to determine the implications of these findings for HMIS design and operational considerations. However, this paper will not cover the second objective due simply to the complexity of the dynamics involved in the micro-processes. The subject of micro-processes should be better examined in a dedicated, separate paper. Yet, such exclusion does not at all undermine the visibility of overall policy implications from the study, in the findings presented in this paper.

Method

Study design

The study was exploratory. The study did not exclusively set out to only search for the different forms of information identified in the objectives above, but rather the researcher set out with an ‘open mind’. The basic reasoning was that there was still the possibility of finding other forms of information not yet identified in existing literature, or indeed discovering new interesting insights into the strategic decision-making process.

The study was designed as a multi-level, qualitative comparative case study and was conducted in Zambia, where health sector reforms have involved a significant delegation of decision-making responsibility to district health systems (Mutemwa 2001). In Zambia’s decentralized health system structure, there is separation of policy and executive functions in health service provision. At decentralization, the Ministry of Health retained the national-level sectoral strategic functions of health policy and planning, finance and budget, legislation, advocacy and international co-operation (Bergman 1996; MOH 1996).

The government then created a parastatal, the Central Board of Health (CBOH), and delegated to it all the

executive functions of service provision: commissioning health services in the sector, performance support, monitoring and evaluation, national human resource development, and national health facilities planning (Bergman 1996). Responsibility over actual delivery of services was further delegated to district health systems, which were re-constituted into District Health Boards (DHBs). DHBs are legal entities established under the Zambia National Health Services Act of 1995 (MOH 1995). They operate on an annual contractual relationship with the CBOH, and annual service delivery benchmarks are evaluated and reviewed each year-end, against which funding is negotiated and allocated (MOH 1992, 1996). DHBs have extensive strategic and operational decision-making discretion at that primary level, including the legal mandate to raise and manage their own resources. A district can engage in profitable investment activities that it may deem beneficial; plan, recruit and manage its human resources; and engage in any activities that may aid the sustainability and prosperity of the district health system.

For the study, the first level of comparative cases was the district health system context. Zambia's district health system profile consists of two main types of district groups: *rural* district health systems, and *urban* district health systems. A rural district health system in Zambia has a district health service structure that serves a considerable urban population of the district town, and further extends to rural village communities situated outside the town but still falling within the geo-political boundary of the district. A rural district health service will typically comprise a district health office, a referral hospital, at least one urban clinic, and a considerable number of rural health centres and community health posts distributed among the village and farming communities.

Conversely, an urban district health system in Zambia carries a district health service structure that serves an urban community only. An urban district health service will typically comprise a district health office, one or more referral hospitals, and a significant number of urban health centres distributed among the urban and peri-urban communities.

These two groups of district health systems experience distinct epidemiological and health management problems and challenges, set within their equally varied respective local socio-economies. Based on the understanding that a number of strategic decision-making processes were to be studied from each district case selected, the researcher estimated that two district health system cases would be sufficiently representative for the study: one rural district and one urban district. These, it was felt, were sufficient to provide empirical insights into how the rural and urban contexts differentially affect managerial decision-making and decision-making processes, particularly in terms of information variety and volume, and decision-making activity.

The second and primary level of comparative cases was the strategic decision-making processes sampled from within the two districts selected for fieldwork. The strategic decision-making processes or cases were compared within each district to establish the degree of intra-district consistency, and across the two districts to determine the degree of inter-district variation in the behaviour of information.

Data collection

Ethical clearance

Ethical clearance was obtained from the national ethical clearance committee, and administrative clearance obtained from the Central Board of Health acting on behalf of the Ministry of Health in Zambia, to conduct the study. Consent was also sought and granted by the selected districts to conduct the study and access written, verbal and observational data sources. Consent to access data sources was also a continuous part of the research process, and was obtained both institutionally, whenever necessary, and from individuals whose personal insight on specific issues was sought through interviews from time to time.

Selecting district cases

One urban district, Lusaka, and one rural district, Monze, were purposively sampled from the national sampling frame of 72 districts in Zambia. The selection process involved several progressive rounds of scoring all the districts in the country on the basis of: whether a district had a functional District Health Management Team (DHMT) and DHB; whether the district was willing to be hospitable to the study; the final two districts had to be located in different provinces to control for regional cultural bias; and a district could not have more than one donor-funded project running during the time scheduled for the study, to control for interference from artificial human and financial resource capacities that accompany such health programmes. Donor programmes were considered not a reliable indicator for long-term district health system sustainability for two main reasons: first, the short-term and definite life-span nature of international development aid; and secondly, the characteristically indeterminate nature of outcome possibilities of development assistance.

On the basis of these four criteria, the list was eventually reduced to the two districts. Lusaka is the capital city of Zambia; while Monze is a rural district in Southern Province, about 200 miles south of Lusaka.

Selecting strategic decision cases

The strategic decision cases were also purposively sampled in a process that was closely guided by the methodology chosen for collecting data on the decision processes. By design, it had been decided that data on the strategic decision-making processes were to be collected using the tracer methodology (Mutemwa 2001). Tracers are concerned with the elucidation of processes and are generally

associated with the description of activities over time (Barnard et al. 1980; Hornby and Symon 1994). Basically, all the strategic decision processes selected for study were going to be traced, from beginning to end, for each decision-making process. Tracing can be done retrospectively on decision cases that have already occurred, or prospectively on decision cases that are concurrent with the study. In retrospective tracing the researcher is often guaranteed complete decision processes that have beginnings and ends, while in prospective tracing it is never assured that a decision process being traced will have resolved before the research project winds up its fieldwork. The particular advantage with prospective tracing is that the researcher is able to witness the decision process as it unfolds, evolves and develops, which offers a different and more intimate experience of decision process reality from that of recalled eye-witness reports or experiential accounts in retrospective tracing. Thus, to optimize the richness of data collected in each district, it was felt some of the strategic decision cases selected for the study were to be historical, for retrospective tracing; while others were to be concurrent with the study, for prospective tracing.

Three criteria were invoked for selection of strategic decision cases in the two districts. A decision process case had to have evidence of availability and reliability of information sources on it; in the case of historical decision processes, there had to be evidence of the process having reached some form of end or resolution; and, the district health office had to give full consent to the study of a selected decision case. To succeed on these criteria, the exercise of selecting strategic decision cases for study in the two districts was deliberately participatory. DHMT members, as executive custodians of strategic decision-making at district level, were involved in the discursive process of recalling, suggesting and listing strategic decision-making processes, historical and on-going, which would be traced in each district. The three selection criteria served as a backdrop to the participatory process. A total of eight strategic decision-making processes were selected for tracing in the study, four from each district. In each district, two of the decision cases were historical, the other two current or concurrent with the study.

Collecting the data

Retrospective tracing of historical strategic decision processes was done through unstructured in-depth interviews and review of organizational documentation. Unstructured in-depth interviews were conducted with key informants on each strategic decision case traced. Key informants were mainly those members of the DHMT or of the broader district health office that had participated in the process. In addition, organizational documentation relating directly and indirectly to the decision process was requested and reviewed. This involved meeting minutes, memos, letters, personal notes, strategic and operational plans, reports and policies. Validation of data was achieved through multi-informant and methodological triangulation (Pettigrew 1990; Mutemwa 2001).

Prospective tracing of on-going or concurrent strategic decision processes was done through unstructured in-depth interviews, review of organizational documentation, and direct observation of decision-making business in the district health office. Observation notes were recorded in field notebooks and a diary. Direct observation took the form of participant observation, the researcher attending and witnessing decision-making sessions without taking active part, but with his status as a researcher known to the actors. To facilitate participant observation, the researcher negotiated for office space within the district health office and focused data collection in each district for 6 months each; that is 12 months in all.

Data analysis

Data analysis was multi-stage. In the initial stage, data on each traced strategic decision were brought together to reconstruct the story of the strategic decision-making process, bringing out, as much as the data could allow, the reality and chronology of its mechanics. The process of data interrogation to reconstruct decision process stories started as part of data collection, in many instances shaping follow-up interviews, documentary reviews and observations. These reconstructed decision process stories were then verified with key informants for validation, and any inconsistencies or misrepresentations corrected.

In the second stage, the eight constructed decision process stories were structured. The search for structure was a search for a common regularity in the decision process cases, which would enable cross-case comparison and meaningful subsequent abstraction. To deduce a common structure of the decision process from the eight decision case stories, the emergent theme approach (Mintzberg et al. 1976; Nutt 1984) and critical events principle (Poole and Baldwin 1996) were deployed. Decision process stories were examined using the emergent theme approach, with intuition used to organize the stories into patterns that describe the nature and sequence of key phases and within-phase steps. The critical events principle helped identify key milestones or turning points in the decision case stories, which were used for constructing the frame of the structure.

The last stage of data analysis involved individually breaking down the structured decision stories for, among other aspects: the presence of *written, verbal, observational, experiential, training* and any other information forms; the source of the present information forms and channels through which the information forms entered the decision process.

Results

Strategic decision-making processes selected for study

As Table 1 shows, a total of eight strategic decision-making processes were traced in the two district health systems. All the four decision processes from Monze were

Table 1. The eight strategic decision-making processes in the study, by type and district

District	General management	Health programmes	Total
Monze	4	0	4
Lusaka	2	2	4
Total	6	2	8

about addressing administrative or general management strategic problems, and none were about addressing (epidemiological) health problems. Whereas, in Lusaka, two of the decision processes were about addressing general management problems, and the other two were about (epidemiological) health problems.

There appears to be no other immediate explanation for this distribution in the nature of traced decision processes, apart from the apparent inter-play between the tight decision process selection criteria, coincidence and the timing of the study. For instance, the decision process distribution for Monze does not necessarily imply that there were no health problems in the district at the time of the study. Major decisions worthy of study had been made and health programmes were already running at the time of the study, but these decisions did not exactly satisfy the selection criteria. Moreover, it is significant that, in fact, the administrative or general management decision processes traced in both districts either directly or indirectly, as would be reasonably expected, pertained to health programmes set up to address (epidemiological) health problems.

Structure of the strategic decision-making process

All the eight strategic decision-making processes traced in the study exhibited an identical developmental structure. However, detailed elucidation of how the decision-making process structure operates can only be the subject of a dedicated, separate paper. What will be attempted here is to delineate the form of the decision process structure only as far as it serves as the basic backdrop to the subsequent presentation of data on presence of information, the focal subject of this paper.

Thus, basically, the strategic decision-making process structure that emerged from the data has three stages around which activities in each decision-making process seemed to cluster, from beginning to end. The stages are: problem recognition, investigation and solution development.

Problem recognition

Problem recognition emerged as the first stage of the decision-making process. It covers dynamics by which the decision process is triggered, including the ensuing activities up to the point where the managers arrive at some definition or understanding of what the real or basic problem behind the indicators is. In this stage, managers tended to be pre-occupied with making sense of the

presenting problem situation and identifying the problem that they then adopted for targeting.

Investigation

An investigation stage emerged as the second stage of the decision-making process. It covers activities through which the managers get to understand the root cause of the problem, and how much the problem may have impacted on their organization or other aspect of their service. Here, managers or their assigned proxies actively searched for information relating to those aspects of the problem. The investigation stage typically ended at the point where the managers had gained full or part answers on those aspects and they had some general conceptual ideas about the attributes of the ideal solution to the problem. These ideal-solution attributes then provided a reference 'blueprint' for the next and final stage of 'solution development'.

Solution development

Solution development is the third and last stage of the decision-making process. It covers activities about the development of a solution, which in some decision cases came in the form of a relatively complex programme design in bound hardcopy print. In other cases, the solution was nothing more than a simple list of inter-related intervention activities on a one-page internal memo on file (or even listed in meeting minutes as recommendations for action). It is significant that, according to the study findings, solution development does not include implementation of the solution because it was felt 'implementation' posed a different set of questions.

A few empirical observations should be made about the three stages of the decision-making process delineated above. First, the structure also recognizes the transitional linkages between the stages, and the activities that constitute these linkages. These transitional activities perform specific functions that ensure the relationships between the stages, and hence provide continuity to the structure.

Secondly, each of the stages is amenable to analysis as an episode with a distinctive set of activities that differentiate it from the other stages in the process. This was particularly useful to the task of breaking down the individual decision-making processes in the search for information in its various forms.

Presence of information in the strategic decision-making process

Firstly, all the five forms of information discussed earlier were found to exist in the strategic decision-making process: *written, verbal, observational, experiential* and *training*. District health managers referred to a variety of information forms in the course of strategic decision-making. Table 2 shows, in a comprehensive manner, the information profile across the three decision-making process stages for each of the eight strategic

Table 2. Information profiles of the eight strategic decision-making processes across the three stages of the decision-making process

Decision process case	Problem recognition	Investigation	Solution development
Transport policy	1. Written (HIS, AIS) 2. Verbal 3. Experiential 4. Training	1. Written (HIS, AIS) 2. Observational	1. Written (HIS, AIS) 2. Verbal 3. Experiential 4. Training
SEATS	1. Written (HIS 1) 2. Written (HIS 2)	1. Verbal (1) 2. Verbal (2)	1. Written (pilot) 2. Experiential 3. Training still in process
De-linkage of outpatients department	1. Written (AIS) 2. Experiential	1. Experiential (1) 2. Experiential (2) 3. Written (AIS) (corrupted)	(corrupted)
Fuel	1. Written (AIS) 2. Verbal: formal informal		
Health centre in-charge post	1. Observational 2. Verbal 3. Written (AIS) 4. Intuition	1. Experiential (1) 2. Experiential (2)	1. Written (AIS) 2. Training 3. Experiential
Strategic environmental health plan	1. Written (HIS) 2. Training 3. Experiential	1. Written (Research 1) 2. Written (Research 2)	1. Written (Research) 2. Verbal 3. Experiential
Health centre staff recruitment programme	1. Verbal 2. Observational 3. Written (AIS) 4. Experiential	1. Experiential 2. Written (AIS)	1. Written (AIS) 2. Experiential
Human resource policy	1. Observational 2. Experiential	1. Experiential 2. Experiential	still in process

Notes: AIS=administrative information system; HIS=health information system; SEATS=Service Expansion and Technical Support; still in process=unresolved by end of data collection.

decision-making processes traced in the study. For instance, in the ‘*transport policy*’ decision case, the district managers used verbal, written, experiential and training information to recognize the ‘transport’ problem in the district. The managers then used written and observational information to investigate the problem and arrive at some understanding of what the ideal solution to the problem would be. Finally, to develop the ‘transport policy’ as the solution to the problem, the managers again used written, verbal, experiential and training information. Note that although the set of information forms used in the ‘problem recognition’ and ‘solution development’ stages seem identical, their particular contents were different due to the different goals targeted at these stages. For instance, the written information used in the problem recognition stage was different in content to the written information used in the solution development stage. Both are identified as ‘written’ for the reason that both of the information pieces were obtained from *written* paper and electronic documents.

Tables 3, 4 and 5 present the sources of the information forms identified at each of the three decision process stages in Table 2, for each decision case. For the ‘*transport policy*’ decision case, Table 3 indicates that, in the problem recognition stage, the managers obtained written information from the HMIS, whereas verbal, training and experiential information were obtained through management meetings. What this simply means is that management meetings served as arenas in which previous

experience and professional expertise were pooled and shared, and then applied to understand the transport problem being discussed. This information in management meetings was pooled and shared in verbal form. Note that, in all decision cases, the exact dynamics of this pooling and sharing of information was a subject beyond the remit of the study.

Similarly, Tables 4 and 5 present the sources of information identified in Table 2 under, respectively, the ‘investigation’ and ‘solution development’ stages of the decision process, for each decision case.

Secondly, there was no regular pattern in the presence of these information forms, either across decision-making processes or across the stages within each strategic decision-making process, as illustrated in Table 2. Each decision-making process was informationally distinct; as was each decision-making stage within a process. Thus, as the decision-making process progressed, information in its various forms entered the process for a specific purpose, and exited the process as soon as the purpose was achieved.

In Table 2, the ‘Fuel’ decision process case is listed as having ‘*corrupted*’ following its first stage, to illustrate the fact that the decision process lost its initial formal focus in the subsequent stages due to political conflict that emerged and preoccupied the process. Thus, the original problem which the ‘Fuel’ decision case set out to address

Table 3. Routines associated with information types in the problem recognition stage, across the eight studied strategic decision cases

Decision case	Information type					
	Experiential	Intuition	Observational	Training	Verbal	Written
Transport policy	Shared by DHMT members in meetings	–	–	Shared by Admin. Man. in meetings	Supervisory visits: meetings with health centre staff	HMIS: HIS and AIS
SEATS De-linkage of outpatients department Fuel	–	–	–	–	–	HMIS: HIS HMIS: AIS
	Shared by DHMT members in meetings	–	–	–	–	HMIS: AIS
Health centre in-charge programme	–	By DHMT members in sense-making meetings	Supervisory visits: observation of staff behaviour in health centres	–	1. Formal reports 2. Informal reports Supervisory visits: meetings with local community members	HMIS: AIS HMIS: AIS routine quarterly reports, special reports directly from communities
	Shared by DHMT members in meetings	–	–	Shared by some DHMT members in meetings	–	HMIS: HIS
Health centre staff recruitment programme	Shared by DHMT members in meetings	–	Supervisory visits: observation of service provision in health centres	–	Supervisory visits: meetings with health centre staff	HMIS: AIS
Human resource policy	Shared by DHMT members in meetings	–	DHMT observation of administrative practice	–	–	–

Notes: HMIS = health management information system; AIS = administrative information system; HIS = health information system; DHMT = District Health Management Team; SEATS = Service Expansion and Technical Support.

Table 4. Routines associated with information types in the investigation stage, across the eight studied strategic decision cases

Decision case	Information type					
	Experiential	Intuition	Observational	Training	Verbal	Written
Transport policy	–	–	Observational investigation conducted by DHMT	Shared by Admin. Man. in meetings	–	HMIS: HIS and AIS
SEATS	–	–	–	–	Consultative meetings of 'response team' with NGOs and youth	–
De-linkage of outpatients department Fuel	Shared by DHMT members in meetings	–	–	–	–	HMIS: AIS Corrupted
Health centre in-charge programme	Corrupted	Corrupted	Corrupted	Corrupted	Corrupted	–
Strategic environmental health plan	Shared by DHMT members in meetings	–	–	–	–	HMIS: AIS (research)
Health centre staff recruitment programme	–	–	–	–	–	HMIS: AIS
Human resource policy	Shared by DHMT members in meetings	–	–	–	–	–

Notes: HMIS = health management information system; AIS = administrative information system; HIS = health information system; SEATS = Service Expansion and Technical Support; DHMT = District Health Management Team.

Table 5. Routines associated with information types in the solution development stage, across the eight studied strategic decision cases

Decision case	Information type					
	Experiential	Intuition	Observational	Training	Verbal	Written
Transport policy	Shared by DHMT members in meetings	–	–	Shared by Admin. Man. in meetings	Consultative meetings with health centres, WaterAid, filling station, other staff at district health office	HMIS: AIS
SEATS	Shared by FHSTF in meetings	–	–	Shared by FHSTF in meetings	–	HMIS: HIS and AIS (pilot)
De-linkage of outpatients department Fuel	–	–	–	–	–	–
Health centre in-charge programme	Corrupted	Corrupted	Corrupted	Corrupted	Corrupted	Corrupted
Strategic environmental health plan	Shared by DHMT members in meetings	–	–	Shared by DHMT members in meetings	–	HMIS: AIS
Health centre staff recruitment programme	Shared by task team in planning workshop	–	–	–	Shared by task team in planning workshop	HMIS: AIS (research)
Human resource policy	Shared by DHMT members in meetings	–	–	–	Supervisory visits: meetings with health centre staff	HMIS: AIS

Notes: HMIS = health management information system; AIS = administrative information system; HIS = health information system; SEATS = Service Expansion and Technical Support; DHMT = District Health Management Team; FHSTF = Friendly Health Services Task Force.

Table 6. Contribution to the eight decision process cases, per information type

Decision case	Information type							
	Written HMIS	Written Non-HMIS	Verbal	Observational	Experiential	Training	Intuition	Total of information types
Transport policy	3	–	2	1	2	2	–	10
SEATS	2	1	2	–	1	1	–	7
De-linkage of outpatients department	2	–	–	–	3	–	–	5
Fuel	1	–	1	–	–	–	–	2
Health centre in-charge programme	2	–	1	1	3	1	1	9
Strategic environmental health plan	1	3	1	–	2	1	–	8
Health centre staff recruitment programme	3	–	1	1	3	–	–	8
Human resource policy	–	–	–	1	3	–	–	4
Total per information type	14	4	8	4	17	5	1	53

Notes: HMIS = health management information system; SEATS = Service Expansion and Technical Support.

remained unresolved by end of the decision-making process.

Thirdly, as Tables 2, 3, 4 and 5 indicate, *written* information was either from routine HMIS or occasionally commissioned formal investigative research or enquiry report documents that are in circulation within the district health office. For instance, in the ‘Strategic Environmental Health Plan’ decision case, managers engaged investigative research in the investigation and solution development stages to gain required information. The solution development stage of the ‘SEATS’ case involved a pilot study. In some of the traced decision processes, *written* information took the form of formal one-off letters or informal anonymous notes, as in the following quote from an interview with the District Administrative Manager on the ‘Transport Policy’ decision case:

“...Sometimes somebody would just come and push a note under the door to say transport is not being used as meant for. In fact, not only from the health centre staff but sometimes also from the community. They used to come with a letter to say he (EHT) takes it to Mapanza where he comes from... So we had to decide to put up a measure.”

Again, in this study, routine HMIS was taken to constitute two components: routine epidemiological health information and routine administrative information.

Verbal information equally had formal and informal attributes. Verbal information tended to be shared in formal gatherings, mostly as *spoken* reports to managers during formal supervisory visits to health centres and visits to local communities. Other formal verbal information reached district managers through consultative meetings with affected constituencies and/or stakeholder organizations during the process of decision making. Informal verbal information was reported to be mostly in the form of informal intimacies about the problem situation; for instance, consider the following interchange

between the researcher and the District Administrative Manager during an interview:

Administrative Manager: “...sometimes we used to get the information from (junior) health centre staff that transport is being misused.”

Researcher: “Verbal reports?”

Administrative Manager: “Yeah. Verbal reports. Some of them personal reports to me, that I should consider private and in confidence.”

Experiential and *training* information existed in the memory stores of the district managers making the decisions. This information was typically ‘downloaded’ and shared in management meetings, during moments of reflecting upon or analyzing the problem at hand. Whereas, *observational* information reached the managers through direct or *vicarious* observation or witnessing of organizational activity related to the problem being addressed. In vicarious observation, management typically assigned a member of staff within the district health office to conduct the observation on their behalf.

Fourthly, Table 6 shows the number of times each information form was used in each of the strategic decision-making processes for a specific process activity or purpose. At the bottom of the table are the corresponding crude totals of the information types, indicating their respective contributions to the combined information profile of all the decision cases in the study. Note that, although these figures cannot be taken beyond the eight decision cases in the study, information from formal HMIS was not the top contributor to the traced decision process cases. HMIS was certainly a commonly used source of information, but the most common basis for a decision was *experiential* information.

Further, there was no ‘observed’ or detected difference, between the two studied districts in the way information behaved in the strategic decision-making process.

Finally, no new significant information form was discovered in the study.

Discussion and conclusion

From the perspective of health system decentralization, this study has shown that decentralized district health systems do engage in decisional activity on matters that affect their long-term survival or performance as health system organizations at that primary level. The study has also demonstrated that different forms of information are brought to bear, in district decision-making, through different channels and from a variety of sources in the district health system. HMIS is only one of those channels or sources. The study has confirmed the presence of *written, verbal, observational, experiential and training* information forms in managerial decision-making, just as extant decision-making literature has insisted for decades. Yet, this study has gone further to locate these various information forms within the process of decision making, and establish how they tend to be distributed over the decision process space and time.

Probably of most significance for policy is the indication from the study that information in the district health system exists not only in formal HMIS, but is also embedded in and is brought into the decision-making process through the whole process of management and key aspects of organizational routine. In both Lusaka and Monze districts, information also flowed through other channels apart from the HMIS. For instance, routine and other management decision-making meetings were fora for recalling and sharing *experiential* and *training* information. Routine supervisory visits to health centres provided a channel for gaining *verbal* and *written* information. Routine and specially commissioned monitoring of activity provided the channel for *observational* information in the district. In addition, task forces specially convened for the decision process also became channels for not only pooling information from various stakeholder experiences and expert knowledge, but also served as entry points for that information into the decision-making process. Commissioned investigative research and pilot testing of prototype solution designs were channels for more *written* information. For some of the decision processes, consultative meetings with stakeholders and routine communication activities with local communities also provided channels for *verbal* information.

Thus, information entered the strategic decision-making process through *people* (district health managers/staff directly participating in the decision process); *management/organizational processes* (management meetings, supervisory visits, task forces, consultation and communication with local communities); *organizational structure* (which legitimizes informational contributions); and the *HMIS* (as currently conceptualized). From this collective of aspects of organization emerged

written, verbal, observational, experiential and training information.

It is worth noting that the labels of *written* and *verbal* information relate to the formats in which information was delivered or exchanged, while *observational, experiential* and *training* pertain to the method or way by which information was gained. Yet, these hints represent some of the fundamental aspects of any information system: collection and delivery of information to the users (Finlay 1994; Ward and Griffiths 1996; Boman et al. 1997). Here, then, it becomes evident that the actual health management information system for a decentralized district health system is by far more integrated and complex than the formal HMIS, and carries organization-wide implications. The study results suggest that the actual health management information system involves all aspects of organization: human resources, management/organizational processes, organizational structure, and organizational systems. The HMIS is only one of the systems in a typical organization (Hardy 1996). In this study, therefore, the realistic informational status of the formal HMIS within the district health office has been revealed.

One immediate practical implication is that when deciding on installing a new HMIS, diagnosing problems in a troubled existing HMIS, or indeed merely evaluating the performance of an established HMIS, practitioners ought to take into account the informational contribution of existing *human resources, management/organizational processes* and the *organizational structure* to the total information profile in circulation within the district health office or system. The study findings suggest that each of these three organizational elements must be appreciated as a source and/or conveyor of information. HMIS will not likely succeed in supporting district performance, irrespective of success in adoption rate, if these other components of the organization are not strengthened and aligned for their informational contribution. The very design of HMIS must take into consideration the nature of the information 'gap' it is coming to fill in the district health organization, and not only future interactions with prospective users – as predominant practice currently stands. Thus, sponsors of HMIS in district health systems should be concerned not only about technology adoption, as has been the tradition, but also about successful technology 'docking' into the complex system that the district health organization is, informationally.

Note that the notion of technology 'docking' should not be confused with the systems approach to technology adoption already argued in the literature (for instance, Gladwin et al. 2003). Technology 'docking' relies on the identified information gap to be filled by the HMIS in the district health system, and hence necessarily views the other key aspects of the organization as components of the broader management information system. This in itself suggests a need for a radical re-think of the concept and practice of 'HMIS'.

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Acknowledgements

The author/researcher would like to express his deepest gratitude to the Ministry of Health and Central Board of Health in Zambia for the permission granted to conduct the study in the two districts. The author/researcher would further like to sincerely thank the District Health Management Teams and their staff in Lusaka and Monze districts, for their hospitality, support and time during the data collection period. Last but not least, the author's deep gratitude goes to Dr Steve Cropper, Centre for Health Planning and Management, Keele University, for all the support and academic guidance during the period of study.

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The crisis in human resources for health care and the potential of a 'retired' workforce: case study of the independent midwifery sector in Tanzania

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Accepted 27 November 2007

The human resource crisis in health care is an important obstacle to attainment of the health-related targets for the Millennium Development Goals. One suggested strategy to alleviate the strain upon government services is to encourage new forms of non-government provision. Detail on implementation and consequences is often lacking, however. This article examines one new element of non-government provision in Tanzania: small-scale independent midwifery practices. A multiple case study analysis over nine districts explored their characteristics, and the drivers and inhibitors acting upon their development since permitted by legislative change.

Private midwifery practices were found concentrated in a 'new' workforce of 'later life entrepreneurs': retired, or approaching retirement, government-employed nursing officers. Provision was entirely facility-based due to regulatory requirements, with approximately 60 'maternity homes' located mainly in rural or peri-urban areas. Motivational drivers included fear of poverty, desire to maintain professional status, and an ethos of community service. However, inhibitors to success were multiple. Start-up loans were scarce, business training lacking and registration processes bureaucratic. Cost of set-up and maintenance were prohibitively high, registration required levels of construction and equipping similar to government sector dispensaries. Communities were reluctant to pay for services that they expected from government. Thus, despite offering a quality of basic maternity care comparable to that in government facilities, often in poorly-served areas, most private maternity homes were under-utilized and struggling for sustainability.

Because of their location and emphasis on personalized care, small-scale independent practices run by retired midwives could potentially increase rates of skilled attendance at delivery at peripheral level. The model also extends the working life of members of a professional group at a time of shortage. However, the potential remains unrealized. Successful multiplication of this model in

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resource-poor communities requires more than just deregulation of private ownership. Prohibitive start-up expenses need to be reduced by less emphasis on facility-based provision. On-going financing arrangements such as micro-credit, contracting, vouchers and franchising models require consideration.

Keywords Human resources, health policy, skilled attendant, retirement, Tanzania, private sector, qualitative, multiple case study

KEY MESSAGES

- Detail on implementation and consequences of non-government health care provision in specific contexts is important for guiding policy on human resources for health.
- Following deregulation in Tanzania, independent midwifery practices began to be established by a 'new' workforce of retired Nursing Officers offering personalized care in under-served areas, but delivery coverage is low.
- Sustainability and utilization in poor communities requires supportive measures such as reform of the costly registration procedures and consideration of on-going financing arrangements such as micro-credit, contracting or vouchers.

Introduction

The human resource crisis in health care means that many countries are far from reaching the health-related Millennium Development Goals (MDGs). Factors contributing to this crisis include mal-distribution and low workforce productivity together with an acute shortage of skilled workers in the government health sector. Losses to other health and non-health sectors can be as much as 15–40% per year according to estimates from Zambia, Ghana and Zimbabwe (High Level Forum on the Health MDGs 2004). In sub-Saharan Africa these problems exacerbate an absolute shortage of health workers. The result is chronic under-provision, impacting disproportionately on vulnerable groups such as women and the rural poor (WHO 2006).

One strategy to alleviate the strain upon government services has been to encourage differing forms of non-government provision (Harding and Preker 2003; Marek *et al.* 2005), but there are concerns that this may contribute to the further drain of scarce expertise from public services (Van Lerberghe *et al.* 2002), to inequity of access (Wyss *et al.* 1996; Benson 2001; Brugha and Pritze-Aliassime 2003), and to difficulties of stewardship in increasingly fragmented systems (Saltman 2000; Sharma 2001). Certainly, careful analysis of both anticipated and unanticipated consequences of shifts in the balance of mixed economies of health care are required (Hanson *et al.* 2001; Brugha and Zwi 2002; McKee and McPake 2004). Detailed studies of the contextual dynamics and constraints in specific settings can help develop an understanding of what role non-government forms of provision will have within the achievement or frustration of public health goals.

The consequences for maternity care coverage and outcomes of the general rise in private sector provision are unclear (Brugha and Pritze-Aliassime 2003), but there are areas of concern. In many countries, private obstetrician-led services are associated with inappropriately high levels of technological interventions such as induction of labour and Caesarean section

(Price and Broomberg 1990; Murray 2000). There are a handful of studies on the attitudes and motivations of doctors in relation to these rates, principally from Latin America (De Mello e Souza 1994; Murray and Elston 2005).

This article presents findings on the drivers and inhibitors acting upon the development of one new element of non-government provision in Tanzania—the small-scale independent midwifery practice—and considers what contribution this sector may be expected to make to the MDG target of increasing skilled attendance at delivery. Such independent midwifery practices have yet to be the subject of much research or evaluation, although they exist in many African settings (Ghana: McGinn *et al.* 1990; Obuobo *et al.* 1999; Uganda: Seiber and Robinson-Miller 2004, Agha 2004; Kenya: Yumkella and Githiori 2000), and Southeast Asia (Philippines: John Snow Inc. 2005; Indonesia: Geefhuysen 1999, Suryanigsih 2005). They have become an explicit element in Safe Motherhood policy to increase coverage of skilled attendance in Indonesia and have attracted some 'donor' attention in Uganda, Kenya and elsewhere (see <http://www.psp-one.com>).

Deregulation to permit private provision in Tanzania

As yet little consideration has been given to the possible positive and negative effects for the workforce, or for public health, of the expanding¹ private sector in Tanzania. There has been a long tradition of policy focused on creation of a unified health care system provided by government, voluntary faith-based organizations and parastatals with oversight from the Ministry of Health. Facilities run by voluntary faith-based organizations play an important role as 'designated district hospitals', in rural areas. Private for-profit ownership of health facilities was banned in 1977,² but reinstated in 1991,³ and by 2001 it accounted for just under 20% of health care facilities in Tanzania. The greatest private for-profit activity is at

dispensary level, 21% of which were privately owned in 2001 (Ministry of Health 2002). Significant spatial inequalities have emerged with this process, with a tendency for for-profit providers to congregate in the urban areas with existing government provision (Benson 2001). Seventy-eight per cent of the facilities in Dar es Salaam are provided by the for-profit sector (Ministry of Health 2002).

The challenge of delivery care coverage

Sub-Saharan Africa currently accounts for 47% of all maternal deaths (UN Millennium Project 2005). There are ambitions to dramatically increase (to 90%) the proportion of births assisted by a skilled attendant by 2015 in line with targets set for the MDGs. However, the reality is that levels of skilled attendance at delivery increased by only 1% between 1990 and 2003 (UNDP 2005). Increasing rates of skilled attendance at delivery⁴ in the context of poorly functioning health systems presents an enormous challenge. It is widely recognized that innovative models of service delivery are urgently needed.

In Tanzania, the lifetime risk of maternal death is estimated to be one in ten (WHO 2004). The economic crises of previous decades (Commission for Africa 2005), compounded by some out-migration of skilled staff (McKinsey & Co 2005) and by multiple impacts of HIV/AIDS on the workforce (Beckmann and Rai 2004), are reflected in the deterioration of health care provision. In 2005 the Joint Annual Health Sector Review stated that the health worker crisis in Tanzania had reached emergency proportions. The overall nurse-to-population ratio was estimated to be 160:100 000 and declining. In some rural districts it was just 6:100 000 (High Level Forum on the Health MDGs 2004; Maestad 2006). Accurate data on current workforce composition has been lacking, but the 2001–2 Human Resources for Health (HRH) Census indicated that there were approximately 13 300 active nursing staff across government and non-government sectors in Tanzania. From this, Kurowski *et al.* (2007) estimate that 8940 fulltime equivalent of nurses and midwives are engaged in Safe Motherhood interventions.

The HRH census also highlighted an ageing health care workforce, with half over the age of 40. Owing to the employment freeze in much of the 1990s, the average age of employed health workers increased significantly and high losses due to retirement are anticipated over the next decade (Kurowski *et al.* 2004). Recently there has been some increasing momentum around workforce issues, including establishment of a high level Human Resources Working Group in 2003 and plans that include increased zonal training for a range of health cadres, but the challenges are formidable (Dominick 2004; HERA 2006).

Rates of skilled attendance at birth (those attended by doctors, nurses, midwives, clinical officers and assistant clinical officers) fell in Tanzania during the 1990s from an estimated 46% in 1992 to 36% by 1999 (Bureau of Statistics Planning Commission 1993, and National Bureau of Statistics 1999, respectively). Approximately 84% of health workers are employed in rural areas serving 80% of the population (Dominick and Kurowski 2004) but this statistic hides geographical disparities in service coverage and utilization. According to the most recent official survey, over 80% of urban women but only 35% of rural women reported having a skilled attendant for their delivery (National Bureau of Statistics [Tanzania] and ORC

Macro 2005). As rural areas are largely served by low-level cadres (Dominick and Kurowski 2004), many women were probably actually attended by nursing assistants with one year of formal training (Maestad 2006). Delivery care by family members and by traditional birth attendants (TBAs) is widespread at 26% and 11% of births, respectively (National Bureau of Statistics [Tanzania] and ORC Macro 2005).

The specific contribution of non-government provision to maternity care coverage is seldom documented and in Tanzania the information is fragmentary. A 2003 estimate of coverage of births in Ilala municipality, Dar es Salaam, indicates that one in six deliveries there takes place in private facilities ranging from large private for-profit and foundation hospitals to small-scale private and NGO-run clinics (Murray and Nyambo 2003). In 1997 legislation specifically permitted the establishment of private nursing and maternity homes by Nursing Officers (Nurses and Midwives Registration Act 1997). Information drawn from the Nursing Council, Ministry of Health, Regional and District Health Offices, and from the Private Nurses' and Midwives' Association (PRINMAT) suggests that there are approximately 60 independent midwifery practices, commonly known as 'maternity homes'. Below we describe and contextualize this nascent independent midwifery sector, and use these findings to consider its potential within a strategy to increase overall skilled attendance at delivery.

Methods

Research clearance was obtained from the Tanzania Commission for Science and Technology, and from Muhimbili University College of Health Sciences Ethics Committee. An initial national situation analysis included 20 key informant interviews with senior health planners and representatives from relevant professional organizations, plus a review of relevant documentary evidence. From these we generated initial hypotheses about the current social context, organization and delivery of independent midwifery care in Tanzania. From mid-2003 to mid-2004, we tested and extended these hypotheses in a multiple case study. The methodology was chosen for its ability to embrace complexity, and to generate and test hypotheses in real world settings, where boundaries between phenomenon and context are not clearly evident (Yin 2003). In order to place the midwife-owned practices within their community and health system, we used local Council districts that included maternity homes within the range of health care provision as the contextual 'cases'.

Nine case districts (see Tables 1–3) were selected, using a purposive sampling strategy. We aimed to include the breadth of geographical, organizational and socio-economic contexts in which private small-scale midwifery practices were thought to be operating. Information from the incomplete national register was supplemented with information from key informants such as PRINMAT. Case districts contained between 1 and 6 maternity homes each. Overall they included 23 such practices, some 40% of those operating in Tanzania at that time. This range was important in order to build confidence that the hypotheses might hold in a variety of contexts and therefore be relevant for informing future policy development for the larger workforce.

Table 1 Hypotheses tested over multiple case studies: motivation and supply-side financial issues

Region		Kilimanjaro		Dodoma		Mbeya		Coast		Mara	
District		Moshi		Dodoma		Mbeya		Kinondoni		Musoma	
Code	Urban/Rural	Rural	Urban	Peri-Urban	Rural	Urban	Urban	Urban	Rural	Urban	Rural
A	Maternity home established at or in anticipation of retirement from government sector	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes
B	Have little or no previous experience of micro business	Yes	Yes	Yes	Yes	Yes	Yes	Yes with explained exceptions	Yes	Yes	Yes with explained exceptions
C	Maternity home is the sole midwifery activity of the owner/staff	Yes	Yes	Limited dual practice	Yes	Yes	Yes	Limited dual practice	Yes	Yes	Limited dual practice
D	Experienced significant financial barriers to start up	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
E	Empathetic motivation in response to need in community	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F	Economic motivation to supplement retirement income	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes
G	Professional vocation/identity is a motivator	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
H	No recent training received in business skills	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
I	Significant administrative barriers to start up	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
J	Maternity homes integrated into district health system	Limited	Limited	Limited	Limited	Limited	Limited	Limited	Limited	Yes	Limited
K	Income shortfall including difficulties paying staff	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes
L	Homes facing sustainability difficulties	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Summary of findings Hypothesis supported, exceptions followed predicted pattern of a minority of mid-career entrepreneurs. Hypothesis well supported. Exceptions had previously owned a small pharmacy. Hypothesis supported. Most facilities staffed by retired or otherwise unemployed staff. Financial barriers in excess of original hypotheses. All owners reported an unmet need for MCH services in their communities. Many also noted lack of demand. Hypothesis supported, exceptions as predicted for a minority of mid-career entrepreneurs. Hypothesis well supported. Hypothesis well supported, procedures widely perceived as obstructive. In most cases registration incomplete 2+ years after application. Hypothesis not well supported. Integrated for referral purposes, but limited support for day-to-day operation & supplies. Hypothesis well supported. Exceptions were clinics on main roads into large towns. Hypothesis well supported. One exception operating on significantly different business model, comparable to a doctor-led dispensary.											

Table 2 Hypotheses tested over multiple case studies: location, range and quality of independent midwifery services

Region	Kilimanjaro		Dodoma		Mbeya		Coast		Mara	
	Moshi Rural	Dodoma Municipal	Dodoma Peri-Urban	Mpwapwa Rural	Mbeya Urban	Mbeya Municipal	Rungwe Rural	Kinondoni Urban	Musoma Municipal	Mara Rural
District	Urban/Rural	Urban	Peri-Urban	Rural	Urban	Municipal	Rural	Urban	Urban	Rural
M	Average distance from urban centre greater for midwife-owned facilities than for doctor-owned dispensaries	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	Underserved location near transport corridor associated with self-reported clinic sustainability	Not tested	Not tested	Yes	Yes	Yes	Yes	Unclear	Yes	Unclear
O	Basic MCH services provided	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Mostly
P	Integrated into district health system	Limited	Limited	Limited	Limited	Limited	Limited	Limited	Yes	Limited
Q	Absence of suitable quality assurance mechanism	Yes	Yes	Yes	Yes	Yes	Yes	Partial	Yes	Yes
R	Quality of personal care reported by community to be superior to that in government facilities	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
S	Quality of maternity services provided as good as or better than in nearest government dispensaries	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
T	Few clinical training opportunities available to extend skills	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Partial
U	Cell phone technology available for emergency communications	Yes	Yes	Yes	No	Yes	No	Yes with two exceptions	Yes	No
V	Local community benefits from improved access to transport for obstetric and other emergencies	No	No	No	Yes	No	No	Yes	Yes	No
Summary of findings										
Hypothesis well supported.										
Hypothesis supported by theoretical replication. Dar es Salaam not tested due to geographical complexity.										
Hypothesis well supported.										
Hypothesis not well supported. Integrated for referral purposes, but limited support for day-to day operation (registration, supplies etc.).										
Hypothesis well supported. Plans for PEER supervision by Private Nurses and Midwives Association may partially remediate.										
Hypothesis well supported.										
Hypothesis well supported but complex. Highly variable quality in both sectors. Many government facilities either do not conduct deliveries or are open short hours.										
Hypothesis well supported.										
Hypothesis supported. Situation recently much improved. Limited transport available however.										
Hypothesis not well supported. Transport facilities similarly poor across sectors. Emergency finance available in private sector.										

Box 1 Data sources and sampling used in the analysis

National and Regional level health management information system data, interviews with senior managers and documentary review.

At District level in each of nine case study districts:

- District Health Management Team Members interviewed (District Medical and Nursing Officers)
- All owner-managers of existing and recently closed private maternity and nursing homes, in-depth interview.
- All clinical staff members employed at active private maternity homes, in-depth interview.
- Clinic inspection checklist for basic equipment and other physical attributes completed at all active private maternity homes and nearest equivalent public sector facility.
- Public sector staff working at the nearest 'equivalent public facility': two oldest midwives on shift at first visit.
- Public sector nurses near retirement, interview: two oldest midwives aged over 55 years on shift at first visit.
- Retired Nursing Officers, FGD: snowball sampled from older nurses at District Hospitals.
- Public and private users, FGD: approximately eight users with youngest children recruited at immunization or growth monitoring clinics.
- Separate female and male community members, FGD: participants recruited using 'ten cell leader' nearest the private clinic, where possible one participant from each 'cell' or street.
- 'Younger' nurses, FGD: all available Nursing Officers under 30 years at district hospital.

pigs, started with one male and two female pigs during the rainy season where it was easy to obtain food to keep them. I got eight piglets from those two females; I sold the first eight piglets and got money to make a local delivery bed; I kept the other eight together with their mothers. Those two females gave birth again, and as the dry season was getting near I decided to sell them all. I went to the mission hospital where I worked before, they sold me some used equipment. (Midwife, Mbeya Region)

Some home owners continued to be involved in micro-business activities such as keeping chickens, but their maternity practices, often with pharmacies attached, were their core work activity and represented a significant investment of scarce financial resources (Table 1: C,D). A strong service ethos was also consistently represented in their accounts of their activity, particularly amongst those falling into the 'later life entrepreneur' typology (Table 1: E).

Most of the maternity homes were in rural or peri-urban areas, distinguishing them from doctor-run clinics (Benson 2001; and Table 2: M). Most owners of maternity homes in our study had attempted to locate these in previously under-served areas adjacent to key transport corridors. However, as

regulations did not permit them to live in the premises, a location close to their residence was required for provision of 24-hour 'cover'. Some therefore made compromises on the optimal location, with eventual implications for ease of financial sustainability (Table 2: N).

Government regulations stipulate that services provided by nursing and maternity homes must focus around maternal and child health (Table 2: O). All homes provided antenatal care and were equipped at least in basic fashion to attend deliveries, but we found that most practices actually attended only a few births per month (range 0 to 26; median of 3 births/month; Table 3: W). Most practices also provided more remunerative minor curative care; some employed Clinical Officers. A significant part of income came from selling non-prescription drugs for malaria and minor illnesses. Some also provided home-based care for HIV/AIDS, 'youth-friendly' reproductive health services, and child growth monitoring.

Determinants of individual engagement in independent midwifery

The motivational aspirations of these independent providers encompassed economic, caring and professional goals. Reported 'push' factors without exception centred around financial insecurity: extremely poor government sector salaries, inadequacy of pensions and fear of a decline into poverty after retirement (Table 1: F).

Reported 'pull' factors often focused on financial rewards expressed as a stable income source rather than significant profits. Additionally cited were flexible working hours and what Kendall *et al.* (2002) call 'mercantile motivation'—the sense of autonomy and achievement to be gained from running one's own small business venture. Motives also included concern for the health and well-being of women in labour and satisfaction in meeting the needs of under-served communities (Table 1: E). Sometimes activity had been initiated in response to a perceived need, other times because of repeated requests for services. Respondents frequently expressed the desire to 'use one's talents', not to 'sit idle' after retirement from government employment. Linked to this was a desire to maintain social standing through a professional identity (Table 1: G).

Focus groups with soon-to-retire public sector nursing officers and nurse-midwives in all nine districts confirmed the general applicability of these various push and pull factors, and suggested that opening an independent practice may be an attractive idea to many. However, successful multiplication of the small-scale midwifery practice model is dependent also on the dynamics of the social and institutional environment, and here we found there were considerable barriers in spite of the legislated deregulation.

Low levels of demand

The case studies indicate that individual users valued the proximity of the maternity homes. They would trade off the costs of user-fees against the opportunity and financial costs of transport to government services further afield (Table 3: X) and against the unpredictable 'under the table charges' (Abel-Smith and Rawal 1992) often encountered there. However, most of the private maternity practices still suffered from chronic under-utilization, in relation to their capacity and to the local

need for midwifery and other health care (Table 3: Y). This was due to low interest in professionally attended childbirth in facilities amongst rural communities, and to seasonally variable incomes and scarcity of cash to spend on health care. It also reflected some antagonism on ideological grounds from communities to private sector expansion (Table 3: Z). Community focus groups indicated that notions of citizen rights to health care are still strong. Where local people had contributed to the building of local public dispensaries, for example, they expected to continue to be provided with government services. Even where extended kinship and tribal networks might seem to provide a natural client base for midwives returning home to their village, the reality can be more complex because of expectations that such neighbourly services be provided without charge.

Such demand-side inhibitors caused demoralization and discouragement among the majority of these private midwifery providers, who were unable to actualize their aspirations for their practices. This was compounded by the lack of business skills (Table 1: H) that might have helped them to adapt their approach to accommodate a relatively hostile environment.

Restrictions on ownership

Legislation restricted ownership of these facilities to Nursing Officers who are a key cadre and compose the most senior third of professional nurse-midwives in the country (<http://www.nbs.go.tz/health.htm>, accessed 6 July 2006). Other less senior midwives who may have many years of recent 'hands on' experience of maternity care had no approved route to self-employment within their profession. While probably serving to contain early- to mid-career 'leakage' from the government workforce, this limited the size of the post-retirement pool of self-employed midwives.

Bureaucratic constraints

The complex registration procedures for nursing and maternity homes tended to be poorly understood by local health managers whose role was to inspect the facilities (Table 1: I; Table 2: P). They also required coordination and communication between different levels of the system that was unrealistic for a struggling health care bureaucracy. Many practices reported that they had been unable to complete the registration procedure over a number of years. Tanzanian territory covers some 945 000 km², but to comply with rules for national registration of homes after approval, midwives needed to travel personally to Dar es Salaam to pay the fees, incurring significant travel and opportunity costs. These barriers were compounded by a generally difficult environment for commercial activity. The banking, business licensing and taxation systems all present obstacles to such small-scale entrepreneurs.

Barriers to accessing set-up finance

Shortage of capital and lack of appropriate and unsecured credit represents a major obstacle to the expansion of female enterprises in many settings (Epstein 1993; Mayoux 2001). In Tanzania, women face socio-cultural and institutional barriers, often lacking the ownership title to land and property needed to meet prescribed collateral requirements for commercial loans

(Rutashobya 1998; Chijoriga *et al.* 2002; Stevenson and St-Onge 2005). The midwives consistently reported credit to be expensive and hard to access (Table 1: D). None of those interviewed had the business plan that would normally be required to demonstrate project viability prior to a loan being granted.

Unrealistic specifications

These difficulties were compounded by the high start-up costs of a home (US\$5000–10 000), which represented a large financial risk even to those with access to capital. Most maternity home owners in the study had invested their entire savings and pensions into the venture. These high costs were due to infrastructural specifications required by the Ministry of Health which mirrored the physical and human resource criteria specified for public sector dispensaries (an eight-room facility with generator, oxygen and various staff). Such 'minimum requirements' were unrealistic for independent providers working at peripheral level and too expensive to be easily sustainable given the prevailing economic conditions in rural areas. None of the owners reported making a profit comparable to the salary that they previously received in the public sector.⁷ Some homes did provide employment and informal in-service training for nursing staff, but these certainly posed little threat to the government sector with respect to poaching of staff, as such staff were being paid irregularly (Table 1: K).

Further constraints on profitability

Inconsistent and unclear policy relating to charging structures and taxation compounded difficulties for the maternity home owners. Government pronouncements on exemption from user fees for maternal and child health services were widely understood by the population and some district health managers to imply free services in all sectors, although there was no mechanism to reimburse small-scale providers of care such as the maternity homes. Additionally, small health care facilities were charged for tax and business licences in the same way as profitable commercial businesses. In the context of high start-up costs and low demand from poor communities, such institutional behaviours served to further limit the financial viability of the sector (Table 1: L).

Weak integration in the local health system

Management systems for the regulation of private facilities were extremely weak at all levels. These private practices were less well integrated into referral and administrative networks than equivalent level public facilities (Table 1: J). This was reflected in generally poorer access to on-going training, supplies and supervision. Regulation and support of private facilities was highly dependent on the inclinations of individual District and Regional Medical Officers. Some maternity homes were actively supported and given vaccines, drug fridges and delivery registers from district stores, but many received no support. District supervision of private facilities existed in theory, but it was limited, as it is in the public sector, by lack of vehicles or fuel (Table 2: Q). Reports of experiences from countries such as Ghana (Obuobo *et al.* 1999) had led to an

initial hypothesis of resistance from government health workers to receiving such referrals from private care. This was not supported in our case studies, often because the maternity home owners could draw upon their long government sector careers for credibility.

Using an independent midwifery practice—what quality of care?

Concerns about obstacles to the maternity homes' sustainability rest upon an implicit assumption that they can, under current or more favourable circumstances, offer women a good quality service. We used an equipment and services checklist to assess quality of care in the maternity homes, and triangulated the findings with narratives from users. Quality was similarly assessed at the nearest comparable government facility.

Quality of personal care was reported by community members and by providers to be far superior in these private practices to that in government facilities. As a 'relational good' (Kendall *et al.* 2002), personal interactions have important implications for quality of care in pregnancy and particularly in childbirth, but these are often neglected in government facilities. Verbal and sometimes physical abuse by midwives in the public sector featured frequently and consistently in women's accounts of their care from all the case districts, and it was reported in user focus groups to be a major deterrent to seeking care at the government facilities (Table 2: R).

One study of antenatal care in Dar es Salaam (Boller *et al.* 2003) highlighted that technical quality of care is related to the cadre of staff providing the care, and found that 80% of antenatal care in their sample of public facilities was provided by MCH Aides, with only a two-year basic training. This can be compounded in rural areas by high vacancy rates and low motivation in staff. We found that some of the private maternity homes also were staffed by lower cadres of staff such as MCH Aides when the owner was absent. Such situations tended to occur in the cases where the owner-manager had other professional commitments elsewhere. The technical quality of care was basic at the maternity homes, but it was similar to that offered by equivalent government facilities (Table 2: S). Shortages of basic drugs and equipment were common to both. In the public sector, these were caused by irregular supplies from medical stores, in the private sector by insufficient capital to pre-purchase from commercial sources and lack of access to discounted supplies from government medical stores.

On-going professional development was extremely limited amongst independent sector midwives, the exception being clinical updates offered by PRINMAT as part of their annual conference events (Table 2: T). Private sector midwives reported that they were almost never invited to update-training arranged by the government sector. However, such resources are in short supply and many public sector midwives also receive little in-service training. At the time of data collection, for example, none of the practising midwives interviewed in either sector in the study districts had received any specialized in-service training in managing obstetric emergencies, and we found only erratic use of the partograph to monitor well-being in labour in both sectors.

Limited skills in the early detection of obstetric complications are compounded when facilities are geographically isolated. The median distance from the maternity home to the nearest district referral hospital was 9 km. The furthest in the case study districts was 65 km. Half were over 30 km away and on very poor roads. Communication and transportation in an obstetric emergency was therefore an important issue. Recent advances in communications technology have been important in reducing some of the isolation of small clinics and most practices surveyed did have telephone communication, usually a cellphone (Table 2: U). None of the maternity homes had a formal emergency transport plan (Table 2: V), but all facilities reported some established method for emergency referral. Transport was much more readily available for those in peri-urban settings—in most cases using public transport (taxi or bus)—and far more limited in rural conditions. The costs of referral were significant and in all cases borne by the client, although some maternity homes reported lending money in emergency cases. Whilst referral for complications was often difficult to accomplish quickly, it was just as difficult for equivalent local government facilities which also lacked their own motor transport, and expected the referred patient to bear the costs of transfer.

Public health implications—what does the independent midwifery sector offer for increasing coverage of skilled attendance for childbirth in countries like Tanzania?

The findings presented here suggest that small-scale independent midwifery practices may have potential to contribute to rates of 'skilled attendance'⁸ for delivery at peripheral level. These 'nursing homes' or 'maternity homes' do not possess some of the negative attributes associated with doctor-owned private for-profit services, such as concentration in better-off urban areas and over-intervention (Mackintosh and Tibandebage 2002). Doctors owning dispensaries often practice multiple job-holding or 'dual practice' in public and private sectors (Van Lerberghe *et al.* 2002; Harrington 2003), but we found little dual practice among these independent sector midwives. Independent practice is currently seen primarily as a post-retirement option,⁹ so there is little drain on, and more complementarity with, the government sector maternity workforce.

However, this form of provision has yet to make any significant contribution to rates of skilled attendance at delivery. To make a contribution of 1% to national coverage of deliveries,¹⁰ for example, all the existing independent midwifery practices would each need to be providing, every week of the year, delivery care to 4–5 women who would not otherwise have obtained professional care from the health care system, and this level of activity is not currently being met. The average volume of deliveries attended in the maternity homes is not high or sustained, for all the reasons already outlined. Furthermore, some of those women using private maternity homes are individuals who are substituting delivery care in the public sector for private sector treatment, representing little net gain in overall rates of skilled attendance.

Structural changes in the health sector labour market, including a public sector employment freeze in 1993 and an increase

in the retirement age from 55 to 60 in 1999 (Kyejo 2001), contributed to an ageing health care workforce (Kurowski *et al.* 2004). There will be a large cohort of retiring midwives over the next few years, and our data, derived from case studies in a variety of districts, suggests that returning to home villages may be quite a common practice at retirement. However, to harness this resource, and indeed for any significant expansion of this sector, reduction of the legal and institutional barriers will be needed.

Discussion

Brugha and Zwi (2002), in their review on the evidence for global approaches to private sector provision, end with a strong plea for caution in implementation of policies to enhance the private sector's role in delivering health care, and a call for more detailed research to inform this. Health systems need to be understood within their local social and political contexts, and such case studies using multiple sources and methods of data collection are labour intensive, but as Keen and Packwood (2000) argue, they prove valuable in situations where policy change is occurring in 'messy real world settings'.

One advantage of the approach is its ability to start with generic questions and to become more focused and specific as knowledge of the subject matter increases. We did not know when we set out to map this sector that we would find the post-retirement model of maternity home ownership to be so predominant in Tanzania at the current time. When we then conducted a search for documentation on the mobilization of 'mature' or 'retired' workforces to compensate for shortages in health care resources, we found recent reference to 'flexible retirement' and 'retire and return' policies in industrialized countries such as the UK (DoH 2006; Nursing Research Unit 2007) and Australia (NSW DADHC 2000). We did not, however, identify any research studies on the implementation of such strategies in low-income countries. The potential of the untapped pool of skilled health workers represented by retired workers is beginning to be recognized in Africa as one within a series of measures to increase inflows of human resources (High-Level Forum on the Health MDGs 2004; Maslin 2005; Global Health Workforce Alliance 2006). Our findings do suggest that there may be scope, in this Tanzanian context at least, for encouraging retired nurse-midwives to develop independent practices in under-served areas within a network of coordinated and supported health services, although it is necessary to be cautious about extrapolations from a small group of early adopters to the wider workforce. What does seem clear is that for any such scenario to function optimally, changes are needed at several levels and that supply and demand-side barriers need to be taken into consideration.

Moving forward

Our study demonstrates the real life complexity of enactment of a policy 'good idea'. The proprietors of the private practices we studied aspired to combine financial, caring and professional aims, but despite the legislative change, they faced institutional barriers that systematically failed to support these aspirations

and prevented other interested midwives from engaging in such activity.

As a result of this research a special working group of the Nursing Council, including private practitioners, drafted new guidelines in late 2004. These are based on the intended care rather than the current blueprint facility-based specification. They will reduce start-up costs and should allow private practitioners to tailor their services according to their skills and local needs, and open up a future possibility of domiciliary midwifery care. The Registrar's office is also considering revising legislation to allow Enrolled Nurse-Midwives and Nursing Officers to set up these practices, thus expanding the potential private midwifery workforce.

Increasing the size of the maternity workforce can only be part of the solution. 'Skilled attendance' requires at least two key components: a skilled attendant and an enabling environment that includes equipment, supplies, drugs and transport for referral, and backup emergency obstetric care (EmOC) (Bell *et al.* 2003). This requires lifting of current restrictions that prohibit midwives from dispensing the full list of drugs suggested for routine delivery and basic EmOC (WHO 2003). Health services in Tanzania are currently undergoing a process of decentralization and the responsibility to ensure facilities have affordable access to essential drugs and equipment falls to district managers. Whilst providing free or discounted supplies to facilities operating on a market model may seem generally counter-intuitive, the supply of basic equipment to self-employed midwives operating on a subsistence basis in under-served areas may keep their practice afloat and affordable.

If retiring nurse-midwives take up the possibility now theoretically open to them, and devise more tailored low cost services that do not simply attempt to replicate government facilities, then their potential to create 'something new and different' (Drucker 1985; Faugier 2005) and be more truly 'entrepreneurial' may be realized. For example, developing new services and extending into domiciliary clinical practice may be a greater possibility. It remains to be seen whether this is attractive to the midwives themselves. Despite the problems faced, many of the owners we met were immensely proud of their clinics, which represented personal achievement and social standing. It may be that ownership of one's own clinic will remain a powerful motivator.

If sustainability and the needs of poor communities are to be properly addressed then on-going financing needs to be considered. There would seem to be some real benefits in combining public finance with private provision in this scenario because of the potential to draw in a 'new' workforce, rather than simply to replace public with private provision. Other countries offer some examples of targeted micro financing: micro-credit lending to users increased the use of trained TBAs in Bangladesh; micro-loans to private midwives in Uganda contributed to improved quality of services (Walker *et al.* 2001); and targeted performance-based contracts have been combined with vouchers distributed to potential users in Indonesia (Institute for Health Sector Development 2004). Franchising models piloted in the Philippines (John Snow Inc. 2005) may be possible via a private midwives' association such as PRINMAT. Such approaches would merit pilot studies in Tanzania.

Because of their location and emphasis on personalized care, small-scale independent practices run by retired midwives could potentially—with the right support—increase rates of skilled attendance at peripheral-level delivery. They cannot be seen as more than one strand in the human resources strategy required to bring skilled attendance at delivery to the majority of Tanzanian mothers, but this model may represent an opportunity to harness currently under-utilized human resources in the push towards Safe Motherhood and the MDGs.

Endnotes

- ¹ Estimated to account for 6% in 1995, rising to 14% in 2002 (Dominick 2004).
- ² Private Hospital (Regulation) Act 1977.
- ³ Private Hospitals (Regulation) (Amendment) Act 1991.
- ⁴ A 'skilled attendant' is defined by the World Health Organization and the professional confederations (WHO, ICM, FIGO 2004) as 'an accredited health professional...who has been educated and trained to proficiency in the skills necessary to manage normal pregnancy, childbirth and the immediate post partum period, and in the identification and management and referral of complications in women and newborns'.
- ⁵ English and Kiswahili versions of the research tools are available online at http://www.kcl.ac.uk/teares/nmrc/research/project/moreinfo.php?id=76&the_group=1.
- ⁶ A small number of interviews and FGDs were not recorded, usually where a respondent expressed such a preference due to excessive background noise or technical failure.
- ⁷ For Nursing Officer grade, the salary is about US\$80 a month.
- ⁸ The broader question of ensuring skilled attendance requires a well-functioning health system overall. This will require improving training, drugs and equipment supplies, and transportation networks not only for the maternity homes but also across the public sector as already indicated.
- ⁹ The age profile of employed midwives has changed in recent years partly due to a public employment freeze in 1993 and partly due to mortality in younger age groups. Fifty per cent of health staff are estimated to be over 40 years old (Kurowski et al. 2004).
- ¹⁰ Figure based upon 2004 population estimate of 36 588 225 and 39 births per 1000 population, from <http://www.odci.gov/cia/publications/factbook/geos/tz.html>, accessed 3 February 2005.

Acknowledgements

This research was funded with a grant from the Health Foundation (Ref 1824/1506). The authors thank M Joyce Safe, Mr Godfrey Mohamella (GM) and Mr Gustaf Moyo, Ministry of Health, United Republic of Tanzania; Dr Thecla Kohi and Dr Helen Lugina, Muhimbili University College of Health Sciences, Tanzania; and Ms Pauline Khng, King's College London, for their assistance, and the communities, practitioners and managers who took part.

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Are health services protecting the livelihoods of the urban poor in Sri Lanka? Findings from two low-income areas of Colombo

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Available online 12 June 2006

Abstract

Investing in pro-poor health services is central to poverty reduction and achievement of the Millennium Development Goals. As health care financing mechanisms have an important influence over access and treatment costs they are central to the debates over health systems and their impact on poverty. This paper examines people's utilisation of health care services and illness cost burdens in a setting of free public provision, Sri Lanka. It assesses whether and how free health care protected poor and vulnerable households from illness costs and illness-induced impoverishment, using data from a cross-sectional survey (423 households) and longitudinal case study household research (16 households). The findings inform policy debates about how to improve protection levels, including the contribution of free health care services to poverty reduction. Assessment of policy options that can improve health system performance must start from a better understanding of the demand-side influences over performance.

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Keywords: Poverty; Vulnerability; Illness cost; Coping strategy; Sri Lanka

Introduction

Illness can cause impoverishment through a downward spiral of income loss, treatment costs and asset depletion. Investing in pro-poor health services is therefore central to poverty reduction and achievement of the Millennium Development Goals (WHO, 2002; World Bank, 2004). As health care financing mechanisms have an important influence over access and treatment costs they are central to debates over health systems and their impact on poverty (Kawabata, Xu, & Carrin, 2002; World

Bank, 2004; Xu et al., 2003). Calls for the removal of user fees at public health care facilities have, thus, once again come to the international policy agenda (Commission for Africa, 2005). Out of pocket payments add to the other barriers that poor people face when seeking health care, and contribute to their experience of social exclusion. Even relatively small health care payments might push vulnerable households into absolute poverty or deepen their poverty (Gilson & McIntyre, 2005).

Discussion of financing policy options to improve health system performance in resource poor settings must, however, start from better understanding of demand-side factors and the consequences of out of pocket payments for household poverty and livelihoods. This paper uses a household livelihood

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framework to examine people's utilisation of health care services, illness costs and their implications for impoverishment in a setting of free public provision, Sri Lanka. It examines whether and how free health care protected poor and vulnerable households from illness costs and illness-induced impoverishment, informing national policy measures to improve protection levels and international debates on the contribution of free health care services to poverty reduction.

Sri Lanka provides a particularly relevant case study with which to examine these issues. Historically the country has been relatively successful in 'making services work for poor people' (Rannan-Eliya, 2001), benefiting from the 'long route' to government and provider accountability to the poor (World Bank, 2004). Since democratisation in the 1930s, competitive politics, left-wing political parties, trade unions and public pressure have constructed a strong policy discourse that makes it the state's responsibility to deliver free health care as a basic right for all citizens (Sen, 1988). After Independence government invested in a network of accessible and free health care services and well trained nurses and doctors. Effective use of this network by a well-educated population, notably literate women, helped bring about 'good health at low cost' in Sri Lanka (Halstead, Walsh, & Warren, 1985).

The health care market, however, has been changing, with private sector expansion since the 1980s and a slow public sector response to changing disease burdens and patient preferences. Detailed demand analysis is therefore appropriate to assess current patient utilisation patterns in this more complex market, as well as the levels of protection, and gaps in coverage, offered to poor households by free public health services.

A household livelihood framework to inform pro-poor health services

Study setting and the conceptual framework used in the research

The research on illness and its livelihood impact was conducted between 1998 and 1999 in two low-income settlements of Colombo, the capital of Sri Lanka. The urban sites were characterised by overcrowded housing, poor sanitation, drug abuse problems and low incomes due to uncertain and daily employment opportunities. These livelihoods

contributed to income poverty and vulnerability to wage losses caused by incapacitating illness. The settlements lie a few miles from the centre of Colombo and close to many health care providers: a local municipal dispensary where a GP can be consulted with no charge; several Ministry of Health tertiary hospitals where services are free to the user; and a large number of private GPs, pharmacies and several private hospitals. Although, the research was conducted 8 years ago health service financing and delivery arrangements remain the same at the time of writing. The two case study urban areas were selected because they were typical of many deprived settlements in Colombo.

The research objectives were to record treatment seeking behaviour, measure the household costs of illness, and assess coping strategies and their consequences for the household economy. The conceptual framework that guided the research (see Russell, 2004) was based on inter-disciplinary approaches that have analysed the numerous resources people draw on to promote health or cope with illness costs (Berman, Kendall, & Bhattacharyya, 1994; Wallman & Baker, 1996) as well as a livelihood framework (Scoones, 1998). Direct illness costs and indirect costs are defined, respectively, as expenditure linked with seeking treatment and income losses caused by illness. The term 'cost burden' refers to direct or indirect costs expressed as a percentage of household income. Health care spending and income losses will reduce household budgets and threaten members' minimum basic needs such as food consumption or education, triggering coping strategies such as borrowing or asset sales. The resource strategies used to cope with illness costs were also recorded because such strategies can mitigate or exacerbate the overall economic impact of illness for the household. Together illness costs and coping strategies have implications for household income-poverty and livelihood outcomes, assessed using indicators such as changes to income, working days, assets, consumption levels and food security.

Household vulnerability or resilience to illness costs is defined as the capacity to cope with illness costs without long-term damage to assets and impoverishment. It is linked, first, to illness severity, with higher costs and less sustainable coping strategies likely as severity and duration of illness increase. Second, capacity to cope is influenced by household asset portfolios (physical and financial capital, human capital, social networks) and

policy-related resources that include health services as well as other public policy measures (e.g. education services) or community-based initiatives (e.g. micro-credit institutions) that contribute to resilience. These policy and community-based resources represent entry points for health and other social policy interventions that may protect households.

Research methods

The research design had three phases spanning 18 months. First, individual and group interviews were conducted to generate qualitative data on treatment behaviour and livelihood difficulties. Second, a cross-sectional survey of 423 households and 2197 individuals produced a statistical profile of household income and assets, illness episodes, treatment actions, illness costs and coping strategies. The households were selected by systematic random sampling and the sample covered 20% of the 2100 households in both settlements.

The survey collected data on three categories of illness expected to cause different treatment, cost and coping patterns:

- Acute illness episodes in the previous 2 weeks (except hospital admission).
- Chronic illness in the previous month, categorised as such if the condition had persisted for over 1 month or the respondent knew the diagnosis and the name of the chronic condition (e.g. diabetes, high blood pressure); the recall period allowed the survey to capture patients' regular monthly visits to providers.
- Hospital inpatient (IP) treatment in the previous year, with the recall period designed to maximise hospitalisation events recorded.

The survey estimated household income using detailed consumption and expenditure questions. There is limited seasonality of casual labour or wage levels in Colombo so expenditure or income levels were not influenced by the timing of the survey. In most cases either the household head (usually male) or their partner (usually wife) was interviewed, and sometimes more than one adult was present. Where possible the wife or mother was asked questions concerning illness and treatment among family members.

All illness cost data were converted to a cost per month figure to allow a total illness cost burden per

month to be calculated and analysis of the effect of health care spending on the monthly household budget. Patient and caregiver days off work due to illness were converted to a lost income figure using an average daily wage derived from the local setting (Rs. 150 or US\$2.30 per day). Only days lost by economically active members were included in the indirect cost calculations because valuing unpaid activities is both fraught with difficulties and less immediately relevant to understanding the economic burden of illness.

The third phase of the research was an in-depth longitudinal study of 16 case study households over 8 months conducted to allow detailed investigation of illness costs and livelihood impacts over time. Using the survey data as a sampling frame the households were selected purposefully to be 'typical' of four per capita income quartile groups and, within each, a range of illness, treatment and cost experiences. Finally, the selection process ensured that households with varying vulnerability or resilience to these costs were included within the case studies. As assets, like income, reflect ability to cope with illness costs and livelihood change, assessment of household vulnerability or resilience was based on a simple audit of assets: the number of workers and security of work; physical capital including house construction; education; and financial capital.

Each household was visited at least every 2 weeks. Structured interviews were used for more quantitative variables (expenditure, illness costs, borrowing), and semi-structured interviews and observation to generate qualitative data. The intensive study of a small number of families over time was necessary to explore the ways that people took action in their every day lives to treat illness and cope with its costs, as well as the multiple factors that mediated the impact of illness on livelihood outcomes.

The knowledge claims from case studies are often criticised on the grounds that the evidence is 'anecdotal' or 'unrepresentative'. But just as clinical science uses cases to understand disease causation, so social science can use cases to understand illness-induced poverty causation. Such understanding must go beyond the identification of vulnerable groups' characteristics to consider the social processes that cause vulnerability to illness costs and how these operate within households to 'filter' policy effects. As case study data are not statistically representative but aim to strengthen understanding of social processes, sample size is of less concern

than the depth of understanding generated. Generalisation is possible in terms of the concepts or frameworks (e.g. vulnerability) developed from case study analysis that can be applied to other individuals, households and settings (Coast, 1999; Mitchell, 1983).

The policy relevance of case study material does, however, rely on it being 'typical' for a larger group of households, requiring the careful selection of cases from different population groups of relevance to the study. Here, use of the survey data enabled the selection of cases that were typical of different household types in the two settlements, providing the basis for the conceptual generalisation of their experiences to other households with similar characteristics in the same communities, such as the income- or asset-rich and poor.

Illness costs and livelihood change: an overview

Cost burdens

Among the 323 households (out of 423) that experienced illness and self-treated or sought treatment, the median direct cost of illness was US\$2.10 (Rs. 138) per household per month or equivalent to just under an average daily wage. The mean direct

cost was higher at US\$7.50 (Rs. 487) per month because a minority of households experienced a high direct cost. A mix of public and private providers was used (see Section 'Protecting the poor? Universal coverage and its limitations in Sri Lanka'). The main direct cost components from private sector use were consultation fees and medicine and the main cost item from public sector use was transport. No 'under the table' payments were recorded.

The majority of households (77% or 250/323) that experienced illness incurred a low or moderate direct cost burden of 5% or less of monthly income (Fig. 1), either because the illness was mild or because free public services protected against high or catastrophic cost burdens associated with serious illness. Low direct costs were not caused by people failing to seek the medical care that they needed. However, a considerable minority of households experienced what some analysts have called a 'catastrophic' direct cost burden in terms of its potential consequences for poverty (Prescott, 1999; Ranson, 2002): 10% of households ($n = 32$) incurred a direct cost burden above 10% of monthly income (Fig. 1).

The majority of households incurred no or low indirect cost burdens (Fig. 1). Many illnesses did not

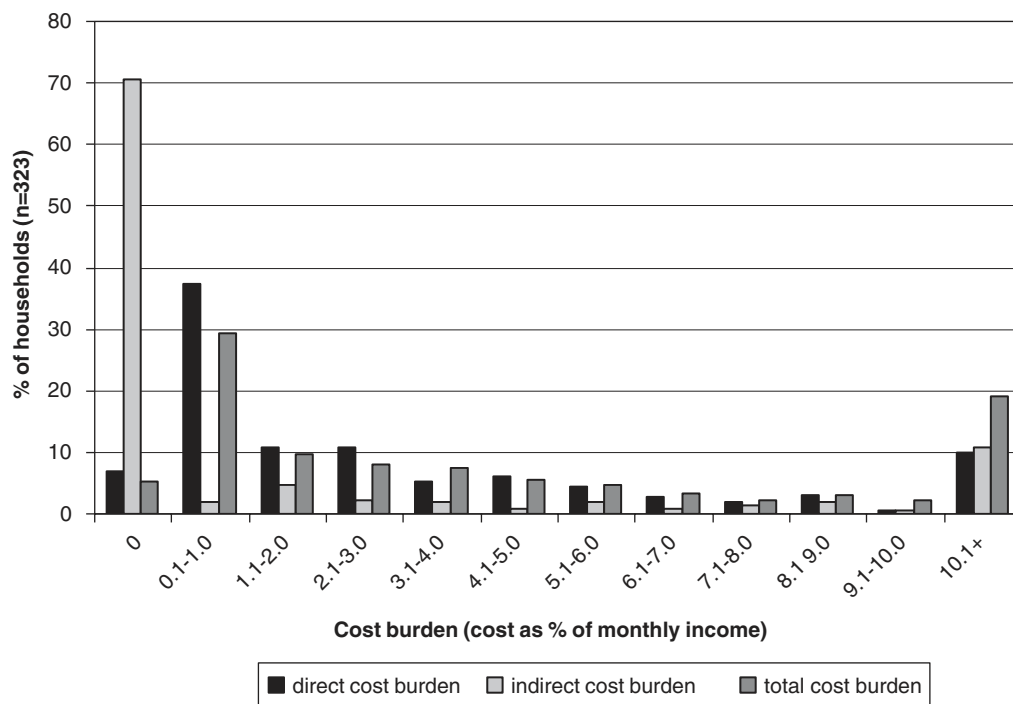


Fig. 1. Distribution of illness cost burdens across households.

cause income loss because children of school age disproportionately suffered from acute illnesses, a large proportion of acute illnesses experienced by economically active adults were not serious enough to affect work, and the majority experiencing chronic illness and hospital admission were economically inactive. However, a minority (11%, $n = 35$) incurred an indirect cost burden above 10% of normal monthly income (Fig. 1).

Combined (total) cost burdens were relatively low for the majority of families surveyed (Fig. 1). However, a fifth (19.2%, $n = 62$) incurred a total cost burden above 10% and most of this group incurred a total cost burden between 10.1% and 40.0%.

Households in the poorest income quartile were disproportionately affected by a catastrophic direct cost burden above 10% because of their particularly low income. However, there was no statistically significant difference in mean direct cost burdens across income groups (Table 1). Low median direct cost burdens reflect the public health system's coverage of the majority.

Case study households' average direct (and indirect) cost burdens per month over 8 months are plotted in Fig. 2, with the households grouped into the three vulnerability categories determined from asset portfolios (see Section 'Illness-related poverty and livelihood change'). The majority experienced a low to moderate direct cost burden per month under 5% of income, but a minority ($n = 3$), all in the middle (vulnerable) group experienced a higher direct cost burden over 5% and one (Geetha) over 10%. Highly vulnerable households' low average direct cost burden stemmed from their greater use of free public providers. Resilient households' low direct cost burdens per month were because of their higher incomes and use of public hospitals for IP treatment (see Section 'Protecting the poor? Universal coverage and its limitations in Sri Lanka').

For all case study households the average cost burden per month conceals fluctuations over 8

months and usually in 1 or 2 months direct (and indirect) cost burdens were particularly high (see Fig. 3). This 'lumpy' feature of illness costs made them harder to manage. Even the peaks in Fig. 3 were average cost burdens over 30 days that smooth higher daily cost burdens, often exceeding 100% of the daily wage. The poorest and most vulnerable households dependent on a low daily wage found it difficult to manage any cost associated with illness, let alone these peaks, and had to borrow or pawn jewellery to cope.

A cost burden figure only indicates the potential or likely consequences of an illness cost for household impoverishment. The actual impact will depend on household income (for a poor household a relatively low cost burden may cause impoverishment but for a non-poor household a burden above 10% may not be 'catastrophic') and household capacity to mobilise additional resources (vulnerability or resilience). However, it is still a useful indicator of the extent of protection provided by public health services.

Illness-related poverty and livelihood change

The survey data were analysed to estimate the short-term poverty implications of health care spending, using two indicators: the poverty count (incidence) and the poverty gap. The first calculation estimates the proportion of households pushed below a US\$30.00 per capita per month (US\$1.00 a day) absolute poverty line by health care spending. Household health expenditure was subtracted from household income and a new household per capita income level calculated. As a result of health care payments the poverty incidence rose from 54.1% ($n = 229$) to 57.0% ($n = 241$): 12 households were pushed below the poverty line. Health care spending therefore added 2.9% to the poverty incidence, a level comparable to estimates from India and Vietnam (Wagstaff, 2002). This analysis assumes that the money spent on health care was no longer available to spend on other essential goods and

Table 1
Average household direct illness cost burden per month by income quartile

Direct cost burden	Household income per capita quartile group				
	1 (poorest) ($n = 82$)	2 ($n = 90$)	3 ($n = 74$)	4 ($n = 77$)	All ($n = 323$)
Mean (95% confidence interval)	15.2 (−6.6–37.0)	3.0 (2.1–3.9)	3.5 (2.4–4.5)	4.1 (2.8–5.5)	6.5 (1.0–12.0)
Median	1.2	1.4	1.8	1.6	1.3

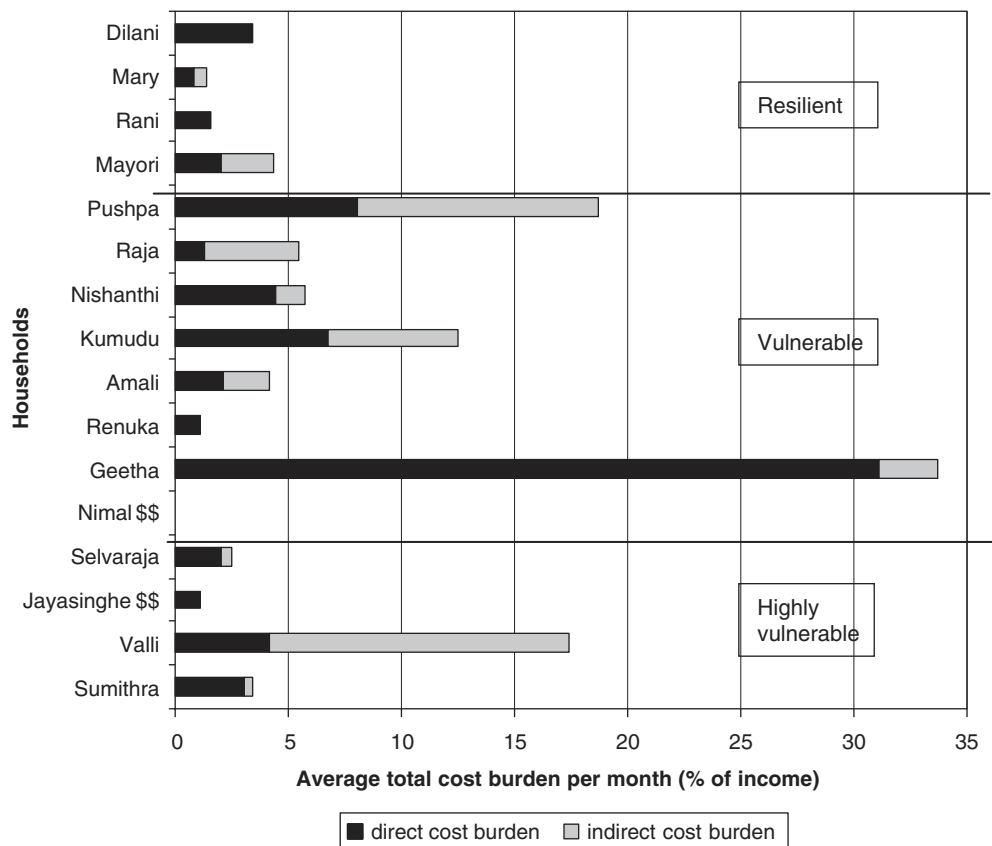


Fig. 2. Average illness cost burden per month among case study households. \$\$Nimal and Jayasinghe were the main breadwinners in their households but had been forced to stop work due to serious illness before research started. Indirect cost burdens were therefore high but incalculable. Nimal experienced high direct costs of illness over 8 months but his extended family paid these costs.

services and so pushed households into absolute poverty. It might also be argued that without free health care there would have been higher levels of spending and the potential for more households to have fallen below the poverty line.

The second calculation uses the poverty gap indicator (the average income shortfall from the poverty line) to estimate the deepening of household poverty caused by health care spending. Among the 229 households below the US\$30.00 poverty line the mean income shortfall was US\$8.90 (Rs. 577) per capita per month, or a daily shortfall of US\$0.30 below the US\$1.00 a day poverty line (Table 2). After health care spending among the same households the poverty gap rose to US\$9.30 per month, a 5.2% rise in the depth of poverty. If the 12 additional households that fell below the poverty line are included in the calculation the depth of poverty rises by only 0.82%, from US\$8.90 to US\$9.00 per capita per month (Table 2).

These indicators of changes to poverty derived from a cross-sectional survey should be interpreted cautiously. A fall below the poverty line for example may be very short-term, households may have coped by mobilising other resources, and the health care spending may not have involved any damaging cuts to consumption or assets. The advantage of the longitudinal case study methodology was the ability to track the actual implications of illness costs for income-poverty, assets and livelihood change in some detail over 8 months.

The 16 households were chosen to represent four household income groups derived from the survey data, but the other selection criteria (illness and vulnerability) meant they were not equally distributed across quartiles (Table 3). Households in the lowest two quartiles earned less than US\$1.00 per capita per day (less than US\$30.00 per month). In the poorest quartile households struggled to meet food and fuel needs on a daily basis. Even in the

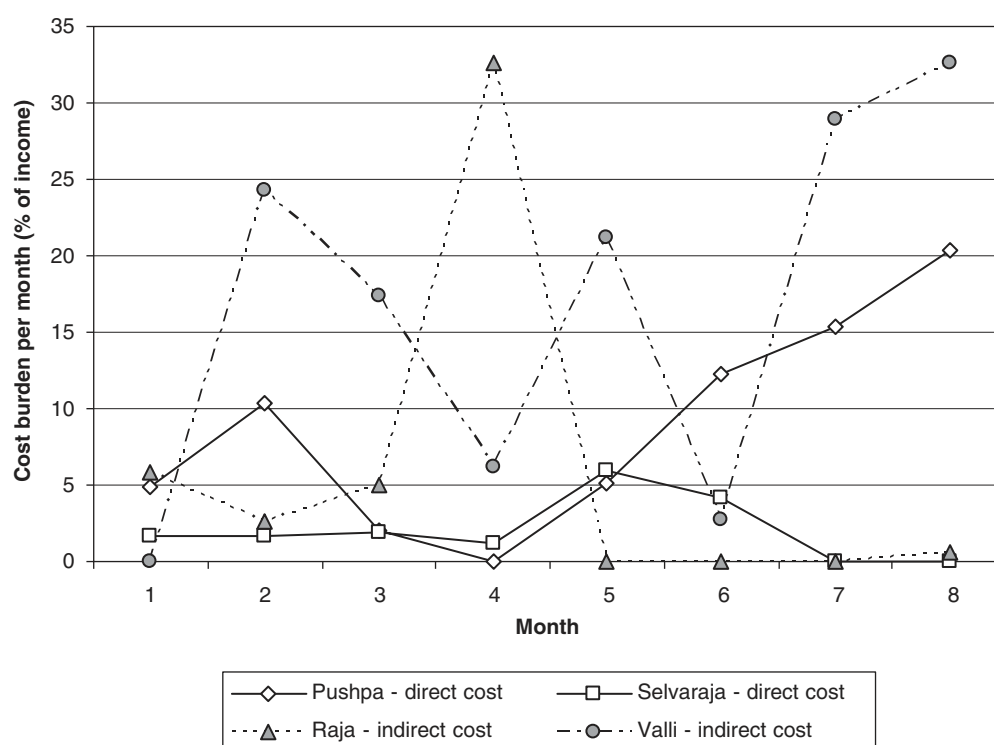


Fig. 3. Monthly fluctuations of direct and indirect illness cost burdens: selected cases.

Table 2

Changes in the depth of household poverty (poverty gap^a) due to health care payments

	Mean poverty gap US\$ (Rs.) ^b	Standard deviation US\$ (Rs.)
Poverty gap before health spending (<i>n</i> = 229)	8.90 (577)	5.6 (367)
Poverty gap after health spending (<i>n</i> = 227) ^c	9.30 (607)	5.6 (361)
Poverty gap including 12 new households below the poverty line after health spending (<i>n</i> = 239)	9.00 (582)	5.7 (370)

^a Average shortfall from a US\$30.00 per capita per month poverty line.^b At the time of research US\$1.00 = Sri Lankan Rupees (Rs.) 65.00.^c Two outlier households excluded: very high health expenditure had pushed the households' income into a negative income value that prevented analysis of the poverty gap.

upper quartile most households earned only US\$40–50.00 per capita per month (US\$1.00–2.00 per capita per day). So despite their relatively high cash income in these poor areas many families classified as 'better-off' were only marginally above the poverty line.

Seven of the 16 case study households were in the poorest quartile and an additional expense such as health care usually triggered coping strategies that pushed them deeper into poverty. The two households in the second quartile also had little money

available for health care. Income insecurity due to lack of available work or illness was a great source of vulnerability:

Illness is something we are all scared of here. How can we live without working? If my husband is ill we have to get money from somewhere for food and for the medicine, we have to borrow.
(Selvaraja, woman from poorest income quartile, most vulnerable).

Table 3
Location of case study households in the community income profile^a

	Household income per capita quartile group			
	1	2	3	4
Household per capita income: US\$/month (Rs./month)	\$ 0–21 (0–1352)	\$ 21–29 (1353–1880)	\$ 29–40 (1881–2609)	\$ 40+ (2610+)
Households with illness	Nimal Jayasinghe Valli	Nishanthi Sumithra	Raja Rani	Dilani
Households without illness	Kumudu Selvaraja Amali Geetha		Pushpa Mayori	Mary Renuka

^aCase study households have been given pseudonyms for confidentiality.

Households in the third and fourth quartiles could to differing degrees meet the costs of treatment for most acute and chronic illnesses in months when incomes were maximised. However, in months when workers lost earnings due to illness or the vagaries of the labour market, or when illness expenses coincided with other ‘lumpy’ expenses such as education or clothing, those in the third quartile had to adopt strategies to cope with illness costs. Those in the fourth quartile had to mobilise additional resources when more serious or prolonged illness caused income loss. In other words household ability to cope with illness costs could not be seen in isolation from other expenses and income fluctuations.

Across income groups, case study households were also selected from three vulnerability—resilience categories (Fig. 2). Over 8 months, livelihood change among the households was evaluated by analysing six livelihood outcomes using quantitative and qualitative data: the number of workers and job security; income levels; physical capital; financial capital (changes to savings or jewellery); debt levels; and consumption (focusing on number of meals per day). Households were placed into three categories of livelihood change: struggling (impoverishment); coping (stability); investing (improvement).

Highly vulnerable households: struggled and became more impoverished

Three out of four households in this group (see Fig. 2 for pseudonyms) were located in the poorest income quartile (Table 3) and struggled to eat three meals a day. They had weak asset portfolios. Members had less formal education and relied on

one or sometimes two workers with insecure jobs. Physical capital was limited to a small wooden or poorly maintained cement block house with no electricity or water connection. Financial capital had been depleted: they had pawned all or most of their jewellery, in some cases due to previous illness (Jayasinghe, Valli), and were in debt to money-lenders.

Over the 8 months these households experienced a decline in at least four of the six livelihood variables, most commonly the loss of an income earner or growing insecurity of work, pawned jewellery, increased debt and lasting cuts to food consumption. Three of the four households were on a path of decline triggered by illness before research started. For example cancer had forced Jayasinghe to give up work with damaging economic consequences for the household; and Sumithra’s husband had experienced a serious accident which, after over a month in (a public) hospital without earning income, had undermined assets and caused high levels of debt.

Three of the highly vulnerable households incurred low or moderate average cost burdens per month (Fig. 2) but these costs were a persistent attack on the household budget and assets. Valli experienced indirect cost burdens of over 20% in some months (Fig. 3) which could be judged to be ‘catastrophic’ because they forced her and her husband deeper into poverty: they had to borrow at high interest, cut food consumption and pawn last items of jewellery. The group’s low and insecure incomes meant they had to meet a high proportion (58%) of direct and indirect illness costs through these types of strategy, but their weak

asset portfolios meant they struggled to cope. Multiple asset weaknesses made health service protection particularly important for this group of households (see Section ‘Protecting the poor? Universal coverage and its limitations in Sri Lanka’).

Vulnerable households: coped to different degrees

This group spanned the full range of per capita income quartiles and to differing degrees had stronger asset portfolios than the highly vulnerable group, even among the income-poorest (Amali, Nimal, Geetha). Renuka’s household was located in the top income quartile but was vulnerable because her husband used the income to fund a heroin addiction and the rest of the family (Renuka and four children) were left with barely enough income for food and few assets. Compared to the highly vulnerable group, adults were in general better educated (Nimal, Geetha, Amali, Pushpa) or the household had more workers (Raja, Pushpa, Nishanthi). Some had more financial capital with women participating in rotating savings (*seetu*) groups or credit societies (Nishanthi, Amali, Kumudu, Raja, Pushpa), although Nimal’s wife Sita, Geetha, and Renuka were not involved due to their income-poverty. Some had jewellery available to pawn (Geetha, Amali, Kumudu, Raja, Pushpa), but others had depleted these financial assets due to previous illness (Nimal, Nishanthi).

These households experienced little change to at least four dimensions of livelihood. Debt levels had not increased and if people had borrowed it was from low cost and flexible sources such as family, friends and local credit societies. Historically they were on steady livelihood paths characterised by vulnerability but fewer shocks including fewer serious illness events. Gradual improvements were sustained by Kumudu and Puspha despite high illness costs (Fig. 2) and the others were coping to differing degrees. As Nimal’s household had already suffered dramatic decline due to serious illness before the start of the study, it could have been placed in the struggling group. However, when research started he and his wife were coping (at a lower level) and not suffering further impoverishment because free health services enabled him to make regular visits to the hospital for consultations and blood tests, and strong family networks provided funds for nearly all their daily and health care expenses.

Despite the group’s higher direct cost burdens, over 100% in some months for Geetha and Nimal,

this group was distinguished from the highly vulnerable households by their stronger asset portfolios and capacity to cope, particularly the strength of their social networks. Although income poverty meant the group could not cover a considerable proportion (45%) of their total illness costs through usual income sources, they mobilised low cost asset and borrowing strategies, which contributed to livelihood stability. Access to free services for more serious illness contributed to this resilience (see Section ‘Protecting the poor? Universal coverage and its limitations in Sri Lanka’).

Resilient households: invested and improved

These four households had higher and more secure incomes derived from a household member with a secure government job, or several workers in the family, or a successful small business. They had the strongest asset portfolios including better education, a larger house made from bricks and mortar, and a range of physical assets in the household (electrical goods, furniture).

Over 8 months the group experienced improvement in at least four livelihood variables, and nearly all borrowing was for investment purposes. Historically they were on steady trajectories of improvement even though they had originally started from socio-economic positions similar to the other households. Notably no breadwinners had been affected by serious illness.

Although household members used private providers more often than public providers for treatment of acute and chronic illnesses, the group experienced relatively low or moderate cost burdens because of their higher income (Fig. 2). However, they relied on the safety net or ‘insurance’ of the public sector for IP treatment, which protected assets, kept debts low and also allowed them to divert resources to investment strategies. As a result, they only had to cover a small proportion (9%) of total illness costs through asset strategies, usually low cost borrowing from strong social networks.

Across these three groups of household there was, not surprisingly, a strong link between vulnerability at the start of research and livelihood change category at the end. Fig. 2 also suggests there was no clear link between illness cost burden and livelihood change. Highly vulnerable households with direct cost burdens less than 5% struggled and fell further into poverty. In contrast some of the middle (vulnerable) group incurred a high or ‘catastrophic’ burden but managed to cope, although

households experiencing serious illness and a high cost burden (Geetha and the special case of Nimal) were only just coping. Given the complexity of livelihoods and the multiple factors influencing livelihood trajectories, the lack of a clear link between cost burden and impoverishment is not surprising.

Protecting the poor? Universal coverage and its limitations in Sri Lanka

Inpatient treatment

The household survey found that the vast majority of people in the two communities, from all income groups, used one of the large public hospitals in the city rather than a private hospital (98% of admissions, $n = 177$). Among case study households all hospital admissions over the 8-month period were to public hospitals. This utilisation pattern was explained by the free IP care offered by public hospitals compared to the prohibitively high cost of a private hospital admission, but in addition a dominant theme from the qualitative data was people's trust in the technical quality of care at public hospitals, based on the widely held view that they had the best staff and equipment to deal with serious conditions (Russell, 2005).

Use of public hospitals meant patients and their families incurred a relatively low direct cost burden for a hospital admission. From the household survey 82% of households experiencing one or more IP admission ($n = 134$) in the previous year faced a direct cost burden of 1% or less per month (i.e. a burden of 12% or less in 1 month spread over 12 months), and 95% of households experienced a burden of 5% per month or less, the main cost items being transport, special food and complementary religious therapies or medicine bought outside the hospital. Case study household experiences also demonstrated how free IP services protected all socio-economic groups against high direct medical costs.

Regular treatment of chronic illness

Chronic conditions requiring regular treatment have the potential to impose high- and long-term cost burdens on poor households unless free services are available. The household survey identified 342 people (15.6%) who reported a chronic condition

and 194 sought treatment on a regular basis. Across the first three income quartile groups a public hospital OP clinic was the main source of regular treatment, particularly among patients from the poorest households who used public providers far more frequently (62%) than private providers (18%). Only the 'better-off' income group used private providers more often than public providers for their regular treatment. Free treatment was the most common reason cited for using a public provider but confidence in the technical competence of doctors was again important (Russell, 2005). Widespread use of public providers meant that out of the 155 households with a member seeking regular treatment 50% incurred a direct cost burden of 1% of monthly income or less, 87% a burden of 5% or less and only 3% of households incurred regular monthly burdens over 10%.

The case study data confirmed that free health care offered important protection to livelihoods. For the highly vulnerable group with no surplus money to pay for health care (even to cover transport costs), free regular treatment of chronic conditions was vital protection against higher borrowing or deeper cuts to food consumption. Among the vulnerable (middle) group free treatment was also a vital entitlement that prevented borrowing for health care expenses. A comment by Geetha, diagnosed with Type 2 diabetes during the 8-month study period, exemplifies the experience of diabetics from vulnerable households:

If I go private, I pay money, but then if things get worse they refer me to the government and they would have to do all the tests again. So if I have a big problem, or one that needs continuous treatment like diabetes, I go to the government hospital...It is free...how could I pay for the tablets everyday?

(Geetha: woman from poorest income quartile, vulnerable).

Free treatment was particularly important to livelihood security at times when workers fell ill causing income levels to drop and a consequent struggle to pay for a range of essential items. Raja's household, for example, experienced high wage losses in some months (see Fig. 3) because he and his wife (Ranji) suffered from asthma. In month 1 Raja had a sore chest and took two days off work, losing US\$5.40 (Rs. 350) in wages (an indirect cost burden of 6%). Raja went to a nearby private clinic and pharmacy for treatment, which incurred a

direct cost burden of 15%. The high direct cost burden combined with the indirect cost forced the family to borrow from Raja's workplace. Later in the month the chest problems persisted but they had no cash available so Raja resorted to the free municipal dispensary. Without the alternative of cheap public treatment towards the end of the month the household's borrowing would have been significantly higher.

Acute illnesses requiring OP treatment

The survey identified 266 out of 2197 individuals (12.1%) who reported an acute illness episode in the previous 2 weeks, the most frequent being cold, cough, fever, flu, headache, injury and diarrhoea. Self-treatment at home was the most frequently reported first response (58%), reflecting the mild nature of many of the illnesses.

In contrast to the dominant use of public providers for IP and regular chronic care, the use of health care providers outside the home was more equally split between public and private providers for moderate acute illnesses, with private GPs and pharmacies slightly more dominant. Even among the poorest quartile a considerable minority of patients (46%) used private doctors and pharmacies (Russell, 2005).

Widespread use of private providers meant higher household cost burdens for OP treatment of acute illness. Out of the 210 households experiencing one or more acute illness episode, 47% experienced a direct cost burden of 1% or less but 20% experienced a burden over 5 and 7% a burden above 10%.

All case study household respondents, whether male, female, poor or better-off, stated that they preferred to use a private doctor or pharmacy for common illnesses. Income levels and cash availability, however, influenced actual utilisation patterns. Members of the seven households in the top income quartiles (with the exception of Renuka) consistently used a private GP with whom they were familiar (their 'family doctor'). In the seven poorest households wage-earners used private doctors and pharmacies more frequently than public providers to obtain treatment quickly and avoid wage losses, but members who did not work used a municipal dispensary as frequently as private doctors and pharmacies.

The research identified several reasons for the lower uptake of free public health services for

common acute illnesses (Russell, 2005), including limited opening hours, long waiting times, short consultations and poor inter-personal quality. As a result the majority of the 'better-off' and even a considerable minority of the poorest were willing to pay to get quicker care, secure a longer consultation with more patient focus, and build a long-term doctor–patient relationship with a 'family' doctor. The poorest pawned jewellery and borrowed money to finance private treatment.

Nonetheless, free public health care of adequate quality offered important protection to the most vulnerable and income-poorest households with several small children who experienced frequent and concurrent acute illness events. Selvaraja's family offers a typical illustration of this protection. In month 5 the three children suffered illness concurrently (high fever and vomiting) and Selvaraja took them to the National Children's Hospital OP department, a visit which incurred a direct cost burden of only 0.5% (US\$0.50/Rs. 30 for transport):

I take the kids to Lady Ridgeway...Rs. 300 or more would have gone if I had gone private...and I would need to borrow even more money for that—maybe with interest.

(Selvaraja, woman from poorest income quartile, highly vulnerable).

The livelihood implications of having to pay for health care were starkly illustrated in the same month. The family spent an additional Rs. 320 (US\$5.00) on health care due to private sector use by Selvaraja's husband (for a recurring shoulder injury; he could not afford to miss work) and Selvaraja's mother (for a tooth extraction; there was a long waiting list at the public hospital). These private visits imposed a direct cost burden of 5% which exceeded the household budget after food purchases and triggered coping strategies that pushed the household deeper into poverty. They had to borrow from an ex-employer (Rs. 500), delay payment of the electricity bill, delay debt repayment to the local food shop, and could not redeem a ring that Selvaraja had pawned in an earlier month to pay for health care. If Selvaraja had taken her children to a private doctor that month the overall direct cost burden for the family would have been over 12%, forcing even more risky borrowing or asset strategies.

Discussion

The household survey and case study data show that free health care services in urban Sri Lanka, financed through taxation, protected the majority of poor households against high out of pocket payments for treatment at the time of illness. This protection against even relatively low fees was an important poverty reduction measure because, as shown by the case study findings, even a small direct cost could cause impoverishment. Nine case study households in the two poorest income quartiles (Table 3), selected to be typical of 50% of total households in these settlements, relied on low paid and insecure work and struggled on less than US\$1.00 per capita per day. These households had little or no ‘ability to pay’ for health care after meeting basic food, shelter and fuel needs. Other essential but ‘lumpy’ expenses, on education, rites of passage, housing or clothing for example, were already beyond the household budget. Any health care expense, even a moderate direct cost burden of 2.5–5% of monthly income, or a loss of income due to illness, inevitably triggered borrowing, pawning, or cuts to food and education. Longitudinal research showed that when a low or moderate direct cost burden affected a poor household only once or twice over 8 months then recovery was easier and illness made little difference to poverty. However, frequent moderate illness costs experienced by poor families with small children or a chronically sick member were a persistent attack on already overstretched budgets that contributed to debt accumulation, asset depletion and made the household vulnerable to other shocks. Vulnerability to income losses caused by illness, as well as transport costs, increased the importance of the protection against medical costs offered by free health care services.

The case study data also showed that the relationship between cost burden and livelihood change is complex. Highly vulnerable households that experienced low or moderate burdens declined, but less vulnerable households that experienced a high or ‘catastrophic’ burden coped and remained stable. The longitudinal case study research could explore the processes explaining the links between illness cost and livelihood change, through retrospective interviews (life histories) and the prospective 8-month study. Multiple factors affected livelihood and poverty trajectories over time, including problems arising from legal expenses, drink and other drug problems, earlier shocks, the loss of land or an

illness, or broken relationships. Previous events and processes had placed households on longer-term trajectories of struggling, coping or improving, and path dependency continued to influence livelihood change over the brief research period. Given the strength of these trajectories the impact of illness on impoverishment and livelihood was heavily dependent on its severity, frequency and duration. Low and infrequent illness costs made little impact. Low or moderate but more frequent illness costs exacerbated vulnerability and livelihood decline. Serious illness that caused high or catastrophic and persistent cost burdens could have a major negative impact on livelihood paths. In Sri Lanka the availability of free public health services meant it was the indirect costs arising from serious illness, rather than direct costs, which were the most obvious cause of illness-induced poverty, as the examples of Nimal and Jayasinghe demonstrated.

Other studies have shown that the Sri Lankan public health system has a pro-poor benefit incidence and is among the most equitable in Asia (Rannan-Eliya & EQUITAP partners, 2005). From the data presented here, free health care’s contribution to protecting against illness-induced impoverishment for the three household livelihood groups can be summarised as:

- *Free treatment mitigated further impoverishment of declining households:* Already on trajectories of livelihood decline, free health services mitigated deepening poverty from illness by reducing direct cost burdens. Low and insecure incomes, asset weaknesses and burdens imposed by other expenses, however, meant that free health care services alone were not enough to prevent livelihood decline. This demonstrates the vital importance of free care for this group, and the need for other interventions to build resilience against illness costs and other shocks.
- *Free treatment prevented the decline or impoverishment of relatively stable households:* Free treatment, particularly free IP treatment and regular treatment of chronic illnesses, prevented high cost burdens and contributed greatly to lower debts and the prevention of asset depletion among this group. Free treatment was particularly important when income earners could not work or at times when the household faced combined expenses. By protecting assets free treatment also made these households more resilient to future shocks.

- *Free treatment enabled investment by improving households:* Free hospital IP care acted as ‘insurance’ that allowed households to allocate resources to saving and investment strategies, rather than having to save to finance the costs of a future hospital admission.

Free IP hospital services meant the health system protected the full range of socio-economic groups covered by the study. It also demonstrated that effective protection requires a broad package of curative treatment that is free at the point of delivery. However, the findings also showed that free public services only protected the poor when they were of a quality acceptable enough to be used. Public health care services were less successful in protecting patients against the direct costs of acute illness requiring treatment outside the home because people across income groups, even from the poorest income quartile, preferred to use private providers (Russell, 2005).

Overall, these findings can be applied to similar urban settings in Colombo because the study sites and households were selected to be typical of such settings and populations. In rural Sri Lanka income poverty is wider and deeper, and the direct costs of illness likely to be higher due to transport costs. Protection against medical costs is therefore likely to be even more important for poverty reduction and livelihood sustainability in rural areas of the country. Although Sri Lanka’s universal provision model faces financing and quality problems, the government should not start charging the user to raise revenue. Fees would undermine livelihoods and one of the few pro-poor health systems in the world.

Acknowledgements

Thanks to Anne Mills for her comments. The paper was written with financial support from the Health Economics and Financing Programme, London School of Hygiene and Tropical Medicine, UK, funded by the UK Department for International Development. The views and opinions expressed are those of the authors alone.

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The emergence of political priority for safe motherhood in Honduras

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Each year an estimated 500 000 to 600 000 women die due to complications from childbirth, making this one of the leading causes of death globally for women in their reproductive years. In 1987 a global initiative was launched to address the problem, but few developing countries since then have experienced a documented significant decline in maternal mortality levels.

Honduras represents an exception. Between 1990 and 1997 the country's maternal mortality ratio – the number of deaths due to complications during pregnancy, childbirth and the postpartum period per 100 000 live births – declined 40% from 182 to 108, one of the largest reductions ever documented in such a short time span in the developing world.

This paper draws on three political science literatures – constructivist international relations theory, policy transfer and agenda-setting – to explain how political priority for safe motherhood emerged in Honduras, a factor that underpinned the decline. Central to the explanation is the unusually cooperative relationship that developed between international donors and national health officials, resulting in effective transfer of policy and institutionalization of the cause within the domestic political system. The paper draws out implications of the case for understanding the political dynamics of health priority generation in developing countries.

Key words: policy transfer, agenda setting, constructivism, safe motherhood, maternal mortality, Honduras

Introduction

Each year developing world health ministries accept financial and technical assistance from dozens of international health policy networks promoting causes such as AIDS prevention, polio eradication, reproductive health, safe motherhood and health sector reform. Despite the resources they offer, these networks must compete for the attention of ministries, since limited health systems capacities prevent governments from giving implementation priority to more than a handful of causes.

Scholars of developing world health policy have analyzed the emergence and forms of these networks (Reich 2000; Walt 2001; Ogden et al. 2003; Widdus 2003), and the structure and effectiveness of health ministries (Berman 1995; Bossert et al. 1998; Olsen 1998). With only a few exceptions (Okunzi and Macrae 1995; Buse and Gwin 1998; Walt et al. 1999; Walt et al. 2004), they have given little systematic attention to the interactions between the two. Understanding the nature and quality of these interactions is crucial since these have bearing on why developing world governments may prioritize some health causes and neglect others.

This paper investigates network–ministry interactions and their impact on health priority setting through a study of safe motherhood in Honduras in the 1990s. The case is revealing because international officials concerned with safe motherhood interacted repeatedly with Honduran health

bureaucrats throughout the decade, and because these interactions resulted in successful policy transfer, implementation and impact. In the 1990s the Honduran state made safe motherhood among its foremost priorities, and the country experienced one of the most dramatic declines in maternal mortality ever documented in such a short time span in the developing world. Between 1990 and 1997 the Honduran maternal mortality ratio declined from 182 to 108 maternal deaths per 100 000 live births (Castellanos et al. 1990; Meléndez et al. 1999). Both the 1990 and 1997 figures are highly reliable, as they are based on Reproductive Age Mortality Surveys (RAMOS), the gold standard in maternal mortality investigations that examine every maternal death in a country over the course of a year and generate statistics for the entire population, rather than sample-based estimates with wide confidence intervals. There have been other cases of documented decline in such a short period of time, but they are few and far between.¹

Danel (1998) has analyzed the medical and technical interventions associated with the Honduran maternal mortality decline. In this paper, we investigate how political priority emerged for the cause. We employ concepts from three political science literatures – constructivist international relations theory, policy transfer and agenda setting – to examine why successful policy transfer and implementation occurred and to highlight the case's significance for understanding network–ministry interactions and health priority formation in developing countries.

Background

International policy networks

Over the past decade scholars have given increasing attention to the role of policy networks as actors in the international system. These vary both in form and level of institutionalization. Two of the more widely researched forms are epistemic communities and transnational advocacy networks. Haas (1992b) and colleagues coined the term epistemic communities to refer to groups of professionals who, by virtue of their knowledge-based authority and shared beliefs about causal processes, are able to influence national policies. Among other issues, such groups have been able to influence global trade agreements (Drake and Nicolaidis 1992), nuclear arms control agreements (Adler 1992), commercial whaling practices (Peterson 1992) and ozone protection policy (Haas 1992a). Keck and Sikkink (1998) have examined transnational advocacy networks. These differ from epistemic communities in that their members consist of multiple organizational types, from labour unions to churches, and are linked not by expertise but by shared commitment to particular causes. In the 1990s they have promoted environmental preservation, human rights and many other causes, and have had significant influence at global United Nations conferences (Chen 1996).

Scholars have noted the involvement of these networks in international health promotion as well. Ogden, Walt and Lush have analyzed networks involved in shaping policy for sexually transmitted infections (Lush et al. 2003) and tuberculosis (Ogden et al. 2003). Reich, Widdus and Buse and Walt have investigated the emergence of public-private partnerships that link governments, pharmaceutical companies and international organizations in legal structures designed to find solutions to particular health problems (Buse and Walt 2000; Reich 2000; Widdus 2003). Reinicke (1999) has identified Roll Back Malaria (a WHO-headquartered organization grouping governments, multilateral agencies, non-governmental organizations (NGOs) and private sector organizations in a fight against the disease) as a 'global public policy network' which he defines as 'loose alliances of government agencies, international organizations, corporations, and elements of civil society such as nongovernmental organizations, professional associations, or religious groups that join together to achieve what none can accomplish on its own' (p.44).

Policy transfer and constructivist theory

While attention has been paid to the emergence and forms of these health networks, there has been less research on the means by which they influence national priorities. One concept of value on this subject is that of 'policy transfer' which concerns the use of knowledge about policies or administrative arrangements in one time or place to develop such arrangements in another time or place (Dolowitz and March 1996). Stone (1999) notes that scholars employ multiple terms to speak of the concept, including 'lesson-drawing', 'emulation', 'external inducement', 'convergence' and 'diffusion'. She identifies three modes of transfer. Policy may be transferred *voluntarily* if elites in one country value

ideas from elsewhere and import these of their own accord. Policies may be transferred *with compulsion* if powerful organizations such as the World Bank threaten to withhold lending to countries that do not embrace particular practices. Policies may be transferred *via structural forces* when policy-making elites play no active role, and ideas enter national systems through processes scholars often refer to as 'convergence'.

Constructivist theory from the political science sub-field of international relations offers a useful framework for thinking about how policy transfer may occur in certain instances. Constructivism works from the premise that nation-states, like individuals, are not isolated entities. They exist within societies of other nation-states and are socialized into commonly shared norms by their encounters with international actors such as the policy networks just discussed (Wendt 1992; Finnemore 1996). Mainstream international relations scholars traditionally have downplayed this form of transnational influence, as they have sought to understand the behaviour of nation-states in the international arena by looking *inside* states, taking state preferences as given (Finnemore 1996). Neo-realism seeks to explain outcomes in the international system, such as alliances and warfare, in terms of the pursuit by states of power and security. Neo-liberalism is another version that understands state behaviour largely in terms of the pursuit of wealth. Both assume the nature of state preferences and seek to demonstrate their utility by their capacity to predict and explain outcomes in the international system (Finnemore 1996). In these frameworks international policy networks are viewed as epiphenomenal, unable to alter existing state preferences or serving only to promote the interests that powerful states would pursue anyway.

Constructivist international relations theory challenges mainstream conceptions by raising the issue of how states come to know what they want in the first place. Proponents do not necessarily reject neo-realist or neo-liberal ideas. However, they argue that the pursuit of power, security and wealth cannot explain many critical international outcomes. Constructivist theorists argue that on any given policy issue, a state may not initially know what it wants but come to hold certain preferences as a result of interactions in international society with other state and non-state actors. For instance, a state originally may not prioritize a health cause such as polio eradication, but come to adopt the cause because domestic health officials learn at international gatherings that other countries are pursuing this goal and they are likely to be left behind. Thus, constructivists argue, state preferences cannot be taken as given (Wendt 1992; Finnemore 1996), but rather should be conceived of as created in the process of transnational interactions.

International organizations are critical global actors in frameworks influenced by constructivism. Organizations such as the World Health Organization (WHO), UNICEF, the World Bank and the United Nations Population Fund (UNFPA) are created by a global community of nation-states with a view to serving their jointly and individually held interests. However, these organizations may acquire the power to

act as independent, autonomous agents, shaping the policy preferences of the nation-states that created them (Abbot and Snidal 1998). International health policy networks, which link these actors with other kinds of organizations, may play similar roles in shaping national policy preferences.

Risse-Kappen (1995) argues that the capacity of international networks to influence national priorities depends on the international and domestic political structures through which these actors must work. He contends, for instance, that, other things being equal, transnational actors will find states with centralized structures harder to penetrate than those with fragmented structures; however, once they penetrate these systems they are more likely to have policy impact. The reason is that unlike democratic, federalist political systems (India, Brazil), power in authoritarian, unitary systems (China, Vietnam) is concentrated in the hands of a few elites. External networks have fewer points of access, but if they are able to gain access and convince state leaders of the legitimacy of their agenda, these leaders are able to mobilize much of the political system in service of the cause.

Ogden et al. (2003) point to another factor that may shape the level of network influence. Analyzing the case of global tuberculosis policy, they show that international health advocates were able to convince many developing world governments to accept a particular treatment regimen. However, the consequence of promoting a uniform solution was its insufficient tailoring to local context and a lack of ownership by domestic health officials. Policy transfer occurred, they argue, but the policy was not always implemented effectively. Their study suggests that international health networks that hand over a measure of control of resources and decisions to domestic officials, and allow for adaptation of policy solutions to local context, may be more effective in institutionalizing national priority for their causes than networks that are inflexible in these respects.

Agenda setting theory

Scholars concerned with policy transfer have focused primarily, if not exclusively, on the movement of policies across national borders. Scholars concerned with agenda setting have considered these processes predominantly inside domestic political systems. A previous study employed agenda setting concepts to explain the emergence of political priority for safe motherhood in Indonesia (Shiffman 2003). The following discussion draws from that paper.

Agenda setting is that stage in the public policy process during which certain issues rise to prominence and others are neglected. It is the first stage in the process and precedes three others: policy formulation; the enactment of authoritative decisions; and policy implementation. The most influential theory of agenda setting is Kingdon's streams model (1984). He argues that agenda setting has a random character and is best described as resembling a garbage can in which problems, policies and politics develop and flow along in independent streams, meeting at random junctures in history and creating windows of opportunity during which particular

issues rise to the fore. The problems stream refers to the flow of broad issues facing societies. It is from this stream of issues that agendas are shaped. The policy stream refers to the set of alternatives that scholars, politicians, bureaucrats and other prominent figures propose to address national problems. This stream contains proposals concerning how problems may be solved. Finally, there is a politics stream. National mood, changes in political structure, social uprisings, elections and global political events are among the constituent elements of the politics stream.

Kingdon and others have argued that there are systematic elements in agenda setting which shape the likelihood that an issue will receive national attention. In one of the earliest works on agenda setting, Jack Walker (1974), analyzing traffic safety policy in the United States, argued that among the factors that shape whether an issue rises to the attention of policy-makers is the presence of a clear, measurable indicator to mark that issue. Kingdon confirmed Walker's insight in his study of health and transportation policy-making in the United States, from which he developed his streams model. Agenda setting scholars argue that indicators make a difference because they have a uniquely powerful effect of giving visibility to that which has remained hidden, serving not just monitoring purposes, the way they are traditionally understood, but also as catalysts for action.

A second factor that researchers have identified is political entrepreneurship (Walker 1974; Kingdon 1984; Doig and Hargrove 1987; Waddock and Post 1991; Schneider and Teske 1992). Whether an issue rises to the attention of policy-makers is not simply a matter of the flow of broad structural forces that stand beyond the reach of human hands. Much depends on the presence of individuals and organizations committed to the cause. As John Kingdon (1984, pp. 190–1) puts it, 'Entrepreneurs do more than push, push, and push for their proposals or for their conception of problems. They also lie in wait – for a window to open. In the process of leaping at their opportunity, they play a central role in coupling the streams at the window.'

A third factor is the occurrence of focusing events (Kingdon 1984; Birkland 1997). These are large-scale happenings such as crises, conferences, accidents, disasters and discoveries that attract notice from wide audiences. They function much like indicators, bringing visibility to hidden issues. Birkland has demonstrated that disasters, including hurricanes, earthquakes, oil spills and nuclear power plant accidents, lead to heavy media coverage, interest group mobilization, policy community interest and policy-maker attention, causing shifts in national issue agendas.

Political science theory and the formation of developing world health priorities

These political science literatures offer concepts useful for understanding network–ministry interactions and their influence on health priority formation in developing countries. Constructivist international relations theory offers a way of understanding how developing world health bureaucracies may come to embrace particular health causes: they may be

socialized into preferences through interactions with representatives of international organizations, bilateral development agencies and other actors that comprise international health policy networks. The capacity of these networks to influence national priorities will be mediated by the international and domestic structures through which they must work. Also, scholars studying policy transfer and agenda setting offer a set of propositions concerning the circumstances under which these interactions are more likely to result in adoption and institutionalization of particular health causes:

- (1) When networks are willing to share authority and control of resources with domestic officials;
- (2) When a focusing event gives a cause political visibility;
- (3) When a credible indicator exists to mark the severity of the problem;
- (4) When domestic political entrepreneurs are available who embrace the cause and are willing to push from behind the scenes to promote it.

In the sections that follow we draw on these constructivist, policy transfer and agenda setting ideas to investigate how safe motherhood became institutionalized as a priority in Honduras.

Methods

We relied on four types of sources to develop the case study: interviews with officials involved in Honduran safe motherhood policy; government reports and documents; donor agency reports; and published research on Honduran safe motherhood. We conducted in-depth semi-structured interviews with 30 individuals involved in Honduran safe motherhood, 25 of which occurred in the country. We interviewed each of the five individuals who led the maternal and child health division of the Ministry of Public Health between the years 1986 and 2002; a number of senior officials in the Ministry; NGO and private sector consultants; and members of the donor community including the Pan American Health Organization (PAHO – the Americas branch of the WHO), USAID, UNFPA, UNICEF and the World Bank.

The government reports we consulted included national health plans, national health surveys, safe motherhood strategy papers and official documents on safe motherhood norms. Of particular importance were the 1990 and 1997 RAMOS that provided evidence of a maternal mortality decline in the country and information on its possible causes (Castellanos et al. 1990; Meléndez et al. 1999). Donor documents included regional and national safe motherhood plans of action from PAHO, USAID-Government of Honduras health agreements and evaluations, and UNFPA project plans and reports for Honduras. Among the published studies on Honduras we consulted, a World Bank report (Danel 1998) was particularly valuable for historical analysis on safe motherhood policy development and for evaluation of interventions. The entire manuscript was reviewed for factual accuracy by several Honduran officials centrally involved in safe motherhood policy in the country.

We used a process-tracing methodology in constructing the case history, seeking to employ multiple sources of information in order to minimize bias and establish common patterns of causality. Our aim was to investigate how safe motherhood appeared on the Honduran health agenda, the degree to which the cause had been institutionalized in the country, and the factors behind the prioritization of the issue. In the language of case study methodology our inquiry was *holistic* in nature and selected based on its *revelatory* and *unique* characteristics (Yin 1994). That is to say, we analyzed the nation-state of Honduras holistically as a unit rather than any of its sub-regions; we sought to make use of our access to policy-makers to reveal insights that may not have been available otherwise; and we justified selection of Honduras for analysis because of its uniqueness in being one of the few developing countries to have experienced a documented significant decline in maternal mortality in a short time span.

We chose a case study design because of the need to reconstruct holistically the history of the safe motherhood initiative in the country in order to examine the processes at work. The case study approach is better suited than other research methodologies, such as a structured survey and statistical analysis of health service utilization, to achieve this objective (Yin 1994). This is true because the defining feature of the case study is that it considers a phenomenon in its real-life context and is therefore a research strategy well-suited to revealing underlying processes.

The research design imposes limits on internal and external validity. In-depth exploration enables us to develop hypotheses concerning why political priority may have emerged for safe motherhood in Honduras, and to suggest general propositions concerning public health agenda setting and network–ministry interactions. On the other hand, the design creates uncertainty about the conclusions, as they are grounded in consideration of only a single case. Additional comparative research on other countries that controls for alternative explanations will be necessary in order to assess the causal power of the factors we identify. Also, any generalization to other settings must be done with caution given elements of the sociopolitical and health context that are unique to Honduras.

The case

The development of a national health infrastructure

While Honduras' neighbours – Guatemala, Nicaragua and El Salvador – were engulfed in civil war through much of the 1980s, Honduras faced no domestic insurrection and enjoyed United States support as a Cold War ally and bulwark of anti-communist resistance in the region. These favourable domestic and geo-political circumstances in part explained a heavy USAID presence in the country, and the capacity of the Honduran state to devote a significant portion of its national budget to health infrastructure development.

In 1987 health comprised 11.7% of the national budget (USAID 1988), considerably higher than the regional average. USAID supplemented this funding with grants of

US\$54 million for health sector development and rural water and sanitation projects between 1981 and 1988 (USAID 1988). The agency cooperated closely with the Inter-American Development Bank (IDB) (USAID 1988), which in 1987 approved a US\$27 million loan for the construction and equipping of hospitals across the country (USAID 1988). The Ministry of Health used domestic and donor resources to sustain a policy of extending health services throughout the country, targeting the rural poor (USAID 1988). Between 1978 and 1987 the number of health centres staffed by auxiliary nurses increased from 379 to 533; the number of health centres with doctors from 76 to 116; and the number of hospitals from 16 to 21 (USAID 1988).

Through the 1970s and 1980s, with donor assistance, the government also prioritized maternal health. In 1968 the Honduran government, supported by USAID, established a project for the health of mothers and infants (Almanza-Peek 1998a) and in 1974 started an official maternal and child health programme, the first stated objective of which was to decrease maternal mortality (HMPH et al. 1986, 1989). In the 1970s the Ministry of Health initiated a training programme for the approximately 10 000 traditional birth attendants across the country (Martinez 1994; HMPH 1998). UNFPA also supported maternal and child health, financing programmes from 1978 through 1991, with technical support from PAHO, that had explicit goals of reducing maternal mortality (Almanza-Peek 1998a). These legacies facilitated the emergence of political priority and gave health leaders the institutional capacity to address safe motherhood in the 1990s.

Safe motherhood emerges as a national priority

The emergence of safe motherhood as a global priority in the late 1980s raised political attention to maternal mortality reduction in Honduras to a new level. The watershed event was an international conference on safe motherhood in Nairobi, Kenya in 1987, sponsored by the World Bank, WHO, UNFPA and the United Nations Development Program (UNDP). At that time the global dimensions of the crisis – nearly 600 000 maternal deaths per year – were widely publicized, and delegates called for a global reduction of 50% by the year 2000. The conference officially launched a global safe motherhood movement, and solidified an international safe motherhood network that linked these organizations with government bodies, NGOs and safe motherhood advocates across the globe.

At the conference advocates promoted risk assessment during antenatal care to distinguish between women at high and low risk of suffering obstetric complications at delivery, and the training of traditional birth attendants for low risk women. Responding to this launch, PAHO prioritized the cause, in 1990 producing a plan for the reduction of maternal mortality in the Americas and securing its approval from its member states (PAHO 2002a).

The government of Honduras participated extensively in these global priority-setting initiatives. It was a member of PAHO and its minister of health participated in safe

motherhood policy meetings. Also, Honduras was listed as one of the regional priority countries for maternal mortality reduction, and the government approved of the PAHO initiative. Throughout the 1990s government delegations participated in global meetings that reaffirmed international goals for maternal mortality reduction, such as the 1994 International Conference on Population and Development in Cairo. Officials also joined in follow-up regional meetings, including an official Central American launch of the global safe motherhood initiative at a conference in Guatemala in 1992 (APROFAM et al. 1992).

A 1990 maternal mortality study shocks the political system

The appearance in 1990 of a credible study revealing a high level of maternal mortality in Honduras spurred national health officials to respond to these global and regional calls for action. Prior to the study many health leaders believed Honduras did not have a serious maternal mortality problem, taking for granted a 1983 figure, derived solely from hospital-based estimates, of 50 maternal deaths per 100 000 live births (Castellanos et al. 1990).

An official from the Honduran office of PAHO, who was formerly with the Ministry of Public Health, played a key role in organizing the study. He suspected the country had a maternal mortality problem, knew from his experience in the Ministry that Honduras had no reliable maternal mortality data, and had internal knowledge from his PAHO position that the organization was about to make safe motherhood a priority and allocate funds for the cause. He believed that Honduras could secure resources for a national programme, but only if it had credible data to prove a problem existed. He lobbied and successfully generated financial support for the study from several organizations, including PAHO and UNFPA.

The 1990 RAMOS study results shocked health officials. The research revealed a maternal mortality ratio of 182 maternal deaths per 100 000 live births, nearly four times the previously accepted figure (Castellanos et al. 1990).² Furthermore, credible data showing haemorrhage as the leading cause of maternal death, and twice as many maternal deaths occurring at home as opposed to in hospital, suggested not only a problem of a much different scale than anticipated, but also a problem of a different nature. Honduran women were not reaching public or private obstetric services. In some regions, between 80 and 90% of deaths occurred at home. Even in the metropolitan area of Tegucigalpa, nearly one in four maternal deaths occurred at home. Armed with this information and committed to making maternal mortality reduction a political priority, the official and his colleagues actively publicized the study's results. They produced and distributed over 1000 copies of the report, presented the study to the media, briefed international organizations on the results and lobbied health officials in the capital and regions of the country. By the end of 1990 a new health minister had commented in the national media on the study, noting that the country had a serious problem with maternal mortality and that the government was in negotiations with UNFPA to

generate funds for a national programme (La Tribuna 1991a,b).

Domestic health officials mobilize the political system for safe motherhood

Public efforts by the study's authors brought national attention to the issue. Entrepreneurship behind the scenes by mid-level health officials made the issue an ongoing priority.

The new health minister had longstanding ties with the head of one of Honduras' seven health regions. The minister was assembling a new team in the capital and asked the regional head to serve as director of the maternal and child division. The official agreed on the condition that he would have direct access to the minister, even though several levels of bureaucracy stood between the two men. The minister assented to the request.

As he took up his new post in September 1990, the official paid careful attention to the published study, taking advantage of his access to the minister to convey to him the seriousness of the country's maternal mortality problem and the need to make safe motherhood a policy priority. He then employed his close ties with the minister, other health officials and donors to lead an effort to mobilize the health system in service of the safe motherhood cause. He formed a working group that devised national strategies, engaged regional health bureaucracies and organized donor resources and expertise.

This working group became the unofficial centre for national safe motherhood efforts. Meeting regularly over several years and at certain points on a weekly basis, the group included members of the Ministry's division of maternal and child health, the initiator of the maternal mortality study from PAHO, and local representatives of USAID, UNFPA, UNICEF and other donors and agencies. The group produced a national plan of action for maternal mortality reduction for the period 1991 to 1995, adopting many ideas from PAHO's 1990 regional plan, while tailoring them to fit local circumstances (AHPF and HMPH 1991).

The group also embarked on an effort to mobilize regional health bureaucracies in service of safe motherhood. As a former regional health leader, the official was aware of the many health problems his colleagues had to face with limited resources, and of the challenge he therefore confronted in convincing them to prioritize safe motherhood. For this reason, members of the working group travelled to each of the regions, spending a week or more with leaders, hospital directors and other officials involved in safe motherhood, presenting the results of the study, persuading them of the seriousness of the problem, and facilitating the creation of local action plans. The existence of the 1990 study proved to be a powerful tool in generating regional attention as it provided credible evidence that a problem existed. The official and colleagues also organized annual, national safe motherhood evaluation meetings, bringing together officials from throughout the country to review progress and develop future plans. When some regional heads were still reluctant

to make safe motherhood a priority, the official informed their superior, the minister, who spoke to them directly.

Donors provide resources for safe motherhood

These advocacy efforts may have had limited impact had they not been backed by financial and technical resources. In this respect existing donor commitment to safe motherhood and the participation of their local representatives in the working group proved crucial.

The only major safe motherhood intervention funded primarily from the central government health budget was the training of several thousand traditional birth attendants. Local governments provided some additional resources and donors many more. USAID supported maternal mortality reduction through a renewal of a grant to the country, providing a further US\$57.3 million to the health sector between 1988 to 2000 (USAID 1988) and sponsoring a mid-term evaluation of the grant that recommended safe motherhood be the country's top health priority (Population Technical Assistance Project 1998). UNFPA approved new funding for Honduras for 1991 to 1995, including a sub-programme on reproductive health and the health of mothers (Almanza-Peek 1998a,b), providing nearly half a million dollars for reproductive health projects in two regions of the country. The Honduran office of PAHO offered technical expertise, receiving financial backing from the Netherlands and other donors (Martinez 1994). The World Bank financed a Honduran Social Investment Fund that provided financing for safe motherhood (Martinez 1994). A Swedish-assisted initiative, termed 'Project Access', carried out health system decentralization in order to increase access to facilities for the poor (Population Technical Assistance Project 1998). Other donors that provided financial or technical assistance for safe motherhood included the Germans, the Canadians, the Spanish, the European Union, UNICEF and the Latin American Center for Perinatology in Uruguay.

Donor efforts at the regional level in the Americas also helped to sustain political priority and the capacity of the Honduran health system to carry out safe motherhood programmes. In 1991, PAHO, UNFPA, UNICEF, USAID and the IDB formed an inter-agency committee to work to institutionalize commitment to safe motherhood and other health initiatives throughout the region (PAHO 1996). Representatives of the Honduran government participated in a Central American launch of the global safe motherhood initiative in 1992. Encouraged by PAHO, the spouses of heads of state in the Americas region, including the Honduran first lady, made safe motherhood a central topic of attention at their annual meetings from 1993 on (PAHO 2000). With U.S. first lady Hillary Clinton playing a central role, the spouses backed a USAID and PAHO regional safe motherhood initiative begun in 1995 to upgrade emergency obstetric care facilities in high maternal mortality settings (PAHO 2002a). Honduras was one of three priority countries (PAHO 2002b) and received additional funding for this purpose.

Outcomes

These Honduran government and donor efforts resulted in substantial expansion of the country's health and safe motherhood infrastructure, with resources concentrated in those regions identified by the 1990 report as having the highest levels of maternal mortality. Between 1990 and 1997 seven new area hospitals were opened, 13 birthing centres, 36 medical health centres and 266 rural health centres (Danel 1998, p. 5). The number of doctors rose 19.5%, the number of professional nurses 66.4% and the number of auxiliary nurses 41.9% (from Ministry of Public Health statistics, cited in Danel 1998). In 1993 and 1994 half of the country's approximately 11 000 traditional birth attendants were trained in the reproductive risk approach (Martinez 1994). Community leaders developed censuses of women of reproductive age (AHPF and HMPH 1991) and health workers lists of pregnant women (Danel 1998, p. 11). Health centres organized community groups to support educational programmes directed at pregnant women (Martinez 1994). The Ministry of Health published the Norms for the Integrated Care of Women employed at health facilities throughout the country (Danel 1998).

Access and utilization by Honduran women of safe motherhood services increased markedly over this period. Antenatal care increased and became increasingly professionalized with smaller proportions of women relying only on traditional birth attendants for care during pregnancy. Use of antenatal care with a medically trained professional increased from 72%

around 1990 (AHPF and HMPH 1991) to 85% in the late 1990s (HMPH et al. 2001). Institutional delivery rose from 45 to 61% over this same time period (HMPH et al. 2001), with increases particularly evident in rural areas (HMPH et al. 1989, 1996, as reported in Danel 1998). Likewise, caesarean sections, the most common life-saving procedure among emergency obstetric care practices, increased to 8%, with rural rates reaching nearly 5% in 1998 (Figure 1).

In 1997, a second national RAMOS study was conducted on the country's maternal mortality levels (Meléndez et al. 1999). The same official who organized the first study again secured donor funding for the second, and once more the results drew the attention of health officials. The investigation revealed a maternal mortality ratio of 108, indicating a significant decline from the 1997 ratio of 182. The report provided strong evidence that increased access to maternal health care played a role in this decline (Danel 1998). For example, whereas a third of maternal deaths occurred in hospitals in 1990, more than half occurred in hospitals in 1997. Dystocia, or prolonged labour, for which effective care can often be provided within 24 hours or more, basically disappeared as a cause of maternal death (decreasing from 4% in 1990 to less than 1% of maternal deaths in 1997). In contrast, haemorrhage, which requires immediate medical attention, remained the leading cause of maternal death in 1997, but was substantially reduced in numbers and a higher percentage of these deaths occurred in hospital. Finally, the reductions in maternal mortality and the percentages of maternal deaths shifting from home to the hospital are apparent in the

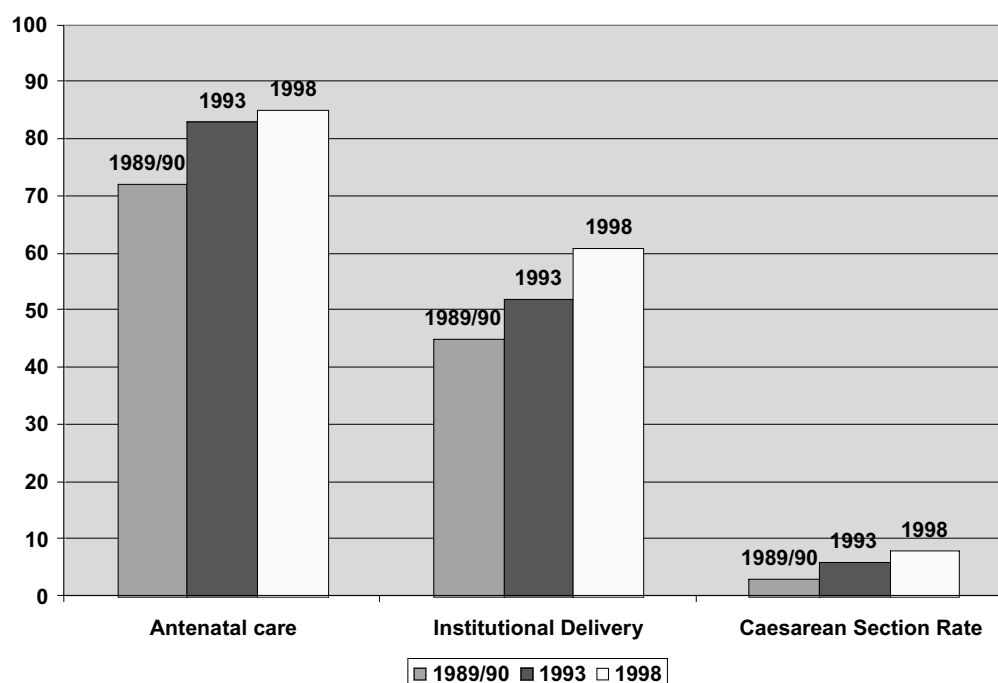


Figure 1. Honduran safe motherhood process indicators: percentage of births in last 5 years to women 15–44 years with at least one antenatal care visit with medically trained personnel, percentage with an institutional delivery and caesarean section rate
Sources: AHPF and HMPH (1991), HMPH et al. (1996), HMPH et al. (2001).

metropolitan area of Tegucigalpa, as well as in the most disadvantaged regions of the country (Meléndez et al. 1999) Although disparities in maternal mortality and access to care remained in 1997, these results suggest that Honduras made important strides in making effective maternal health care available to a broad section of the population.

As noted above, political and health infrastructural developments were taking place globally and in Honduras well before 1990, so it is unlikely the decline was solely a function of activities taken in the time period between the two studies. Also, there are no reliable data prior to 1990 on the country's maternal mortality levels, so we cannot discern trends in periods prior to that year. This being said a change from 182 to 108 represents a decline of 40% in just seven years, a difference rarely seen in the developing world over such a short time span, strongly suggesting the impact of activities undertaken between these years.

Discussion

Political science theory and the case of safe motherhood in Honduras

Between 1990 and 1997 domestic health officials and international donors cooperated to institutionalize safe motherhood as a policy priority in Honduras, resulting in successful policy transfer, implementation and impact on maternal mortality levels. The political science literatures reviewed above – constructivism, policy transfer and agenda setting – help to identify the factors behind these successful outcomes.

Constructivist theory suggests that states may be socialized into particular policy preferences by virtue of their participation in international society. The Honduran state was socialized in this way. Beginning in the late 1980s and continuing through the 1990s international organizations prioritized maternal mortality reduction, facilitating the creation of a global norm that maternal death in childbirth is unacceptable and that states must act to address the issue. The Honduran government was influenced to embrace the norm through two concurrent processes. First, Honduran officials were members of a number of international organizations that prioritized safe motherhood. In particular the Honduran government actively participated in PAHO, which urged its member states to pay attention to the cause. Through participation in these and other forums, Honduran government officials came to learn of and pay attention to the issue. Secondly, these same organizations had local presence in the Honduran capital. Their representatives, many of whom were Honduran nationals, interacted with Ministry of Health officials, and a number jumped back and forth between positions with the donor agencies and the Ministry. These individuals served as conduits of priority, linking transnational and national forces.

Constructivist-influenced scholarship also suggests that certain kinds of international and domestic structures will facilitate the capacity of transnational actors to influence domestic policy priorities. Powerful international institutions concerned with safe motherhood were linked in a tight

network, including the World Bank, WHO, USAID and UNFPA. The network provided a conduit for the influence of international safe motherhood advocacy on the Honduran state. Also, the Honduran state provided a receptive environment for such influence. It was not politically fragmented or unstable like its neighbours, it had developed a solid health infrastructure over several decades, and it had prioritized maternal health since the late 1960s. Each of these conditions facilitated transnational influence and increased the likelihood of domestic support for the cause.

Another facilitating factor was the emergence of shared decision-making authority between domestic and international officials. This was not a case of international donors wielding financial resources to push particular policy alternatives on a supplicant, uninterested state. On the contrary, a working group linking domestic health bureaucrats and representatives of international and donor organizations in a cooperative relationship emerged as the unofficial centre of national safe motherhood efforts. The group included representatives from the Ministry of Health, bilateral donors and United Nations organizations. It shared resources, coordinated strategy, worked collectively to promote priority for the cause across the country, and facilitated adaptation of global safe motherhood policies by encouraging local governments to develop contextually-relevant implementation strategies.

Three factors identified in agenda setting scholarship also were influential. International *focusing events*, particularly the Nairobi conference, placed safe motherhood on the global health agenda. Regional focusing events, including a safe motherhood conference in Guatemala, raised the issue onto the Central American agenda. Domestic focusing events, including media conferences publicizing results of the 1990 Honduran maternal mortality study, facilitated the rise of the issue onto the national agenda. Also, this study produced a *credible indicator* – a high maternal mortality ratio – which revealed levels of maternal death far higher than expected, sparking alarm in the political system. In the absence of such evidence, advocates would have had difficulty promoting the cause. Finally, the Honduras PAHO representative and his colleagues acted as *political entrepreneurs*, organizing the 1990 RAMOS study, deliberately publicizing the results to convince key health officials that the country faced a serious problem, and allying themselves with donor officials to mobilize the health system in service of the safe motherhood cause. They worked as forces behind the scenes pushing to ensure priority was institutionalized in the political system.

In sum, constructivist, policy transfer and agenda setting constructs help us identify the factors that underpinned successful policy transfer and implementation:

- (1) the effective socialization of the Honduran state into global safe motherhood norms;
- (2) favourable international and domestic mediating structures, particularly a strong international safe motherhood policy network and domestic political stability, that facilitated policy transfer;

- (3) shared power by domestic and international officials that facilitated local embrace of the cause and contextually relevant policy adaptation;
- (4) the organization of attention-generating focusing events that gave visibility to the cause internationally and domestically;
- (5) the existence of a credible indicator to mark the severity of the problem; and
- (6) political entrepreneurship by national health officials to institutionalize domestic priority for the cause.

Study limitations, further research and implications for public health strategy

Our case study design involving a single country and health policy issue enables us only to raise questions and suggest answers, not to provide definitive conclusions. The governments of many nation-states were exposed to and participated in the creation of a global norm concerning the unacceptability of maternal death in childbirth. Only a handful such as Honduras embraced the norm and acted decisively to address the problem. We have explained the divergent reaction by considering a set of transnational-national linkages and domestic political factors. In the absence of comparative inquiry we cannot be certain that the factors we point to were the primary causal forces.³ There is a need for further research that considers multiple states and health policy issues in order to assess the validity of these causal claims, and to discern systematic features of health agenda-setting processes. Among the issues that should be investigated are:

- (1) What kinds of focusing events shape policy attention for health causes? What are the features of focusing events that give them agenda setting power?
- (2) Under what conditions do indicators have agenda setting power? Under what conditions do they fail to have impact?
- (3) Under what circumstances can/do domestic political entrepreneurs make a difference? What is it they do that makes a difference?
- (4) What features of international health policy networks give them the capacity to influence domestic health priorities? In particular, what is the relationship between network structure and the power to influence?
- (5) As donor-government relations in health are so frequently contentious, under what circumstances is productive cooperation likely to emerge?

The latter question is particularly important and little investigated. The authority of the Honduran working group highlights the fact that the forces shaping priority for safe motherhood in Honduras were not unidirectional, flowing from international to domestic actors alone. Influence moved in both directions, merging as members acted collectively to address the country's safe motherhood problems. Moreover, in some instances the boundaries between the international and national were indistinct. How should we characterize the official who organized the first maternal mortality study? Was he a representative of the international organization, PAHO, who employed his organizationally derived authority to

shape the behaviour of the Honduran state? Or was he a Honduran citizen who utilized his position in PAHO to generate resources for an existing national policy priority? And what was the status of this working group of which he was a part? It included Honduran nationals, some of whom were employed by the government and others by international donors, as well as nationals of other countries, all working together for the objective of reducing maternal mortality in the country. As they engaged in this initiative, they formed a collectivity defined not so much by nationality or organizational affiliation but by cause.

The nature and authority of these locally situated nodes of linkage between international and national forces remain largely unexplored. These deserve considerably more attention for at least three reasons. First, they may be more common than imagined and hold considerable influence over national health priorities in many developing countries. Secondly, their very existence presents a challenge to a basic presumption in constructivist, policy transfer and agenda setting theory that there exists a neat demarcation between the 'international' and the 'national'. In these working groups these two categories may be fused, and in some instances meaningless. Thirdly, their emergence may help explain why policy transfer and implementation proceed effectively.

This latter point may be the most significant lesson that emerges from the Honduran case for health agenda setting in developing countries. Many relationships between international health policy networks and developing world health bureaucracies are fraught with tension. Often donors, wielding control over resources, have sought to impose their priorities upon bureaucracies without considering local interests, the capabilities of domestic bureaucrats, the need for policy adaptation, and the considerable national political manoeuvring that must take place in order to institutionalize a health cause as a domestic priority. It is rare that overseas donor or health network officials have the legitimacy or expertise to pursue such political manoeuvring successfully; that capability, if it exists, almost always resides in the hands of domestic bureaucrats and political officials. While many factors shape the agenda-setting process, as dozens of international health policy networks compete for attention, it may be those that are willing to hand over a measure of control and forge alliances with domestic bureaucrats that stand the best chance of having their causes institutionalized.

Endnotes

¹ Since a 1987 global safe motherhood initiative was launched, the only other case of a documented major decline in a poor country confirmed by two Reproductive Age Mortality Studies (RAMOS) is Egypt, which had a maternal mortality ratio of 174 in 1992 and 84 in 2000 (Ministry of Health and Population, Egypt 2001). Historically, there are a handful of developing countries that have experienced documented declines, including Sri Lanka and Malaysia (Pathmanathan et al. 2003), and China (Koblinsky 2003). More recently, a number of countries with moderate levels of maternal mortality around 1990 have documented further declines over the following decade, including Uzbekistan, Azerbaijan, Argentina, Cuba, Costa Rica and Chile (WHO et al. 2001).

² Other publications have reported a maternal mortality ratio of 220 for 1990. The figure 220 came from the 1990 study, but was

the pregnancy-related mortality ratio: the number of deaths per 100 000 live births occurring to women during pregnancy, childbirth or the postpartum period, but not necessarily causally related to the pregnant state. The maternal mortality ratio based on the definition of maternal death in the International Classification of Diseases (Revision 10), also reported in the study, is 182.

³ It should be noted that a number of the factors identified here were also influential in Indonesia (Shiffman 2003), providing additional evidence for their causal power. These include the availability of a credible indicator showing that a problem existed, effective political entrepreneurship and the organization of attention-generating focusing events. Also, there as in Honduras, a relatively stable political system and the development of a national health infrastructure made it possible for international and domestic safe motherhood advocates to promote the cause.

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Acknowledgements

Research for this article was made possible through a grant from the Bill and Melinda Gates Institute for Population and Reproductive Health of the Johns Hopkins Bloomberg School of Public Health. Funding from the Institute is gratefully acknowledged. The authors would like to thank Jessica Hughes for her valuable research and translation assistance. The authors would also like to thank the many donor and government officials who were generous with their time and insights, and without whom it would have been impossible to evaluate the Honduran safe motherhood experience.

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3. The ethnographic lens

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While 'ethnographic' has mistakenly come to be used as a blanket term to refer to various qualitative methods, ethnography is more accurately seen as a particular methodology. The term refers to both a research approach (literally, 'writing about people') as well as the written product of the research (such as a text, report or book). It represents a defining moment in anthropology, the point at which scholars abandoned the 'armchair' in favour of fieldwork to capture the totality of social life in an alien setting. The classical approach to ethnography generally involves lengthy periods of fieldwork, immersion in the 'everyday life' of a chosen setting through observation, interaction, talking to members of the particular social world being studied, and looking at documents or artefacts. The written account is a synthesis of the researcher's impressions recorded as fieldnotes, observations or interview data – sometimes handwritten, but increasingly captured with the help of recording devices. Perhaps because of the tensions involved in being a participant-observer, as well as the open approach to what constitutes 'legitimate knowledge' (Savage, 2000:1401), ethnography has raised more concerns than any other form of social research regarding the problem of 'representation', i.e. the way in which researchers choose to depict the 'reality' of people's lives and give voice to their subjects.

Classical ethnographic approaches are rare in applied health research not only because of the constraints on time, and practical feasibility, but also because they do not resonate with the positivist framing of most health-related study designs. However, the various genres of 'traditional' ethnography that have been conducted by medical anthropologists and sociologists offer important insights for understanding health policy and systems issues.

First, ethnographies that have followed the life, or lives, of individuals and groups affected by a particular health condition have developed our understanding of how and why people are enabled (or hindered) in their efforts to make effective use of services and manage their conditions. For example, recent work has examined how people living with a condition draw on a collective 'biosocial' identity to formulate claims to treatment, compensation, and other social resources. In the case of HIV, some have argued that this form of 'therapeutic citizenship' has directly affected policies around access to treatment as well as the delivery of HIV care (see Nguyen, 2008).

Second, ethnographies that have explicitly focused on practitioners and their professional socialization within health systems provide important insights into the feasibility of health systems interventions that assume (or introduce shifts in) particular professional hierarchies or working arrangements. One focus has been to examine how working environments and workplace dynamics shape provider identities and interprofessional collaboration. For example, attention has been paid to the often complex working relations between nurses and clinicians (Fitzgerald, 2008) as well as to the working 'cultures' of less visible cadres of health staff, such as 'peons' (Justice, 1986).

Third, a number of classical ethnographies have focused on organizations. Stemming from the work of a feminist sociologist (Smith, 1987), such studies aim to examine how work activities shape and maintain the institution, analysing the ideological procedures that make these work processes accountable and exploring how work processes are connected to other social processes. Here, the ethnographic lens allows a nuanced analysis of organizational culture and dynamics, a means of identifying, for example, how "... the organization's formal structure (its rules and decision-making hierarchies) are influenced by an informal system created by individuals or groups within the organization" (Savage, 2000:1402). Examples include hospital ethnographies (for example, Van der Geest & Finkler, 2004) and project ethnographies (for example, Evans & Lambert, 2008) that examine the

contexts within which policies formulated at a national or international level play out in the context of local institutional codes of practice.

Finally, ethnographies have also focused on controversies or debates in order to bring to light the tensions between rhetoric and practice in health systems relationships. Taylor, for example, one of the first to undertake an ethnography of a health system, uses a controversy over resource allocation in a Scottish archipelago to make visible the ways in which "... different groups formulate and pursue their interests both within and outside of the formal structure of the local health care system" (Taylor, 1977:583).

Although there are very few extensive ethnographies of biomedical practice and health systems in low- and middle-income (LMIC) settings, anthropologists have explored 'biomedical' or 'Western' health care ideology and practices within discussions of medical pluralism, for example in South Asia (see, for example, Leslie & Young 1992). Classic ethnographies have also examined the ideas of the 'great' traditions of institutionalized non-allopathic medical traditions (for example Ayurveda and Chinese medicine) or the realm of 'traditional healing', as opposed to everyday 'practiced medicine' (Khare, 1996). Important insights regarding the historical and structural bases of Western medical policies and systems and health care organization in LMIC settings can be gleaned from ethnographies of colonial medical systems (for example see Allen, 2002). Additionally, there are a limited number of ethnographies on global health policies as introduced in local contexts. An excellent early example is provided by Judith Justice's (1986) ethnography on international health bureaucracy in Nepal that examines the context of policy-making and implementation for an initiative known as the Integrated Community Health Programme. Whiteford & Mander-son's edited volume (2000) also provides a good range of rich case studies of the gaps between the world of global health policy-making and local implementation within specific social, political and health systems contexts.

Health policy and systems researchers can benefit from reading classical ethnographies to better understand the theoretical framing, social, political and historical contexts of policy formulation and critical assessments of how policies translate in local health systems. At the same time, an ethnographic approach can be used in time-limited studies to allow for a more in-depth, rich, and nuanced analysis of the relationships between power, knowledge, and practice in health systems – and how the introduction of changes (in the form of interventions and initiatives) may "... generate different and often unexpected results in different circumstances [helping to] identify system dynamics and their key outcomes, which may not be apparent at the outset." (Huby et al. 2007:193). An ethnographic lens is, therefore, useful in studies seeking to explore and explain health policy and systems experiences.

Rigour in adopting an ethnographic lens

Three key methodological characteristics underpin the rigour of the ethnographic lens as applied within HPSR studies. First, such studies adopt methods that are open-ended, in-depth and flexible in order to capture multiple dimensions of how things work (or don't work) in 'real time' and with privileged attention given to the perspective and experiences of those being interviewed or studied. Some researchers specifically triangulate methods to improve validity, but also to explore diverse perspectives in the data. Second, their analysis is interpretive, seeking to situate the meaning of particular health policy and systems 'practices' in social, political and/or historical context. Third, to address the challenge of representation, they adopt a reflexive position vis-a-vis their areas of inquiry, that is they explain how their own position as researchers and participant-observers (in some cases) help to shape their areas of interest, the questions they posed and their interpretive lens.

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Overview of selected papers

The selected papers provide examples of work conducted by social researchers who have adopted ethnographic approaches and methods in their work on policy-making, disease control programmes, 'routine' health systems practices and provider dynamics in low-income settings.

- Aitken (1994) examines the implementation of provider training activities in Nepal and shows how the values providers demonstrate in their daily actions (values in use) shape their engagement with these activities and undermine the performance improvements that they are expected to achieve.
- Behague & Storeng (2008) examine global policy debates around vertical and horizontal approaches to maternal health care provision and evidence-based policy-making, teasing out the underlying epistemological positions and relevance for policy and advocacy.
- George (2009) examines routine human resource management and accountability practices in Koppal state, India, showing how a complex web of social and political relations among different actors in primary health care influences local understandings and channels of accountability.
- Lewin & Green (2009) explore two sets of common rituals in South African primary health care clinics – Directly Observed Therapy for tuberculosis and morning prayers – in both of which nurses and patients participate, showing how these different rituals serve to reinforce traditional power relationships between providers and patients.

References for selected papers

Aitken JM (1994). Voices from the inside: Managing district health services in Nepal. *International Journal of Health Planning and Management*, 9(4):309–340.
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George A (2009). By papers and pens, you can only do so much: views about accountability and human resource management from Indian government health administrators and workers. *International Journal of Health Planning and Management*. 24(3):205–224.
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Lewin S, Green J (2009). Ritual and the organisation of care in primary care clinics in Cape Town, South Africa. *Social Science & Medicine*, 68:1464–1471.
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Collapsing the Vertical–Horizontal Divide: An Ethnographic Study of Evidence-Based Policymaking in Maternal Health

Dominique P. Béhague, PhD, and Katerini T. Storeng, MSc

Using the international maternal health field as a case study, we draw on ethnographic research to investigate how public health researchers and policy experts are responding to tensions between vertical and horizontal approaches to health improvement. Despite nominal support for an integrative health system approach, we found that competition for funds and international recognition pushes professionals toward vertical initiatives. We also highlight how research practices contribute to the dominance of vertical strategies and limit the success of evidence-based policymaking for strengthening health systems. Rather than support disease- and subfield-specific advocacy, the public health community urgently needs to engage in open dialogue regarding the international, academic, and donor-driven forces that drive professionals toward an exclusive interest in vertical programs. (*Am J Public Health*. 2008;98:644–649. doi:10.2105/AJPH.2007.123117)

Debates about vertical versus horizontal approaches to health improvement have a lengthy unresolved history in public health.¹ Vertical approaches are generally disease specific and promote targeted clinical interventions delivered by a specialized service. Horizontal approaches, by contrast, tackle several interrelated health issues by strengthening health systems and developing integrated delivery systems.^{1–3}

Despite prolonged efforts to combine vertical and horizontal approaches, vertical programs have dominated and are often found competing with one another for funds and professional recognition.^{1,4,5} Authors have warned that disproportionately concentrating funds into disease-based initiatives in developing countries may compromise health systems and fragment complex interventions.^{6,7} An increasingly popular compromise approach is to devote general health resources to a limited package of interventions prioritized on the basis of cost-effectiveness. This approach has thus far failed to enable synergy between vertical and horizontal approaches.¹

One reason for continuing tensions relates to the difficulty of producing evidence of effectiveness for evidence-based policymaking in a wide array of social, political, and health system contexts.⁸ Critics claim experimental research, originally developed to assess the effect of targeted clinical interventions on a

measurable outcome, is unsuitable for investigating the population-level, nonclinical, and context-specific health system domains.^{9–12} In response, authors have begun calling for non-experimental epidemiological methods and an interdisciplinary approach.^{13–17}

Professionals in the international maternal health subfield are currently grappling with how to improve vertical and horizontal synergy.^{18–20} This has led to lively debate on the role of evidence production. Whereas some call for the scientific rigor of randomized controlled trials,^{21–24} others claim that using randomized controlled trials is misplaced because of the complex health systems needs of maternal health interventions.^{25–28}

Using the subfield of maternal health as a case study, we explore 2 questions: What are the main challenges faced in bringing vertical and horizontal approaches together? What are the social and epistemological factors that constrain researchers from producing evidence for synergistic vertical and horizontal policymaking?

METHODS

Our research focused on debate at the international level because of our interest in developments that are critical to the field's overarching reputation and identity. Conceptually, we explored how the maternal health

field has emerged as a coherent and recognizable network of specialist actors, technologies, and ideas.^{29,30}

We triangulated 3 methods—open-ended, in-depth interviews; participant observation; and review of published and gray literature documents—to improve the validity of findings and explore diverse perspectives.³¹ We interviewed a total of 67 professionals (Table 1), identified opportunistically through professional networking, publications, and conference proceedings. Of 67 informants, 19 were from developing countries. Many informants had experience working in multiple domains of public health.

Interviews followed a semistructured guide to explore definitions of evidence and evidence-based policymaking, professional experiences with production and use of evidence for policymaking, historical shifts in policy, debates around integration and health systems strengthening, and relationships with donors. Using an inductive process, we modified the interview guide to reflect concerns that emerged during data collection.³¹

We conducted participant observation within academic settings, as well as at 15 research meetings, academic conferences, and policy meetings. Of these, 8 were not specific to maternal health but focused on general public health or child, neonatal, or reproductive health. All informants were interviewed formally once, although participant observation enabled repeated contact with many of the informants. Because key players in the field often represent their views via publications, we used published and gray literature as forms of ethnographic data.

We transcribed interviews verbatim and stored and organized them in NVivo7 version 7.0 (QSR International, Cambridge, Massachusetts). Both authors read the interviews and notes taken during participant observation and carried out thematic analysis independently. No significant discrepancies in identified themes and analytic conclusions were found.

**TABLE 1—International Interview
Participants: October 2004–June 2007**

	No. of Participants
International academic researchers	19
UN agency representatives	10
Donor body representatives	8
International NGO representatives	16
National-level researchers	8
National-level policy experts and program managers	6
Total	67

Note. UN = United Nations; NGO = nongovernmental organization.

RESULTS

Horizontal Versus Vertical Programmatic Approaches

Over the past 20 years, the maternal health field has undergone 2 significant conceptual shifts, first toward and then away from vertical approaches. In 1987, the launch of the Safe Motherhood Initiative aimed to separate maternal health from child health to highlight the much neglected issue of maternal mortality.³² Although the field of maternal health is still considered by some to be weak, this initiative has succeeded in rallying support for maternal mortality and in garnering support for vertical interventions, such as antenatal risk screening, training traditional birth attendants, and providing emergency obstetric care.^{19,33}

Maternal health specialists have also increasingly recognized that vertical interventions cannot be delivered without a functioning health system. By definition, this implies integration of vertical interventions used within maternal health and greater collaboration with other subfields.^{14,20,27,33} Support for this position has resulted in widespread interest in coordinating initiatives, reflected most recently in the merging of 3 separate partnerships into the Partnership for Maternal, Neonatal, and Child Health.^{13,34–36}

In interviews, we asked informants to reflect on the implications of this history for improving vertical–horizontal synergy. The most prominent issue informants mentioned

was the pressure to support vertical approaches because of an intense sense of competition between subfields. As one informant stated:

The maternal health field really competes against other fields for money. And other fields, like the big spenders—malaria, HIV/AIDS, even child health—have a better record of promoting evidence-based interventions. Maternal health might be at risk of being left behind, because if you miss the target too often, with traditional birth attendant training, then risk screening, you create donor fatigue.

Anxieties around how donors view the relative importance of health problems were paramount. “All fields have that anxiety,” said one policy expert. “Maternal health had its heyday, and newborn health is now having its heyday. They’re all scared they won’t get the attention and money they had before.” Several informants claimed that integration, although theoretically sensible, would in actuality divert funds and policy attention from maternal health. As one academic stated, “I think the jury is out on whether [the fields will integrate] or whether one will get sucked into the other’s agenda and get lost.” The lack of funds for strengthening comprehensive health systems added to the view that strategies being promoted in related subfields such as child and neonatal health counter those needed in maternal health.

In general, the greater the sense of competition and threat, the more liable informants were not only to reject integration but also to endorse the view that a focused vertical approach is more effective in capturing the attention of funders and policymakers.

Informants demonstrated academic support for this position by making reference to policy studies (in particular, Schiffman³⁷) that have highlighted the importance of maternal health-specific “focusing events” and “political champions.” Making comparisons with global programs such as Integrated Management of Childhood Illnesses, these informants highlighted the need to establish a simple and unifying set of policies that is easy to market to politicians and donors. One such policy expert argued that maternal health’s “very sad history” could be attributed to “a failure of strategy” and that “the question [now] is whether this constituency can get its act together and push more effectively.”

By contrast, a minority of informants felt that the “attention-seeking strategies of vertical initiatives such as [Global Alliance for Vaccines and Immunisation and] Roll Back Malaria” were disempowering because they alienated subfields from one another and fragmented initiatives within each subfield. These informants explained that maternal health experts have attempted to bolster the field’s reputation by searching for a single targeted vertical intervention, or “magic bullet,” that would appear to be globally applicable and feasible to donors and governments.

The search for a single intervention was not only reductionistic, some argued, but contributed to infighting and the constant shifting of proposed vertical interventions, from training traditional birth attendants to antenatal care to emergency obstetric care, each vying for policy attention. Such dynamics resulted in the splintering of what could be a comprehensive community and facility-based health systems approach into specific targeted sub-components, or, as one policy expert described, isolated “bits of the jigsaw puzzle.” These informants claimed that the search for new, targeted vertical solutions ironically had the opposite effect than originally intended. Rather than boost the field’s reputation, the picture that emerged to donors and governments was that of an uncoordinated and divisive group.

The Role of Researchers and the Limitations of Current Evidence-Based Models

Polarization of academic researchers and policy experts. Our second research question examined the factors that constrain researchers from producing evidence that enables synergistic vertical and horizontal policymaking. Our results indicate that researchers were hindered by a detrimental polarization that positions the academic community in stark opposition to a group we termed policy experts. In broad terms, this group includes professionals from UN agencies, international nongovernmental organizations, and developing country governments.

Our informants’ attention to this polarization reinforced opposing views regarding the relative importance of advocacy and program development versus research for ensuring the field’s survival. In general, researchers felt policy experts were more deeply involved in the

process of advocating for political and financial investment in maternal health. Researchers reluctantly accepted the need for such advocates, even if what they espoused was empirically unfounded. One informant claimed,

There would not be a penny of funding if people listened to me. . . . I'm too negative. Some people are good spokespersons for Safe Motherhood. [They] will stand up and say things; they know there is no data behind it, but they will keep saying it. And it gets the work done.

Other researchers went further, claiming that the field's failures relate directly to an insufficient "evidence-based approach" that was partially caused by advocates' "militant" style. As one interviewee noted,

When people became aware of the M in MCH [Maternal and Child Health], the field was dominated by people on a mission, and while it is good to have such people, because they are the ones who attract attention and bring money, if it is too exclusive, you will miss the scientific rigor and skepticism.

In contrast to this critique, policy experts frequently held researchers responsible for paralyzing action and political will by emphasizing the scientific uncertainty of the current evidence base. These informants claimed that research often directly contradicted policy experts' need to persuade donors of the importance of maternal mortality and suitability of a particular programmatic approach. As one informant highlighted,

The big challenge is that there's uncertainty no matter what. And policymakers have to deal with uncertainty. When it's uncertain, the retroscope is going to prove that you were wrong in your efforts to be certain. Policymakers can't sit on the fence. Researchers can.

Some policy experts even claimed that investing resources in effectiveness research would undermine the field by diverting attention and funds from much-needed programs. As one senior policy expert described,

This field has been so contentious because there hasn't been enough money. If [only] there had been money to do both research and [develop] programs in the way that child health has had money. . . . This contentiousness causes donors to turn around and run in the opposite direction, so it's a vicious cycle.

At the same time that informants put forth such dichotomizing statements, several researchers were well aware that tensions between research, advocacy, and policymaking needed to be assuaged for the sake of the field's professional coherence and future success. In response, some researchers explicitly devoted considerable attention to what they termed "advocacy research," such as estimating the global magnitude of maternal health problems compared with other diseases. Researchers highlighted the political importance of this work, even if some claimed this type of research does not answer analytic questions relating to programmatic development and evaluation.

Policy experts and researchers are clearly in a mutually interdependent, if tumultuous, relationship. When asked to reflect critically on this relationship, informants often made reference to the rapidly expanding body of literature on communication problems between academic researchers and policy experts.³⁸ Indeed, several respondents felt that these difficulties were at the core of failed effectiveness for evidence-based policymaking and argued for improved communication channels, more effectively disseminating new evidence, and capacity building for each respective group.

Diverting attention from questions of epistemology. Although important to elucidate, the intensive focus on improving communication diverted our informants' attention from engaging with epistemological questions relating to evidence-based health system policymaking. Despite growing debates regarding the limitations of current epidemiological methods for health systems questions, few informants spontaneously engaged in discussions about research models. Rather, several repeatedly espoused the superiority of the randomized controlled trials design for providing definitive proof of the causal relationship between intervention and outcome, irrespective of the type of intervention being evaluated. With the randomized controlled trial, said one statistician, "you don't need to understand how the interventions work" to establish its relative advantage. Another claimed that

no design can [control confounding] as the randomized controlled trials. One should probably always aim at doing randomized controlled tri-

als. If you want to deviate from this rule you should have very good reasons.

It was only after prompting informants to describe specific instances involving the use and interpretation of evidence for policy that issues relating to the limitations of experimental research emerged. Core to these discussions were the logistical, ethical, and analytic difficulties of conducting effectiveness research on horizontal approaches. As one informant explained,

Designing a study for skilled attendance at delivery is [very difficult] because how the hell do you do a trial of a midwife versus no midwife or a midwife versus a traditional birth attendant? It becomes a very difficult medical and organizational dilemma. Do you get women to deliver at home and women to deliver at hospital?

Informants interested in health systems questions (e.g., budget support and human resource strengthening) expressed frustration at the scientific method's inability to adequately research these topics. As one informant argued,

It's really hard to measure the impact, you know, what are you measuring? And the line of attribution [from budget support] down to improvements in maternal health outcomes is also difficult.

According to many informants, resistance to the Partnership for Maternal, Neonatal, and Child Health's promotion of the continuum of care approach is based largely on difficulties relating to affect evaluation:

If you want to say the continuum of care is the answer, how do we validate and monitor that? How do we say it was proven to work, what are the outcomes, how many lives are saved?

Despite such frank discussions, most informants rarely questioned their own epistemological positions or ventured into new methodological and disciplinary arenas. Rather, they modified their research questions—specifically, the types of interventions being tested and the units of analysis used—to suit an experimental or quasi-experimental design. Most often this meant avoiding questions relating to health systems strategies and focusing on vertical clinical interventions, such as the effect of calcium supplementation or oxytocin administration. These informants explained

that clinical research will always be relevant to policy and that such research allows them to carve out their own area of expertise and publish successfully.

Other informants more committed to studying health systems issues attempted to overcome the limitations of experimental study designs by testing only a single subcomponent of a larger health systems package. Examples include the effect of road construction or introducing mobile phones and ambulances on health utilization rates. As one informant explained, conclusively evaluating complex multi-component interventions is such a challenge that “people are avoiding those kinds of studies and instead proposing studies like ‘what if we put an ambulance in the villages? Will that do it?’” However, as another informant aptly summarized, the practical implications of using the randomized controlled trials for multicomponent interventions are tremendously complex:

To do a [sic] good randomized controlled trials, you have to ask a very narrow question. There isn't enough money in the world to answer all the questions with randomized controlled trials. So people say, ‘we'll put three things together that we think work and then we'll test that against no change.’ But it's highly unlikely that all of [the components] are equally cost effective or that you need all to be synergistic. You could take a few and get the same amount of change. . . . Your hypothesis could be that it's any one or the combination of factors or even some synergy about using certain ones together. To test all those combinations is impossible!

Reasons for the predominant research focus on vertical interventions. The normative power of scientific values surely persuades researchers to abide by experimental designs. However, informants highlighted other important reasons for the predominant focus on experimental studies of vertical interventions. Results from studies that clearly demonstrate the effectiveness of a single specific subcomponent were said to generate consensus, to be easier to disseminate to policy experts, and to have more straightforward applications in policy development. Vertical studies were also allegedly preferred by donors, who demanded to see a return on their investments by encouraging governments to implement policies for which both intervention and outcome could easily be monitored. Informants felt mounting pressure to use evidence about the

relative cost-effectiveness of different subcomponents to help governments in developing countries with resource allocation.

A less explicit reason for informants' reticence to deviate from experimental designs relates to the field's low status and to the issues of competition reviewed in the “Results” section. Referencing a recent publication,²³ a number of informants claimed that because the lack of an evidence-based approach in maternal health has compromised the field's standing, only the highest research standard should now be accepted. Contextual, observational epidemiology, and multidisciplinary research were not viewed as proper academic research and were often relegated to the less scientific realm of operations research. As one international policy expert described, “Health systems research can't really ever tell us much, other than at a highly contextualized level.”

One researcher stated that only those in well-established subfields who are “starting from the top” can afford to take on the professionally risky activity of pushing the limits of epidemiological theory and methods. Maternal health, by contrast, is starting from the bottom and, therefore, needs more-rigorous experimental studies to be able to provide conclusive recommendations and secure its status.

Other informants were more critical of this position, stating that the scientific community's insistence on using randomized controlled trials has created a dogmatic and detrimental donor demand for experimental evidence. As a couple researchers stated, the indiscriminate use of the randomized controlled trials often provides very rigorous answers to irrelevant questions. However, being bold and diverting from experimental designs means opening oneself up to criticism and potentially losing publications, funds and political credibility. As another epidemiologist stated,

I am so convinced of the argument. . . . But what makes policymakers shift? Do we need another beautiful trial showing that traditional birth attendants make no difference? I hope not. It's not whether in the perfect circumstances you can train traditional birth attendants and supervise them. Of course that can make a difference. But then you're talking about an expensive system; you might as well train skilled providers. . . . Quite a few people are calling for trials of community health workers . . . and the donors are taking note. If we've gone that far . . . what a waste of money. Maybe we have to play the game; I don't know.

As this comment suggests, informants sometimes felt that reducing the focus of the research question to conduct randomized controlled trials was scientifically unnecessary but politically and professionally indispensable. At the same time, informants also frustratingly acknowledged that this approach reinforced the dominance of vertical approaches and compromised a health systems approach. As one researcher aptly summarized, the scientific attempt to discern if a particular community- or facility-based strategy has a greater effect on mortality over another “is just trappings, and feels like a waste of time and money. . . . I wouldn't say one is better than the other, I would say if you neglect the nuts and bolts of the system, you risk getting nothing done.”

DISCUSSION

Many policy experts support the agenda to integrate subfields and wish to work toward health systems strengthening. In practice, however, the competitive playing field pressures policy experts to support subfield-specific initiatives and funding in an effort to bolster the field and advocate for resources and political will. These findings indicate that a distinction exists between what can be termed policy-relevant approaches and advocacy-sensitive approaches. The former respond to policymaking and program implementation needs, be they vertical or horizontal. The latter, by contrast, are used to advocate for the survival and status of the maternal health professional community and tend to be vertical approaches. Under the pressures of subfield competition, our results show that key experts are being pushed toward advocacy-sensitive practices, and because they are more vertical by nature, this is happening at the expense of practices that could more adequately respond to synergistic vertical–horizontal policymaking.

Maternal health researchers, in turn, respond to the pressures for financial support and professional prestige by aiming to produce evidence that is politically expedient, useful for securing their academic reputations, and able to ensure the survival of the maternal health community. For many, this means the use of experimental research to

evaluate either clinically targeted interventions or vertical subcomponents of larger health systems packages. These dynamics impede researchers from following the lead of recent literature^{13–17,25–28} that scrutinizes the suitability of an experimental clinical research model for questions relating to complex health systems interventions. As a result, the production of useful evidence for horizontal policymaking, as well as for vertical–horizontal synergy, is sorely lacking.

The issues of rivalries over funding, diverse donor-driven agendas, and what informants describe as the “false and damaging” dichotomies between maternal and child health, as well as between community versus facility-based interventions, have received considerable attention in the literature.^{19,39–41} The recent Lancet series¹⁹ on maternal survival had as one of its main aims to “provide an opportunity to mark a shift [away] from unhelpful dichotomies that slow action in countries [and] stifle funding.”^{4(p9)} Given the results of our analysis, we must question whether such high-profile statements will have the desired effect of joining diverse factions if they do not (or cannot) address the factors that drive vertically oriented programs and research.

Policy researchers have argued that significant obstacles to a coherent policy agenda on vertical–horizontal synergy include weak health systems, current priority-setting mechanisms based on uncritical support for traditional disease ranking and cost-effectiveness measures, and uncoordinated and conflicting donor agendas on which many developing countries are reliant.^{42–45} In addition to these obstacles is the crucial issue of how to improve evidence-based policymaking practices.

The literature suggests that poor communication between researchers and policymakers is a key constraint to improving evidence-based policymaking.^{46,47} Our informants have clearly been influenced by this literature, yet our findings suggest that the limited ability of experimental methods to provide evidence about integration and complex health systems is a more important impediment. This is being increasingly recognized in the public health and sociological literature.^{17,48,49} As we have shown, when it comes to actually changing evidence-based practices, the messages

ensuing from this body of research remain theoretical and difficult to operationalize.

CONCLUSIONS

On the basis of our findings, we suggest modifying evidence-based policymaking practices in 2 main ways. First, it is important to create institutional environments that actively promote the development of new research models for investigating complex and context-specific interventions. As we and other authors have shown, context-specific health systems research contradicts the need in public health for a generalizable and marketable evidence-base of vertical programs that are easy to evaluate and show a measurable impact on outcomes.^{10,50,51} A major challenge for public health lies in prioritizing context-specific horizontal initiatives even where impact cannot be as precisely shown as in the case of vertical interventions.^{52,53} This is particularly the case in developing countries, where vertical initiatives to reduce mortality quickly are vital and, yet, where progress in general development requires active intersectoral collaboration and wide-ranging social initiatives.⁵⁴

Second, it is important to examine the larger international, donor-driven, political, and academic factors that persuade policy experts and researchers to adhere to current normative models of vertical programming and evidence production. Otherwise, competition will continue to encourage subfield-specific advocacy, give preeminence to vertical and subcomponent interventions, and push researchers toward the uncritical application of experimental methods. Continuation of the status quo may also lead to the marginalization of one of epidemiology’s primary contributions to public health: that of identifying interrelated determinants of disease patterns and mechanisms of change. ■

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This article was accepted October 27, 2007.

Contributors

D.P. Béhague led development of the project proposal for funding and wrote the article. K.T. Storeng contributed to developing the project proposal for funding and commented on several drafts of the article. Both authors collected and analyzed the data.

Acknowledgments

Funding for this research was received from the Economic and Social Research Council (Small Research Grant RES-000-22-1039). K.T. Storeng received support from the Research Council of Norway during the preparation of this article.

We would like to thank, first and foremost, all our informants for being such forthright and helpful participants in this research. Their willingness to discuss sensitive problems and tensions emerging from within the field of maternal health should not be taken as an objective indicator of the field’s shortcomings compared with other fields. Rather, our informants’ open and frank discussions indicate high levels of critical awareness and self-reflection and an ability to engage with the difficult questions that many, if not most, experts in diverse public health subfields currently face.

Note. The Economic and Social Research Council had no involvement in determining the study design, the collection, analysis, and interpretation of data, or in writing this article.

Human Participant Protection

Ethics approval was granted by the London School of Hygiene and Tropical Medicine ethics board.

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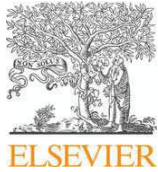
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Ritual and the organisation of care in primary care clinics in Cape Town, South Africa[☆]

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ARTICLE INFO

Article history:
Available online 9 March 2009

Keywords:
South Africa
Tuberculosis
Ritual
Organisation of care
Treatment adherence

ABSTRACT

Few sociological studies have examined care organisation in primary health settings in low- and middle-income countries. This paper explores the organisation of health care work in primary care clinics in Cape Town, South Africa, by analysing two elements of clinic organisation as rituals. The first is a formal, policy-driven element of care: directly observed therapy for tuberculosis patients. The second is an informal ritual, seemingly separate from the clinical work of the team: morning prayers in the clinic. We draw on data from an ethnography in which seven clinics providing care to people with tuberculosis were theoretically sampled for study. These data include participant observation of clinic sessions, and interviews and group discussions with providers and patients, which were analysed using approaches drawn from grounded theory. Our findings suggest that rather than seeing the ritualised aspects of clinic activities as merely traditional elements of care that potentially interfere with the application of good practice, it is essential to understand their symbolic values if their contribution to health care organisation is to be recognised. While both staff and patients participate in these rituals, these performances do not demonstrate or facilitate cohesion across these groups but rather embody the conflicting values of patients and staff in these clinics. As such, rituals act to reinforce asymmetrical relations of power between different constituencies, and to strengthen conventional modes of provider–patient interaction.

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Introduction

This paper concerns the organisation of work in primary health clinics in Cape Town, South Africa that deliver care for tuberculosis (TB). It explores the usefulness of considering two rather different elements of organisation – Directly Observed Treatment (DOT) for TB patients and morning prayers in the clinic – as rituals. DOT is the practice recommended by the WHO in which TB treatment taking is observed for the full duration of treatment – usually six months or more – by a health care provider or someone nominated by the patient and the provider to take on this role (WHO, 2002). The

development and implementation of DOT, and the wider TB control strategy in which it is embedded, have been described extensively elsewhere (Ogden, Walt, & Lush, 2003; Raviglione & Pio, 2002; Volmink, Matchaba, & Garner, 2000; Walt, 1999). Supporters of DOT have argued that it is required to ‘protect’ the limited set of TB drugs from the growth of drug resistance,¹ and that it needs to be seen as just one component of a larger TB control strategy (Ogden et al., 2003). By exploring the symbolic content of DOT and morning prayers in the clinic, we aim to contribute to an explanation of seemingly ‘non-rational’ behaviours in health care work.

In studying care organisation in this setting, we were struck by reports from clinic nurses that TB patients, on hearing that their six months of DOT was complete, sometimes asked whether they could continue attending the clinic until the week ended. That patients would want to prolong what, for many, was a burdensome

[☆] We thank the patients and health care providers who participated in the study; the health service managers who provided support for this work; and the research assistants on the project. Karen Daniels, Judy Dick, Simon Goudie, Karina Kielmann, Jessica Ogden, Liz Rose, Carolyn Stephens, Hester van der Walt, Nomsa Yekiso and Merrick Zwarenstein provided insightful comments and advice. The Commonwealth Programme of the Nuffield Foundation (Project CW28); the UK Department for International Development (Project R561); the Health Systems Trust (Project 226/98); and the Medical Research Council of South Africa provided funding. A Phil Strong Memorial Prize from the British Sociological Association facilitated additional fieldwork by SL.

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¹ The use of a multi-drug treatment regime helps to ensure that if the tuberculosis bacillus becomes resistant to one of the drugs, it will be eliminated by one of the other drugs, thereby helping to reduce the overall development of resistance. Resistance is problematic because of the relatively limited number of effective TB drugs; the difficulties, in terms of length of treatment, mode of treatment delivery (injection), and costs of treating multi-drug resistant cases; and the danger of multi-drug resistant strains spreading in the community.

daily clinic visit to receive treatment suggested that DOT had become an integral part of their routine. Yet its completion – a significant event – went apparently unmarked. Staff would record the patient's completion of treatment into the TB register but, for the patient, there was no ritual marker of their reintegration into the social body (Van Gennep, 1960). Health care settings are replete with ritual, from the organisation of surgery in the operating theatre (Katz, 1981), to ward rounds (Strange, 1996), patient clerking and the traditional return of a patient's 'normal' clothes to mark the end of an inpatient stay. Yet, at a point when some ritual might be expected, these patients were left seeking a natural end point, the weekend, to mark their new status as 'healthy'.

The puzzle of this 'missing ritual' raised a more general question of the functions served by the unusual procedure of DOT for both TB patients and health care providers. Why are TB patients in particular treated in this way? Although DOT is now commonplace within TB programmes, there are clearly other ways in which treatment delivery could be organised. Following from McCreery's study of meaning in therapeutic ritual, we address two key questions: "What are the possible meanings of this [ritual] work? What is the audience to which it is addressed and the situation to which it speaks?" (McCreery, 1979 p. 70) Because the care of TB patients includes a set of highly standardised and detailed procedures, some of which are of unproven efficacy (Volmink & Garner, 2007), this care presents an interesting opportunity to examine the role of ritual in the management of a common infectious disease. To illuminate the possible meanings of ritualised activity in this context, we also draw on data on a more obvious ritual in the clinic – that of morning prayers. We suggest that examining the symbolic meanings of these two contrasting work practices contributes to understanding the ways in which care is achieved (or not) in formal health settings.

Accounting for rituals in health care

The term 'ritual' has been used in multiple ways (Douglas, 1996; Katz, 1981; McCreery, 1979; Turner, 1969), and the growing body of literature on the role of ritual or ritualised practice in nursing work (Chapman, 1983; Holland, 1993; Strange, 1996; Wolf, 1988) draws on a range of theoretical starting points. First, the term 'ritual' has been used atheoretically by some commentators, to merely differentiate those practices that have a good 'evidence base' from those that do not, characterising the latter as 'traditional' practices, or 'rituals'. Such 'rituals' are cited as reducing the effectiveness of nursing care (Walsh & Ford, 1989). Thomson, for instance, notes: "Ritualistic practices have long stood in the way of effective infection control" (Thomson, 1990, cited in Strange (1996, p. 106)). Within this perspective, a ritual has no meaning, being merely an obstacle to greater efficiency rather than a theoretical tool for understanding nursing work.

Others have drawn on social science literature to explore the meanings of ritual. From a functionalist perspective, ritual has been seen as serving: psychological, social and protective functions; the identification of values and rules; and the negotiation of power (Bell, 1992; Helman, 2000; Strange, 1996). From Van Gennep (1960 [1909]) onwards, there has been a particular interest in rituals of transition, and their functions in helping to ameliorate and control danger and anxiety related to changes of state or to a lack of clarity in classifying a category or state. This has been of particular interest in health care, with a focus on how health providers, in their day-to-day work, cope with uncertainties of diagnosis and management and how patients manage the transition between illness and wellness (Helman, 2000). Rituals provide boundaries to categories in the context of transition, for example, between being 'well' and being diagnosed with TB, thus allowing social actors, such as health care providers, family and friends, to respond appropriately (Katz,

1981). Ritual therefore entrenches, through performance, categories created within biomedicine, such as 'sick' and 'well', 'adherent' and 'non-adherent'.

In nursing, one functionalist argument draws on psychoanalytic theory to identify the functions of ritual for individual health care workers, proposing that it is through unconscious defence mechanisms that individuals deal with painful or difficult feelings, such as fear or loathing, that may harm the self (Lupton, 1997). This perspective suggests that providers may experience difficult, even conflictual, feelings as a result of patients' emotional expectations and direct contact with patients' bodies (Menzies-Lyth, 1988; Obholzer & Roberts, 1994; Skogstad, 1997; van der Walt & Swartz, 2000), arousing deep anxieties that may be too difficult to consciously examine (such as helplessness in the face of inability to cure). Psychoanalytic approaches go on to note that ritualistic defensive techniques on both individual and collective levels may protect against these anxieties (Chapman, 1983; Skogstad, 1997).

More sociologically, rituals in nursing work can be seen as having social functions. Turner's definition of rituals as "dramas of social events which emphasize the importance of the event they symbolize or represent" (Turner, 1969, p. 59) emphasises rituals as *performances* that enact and institutionalise culturally constructed categories. Thus, in health care, ritual practice is not only used as a defence against anxiety, but also for social effect, creating and reflecting cultural values regarding the treatment of the sick (Chapman, 1983). Rituals are essential to healing itself, especially in terms of reintegrating the 'sick' person into the 'healthy' social body. For example, the discharge of a patient from hospital involves returning their civilian clothes, indicating that they may rejoin the world of the 'healthy'. Ritual may also be used to maintain boundaries between states, such as dangerous or safe, sterile and non-sterile. This reduces uncertainty and increases the autonomy of actors by indicating clearly which states are operative at any particular time (Katz, 1981, p. 336).

Much work on the social role of rituals assumes that they act to unite a homogenous group, with all those participating sharing values and meanings, as expressed in the enactment and symbols of the ritual (Baumann, 1992). For Leach (1976), for instance, the key aspect of ritual is that there is no separation between performer and audience. Such assumptions of homogeneity are problematic in modern health care organisations, in which different constituencies (of staff groups, of patients) may not subscribe to the same set of meanings. More recent work on ritual has highlighted these potential conflicts. Drawing on the work of Durkheim, Baumann, for instance, argues that rituals may be "performed by competing constituencies" (Baumann, 1992, p. 99) with different relationships to the performance, symbols and meaning of the rituals. Rather than being limited to "insiders", participants in rituals in plural societies may include a range of outsiders with these different parties "each using symbolic forms to stake mutual claims" (p. 101) through the enactment of the ritual. Ritual, Baumann suggests, is therefore a platform for defining and negotiating relationships with others. This paper takes this approach as a starting point, to explore how ritualised practices in primary care clinics may embody and entrench power relations, being potentially functional for some constituencies while being dysfunctional for others.

Methods and setting

This study formed part of a larger ethnographic study of the impact of clinic organisation on professional responses to change in primary health care clinics in Cape Town (Lewin, 2004). The setting was urban and peri-urban municipal primary health clinics within the Cape Town metropolitan area that deliver care to TB patients. The size, patient load and staff complement of these clinics ranged

from small 'satellite' clinics to very large clinics seeing over one hundred clients per day. All employed a mix of nursing cadres as well as additional nursing assistants, administrative staff and cleaners. The larger clinics may have a health educator and sessional doctors, social workers and pharmacists.

A 'theoretical sampling' approach was used to select clinics for study (Glaser & Strauss, 1967), taking into account issues such as staff mix, patient load and the ethnic group served by the clinics. Four clinics were studied in depth (in this paper called Tortoise Lane, Old Oak, Hilltop and New Township), while three others were studied in less detail (Windy Plains, Steady Village and Border's Edge). New Township, Hilltop and Windy Plains were large, relatively new clinics serving extensive 'black' townships on the periphery of Cape Town and largely staffed by 'African' Xhosa-speaking nurses.² Old Oak was a large, well-established clinic serving a historically 'coloured' or 'mixed-race' residential area and largely staffed by 'mixed-race' nurses. In contrast, Tortoise Lane was based in a busy business district, drew clients from a wide range of areas and was staffed by nurses with a wide range of socio-cultural backgrounds. Both Border's Edge and Steady Village were smaller clinics serving the rapidly developing townships of low cost housing further from the city centre and staffed by 'mixed-race' nurses. For the most part, the clients of all these clinics were poor and many were unemployed.

Data were collected over two years, from 1999 to 2001, by the first author (SL) and two research assistants. Fieldwork included around 120 h of participant observation of clinic sessions; formal individual in-depth interviews ($n=21$) and group discussions ($n=8$) with staff; and informal interviews with staff. All formal interviews and group discussions were taped, transcribed and translated from Xhosa into English where appropriate. A number of informal interviews with patients were undertaken alongside clinic observations and a large number of provider–client interactions were observed. Data were generated using an iterative and inductive approach, with analysis of the initial data collected informing later data collection strategies.

Analysis was guided by elements from the grounded theory approach (Strauss & Corbin, 1990). Field notes and interviews were examined as one body of data and indexed into categories. 'Open' coding resulted in a re-ordering of data as thematic links between sections of data became evident. Interpretive hypotheses were cross-checked against the data and deviant cases sought. The notion of ritual, as developed in the sociological and anthropological literatures, was then used as a conceptual tool to link observed micro-level practices with the broader patterns of work organisation. So, while the conceptual categories emerged from the data, they were subsequently framed within relevant theoretical perspectives and linked to the work of others. For each key category, data extracts were identified on the basis of being representative and/or interesting illustrations of that category.

Ethical approval for the study was granted by Medical Research Council of South Africa and the London School of Hygiene and Tropical Medicine. Municipal health department managers in Cape Town also gave their permission to conduct the study. Each clinic

was asked to consent to participation and clinic staff gave written or verbal consent for all individual and group interviews.

Ritual in the primary health clinic

The DOT ritual: its functions within the clinic

International TB policy suggests that the swallowing of all 130 doses of TB drugs by the patient, in the case of new patients, should be supervised either by a health worker or by a community or family member or work colleague nominated by the patient and the health provider for this purpose. For retreatment patients, the number of doses is higher as treatment is continued for eight months. That TB patients, along with substance users and people suffering from leprosy, have been singled out for the 'supervised consumption' of medication is unlikely to be coincidental. All are stigmatised groups, with little power within the health system or society at large (Cross, 2006; Munro et al., 2007; Room, 2005).

With small local variations in procedure, the key features of DOT remained constant across all the clinics studied. Hilltop was typical:

At 8.40am the staff begin dispensing DOT. There are about eight patients waiting, including one child and one woman... One of the patients looks very thin and weak. Most of the [TB] patients look very poor – even poorer than those in the clinic as a whole. All the patients come into the DOT/TB room and sit on chairs against the wall, facing the desk where one of the nurses is seated...the nurse...counts out the pills for each patient on DOT, which they swallow in her presence, having helped themselves to water from the tap. [Clinic Observation – Hilltop]

At the start of treatment, the patient and nurse decided where the patient should best receive DOT. The majority of patients opted for clinic-based supervision. The procedure for daily clinic-based DOT was as follows: referring to the patient's treatment card, the nurse counted out the daily batch of pills for each patient into a small cup labelled with the patient's name. Most patients on clinic-based DOT visited the clinic just after it opened in the morning. They went straight to the treatment room where the cups of pills were waiting. A member of the clinic staff was assigned to observe the pills being swallowed. She usually greeted the patients and gave the patient her cup of pills. The patient then swallowed the tablets under supervision and left the clinic. If the observing staff member had time, she spoke briefly to the patient. Often, however, the treatment room was very busy and conversation with the patient was not possible. Direct observation was often conducted by a non-clinical member of staff, such as the cleaner or a clerk, either because patients arrived before the clinical staff (officially) began their shift or because they were engaged in other tasks. After the patient had taken the pills, the attendant recorded this in the patient record.

Patients defaulting from this daily regimen were usually questioned by the professional clinic staff on their next visit. These discussions often involved the provider chastising the patient for his or her non-adherence; highlighting the patient's lack of responsibility for his or her own health; and demanding better performance. One staff nurse, who had worked at Old Oak clinic for many years, noted:

I like doing TB, but you can't do TB for a year. After nine months it becomes very frustrating. Sometimes you have to give patients a scolding because of defaulting...[]... Some of the patients really get to you. The same old patients from last year. [staff nurse – Old Oak]

Some providers attempted to focus their interactions with patients on barriers to treatment completion and how these might be overcome. However, such exchanges were the exception rather than the rule.

² Under apartheid, the Population Registration Act classified South Africa's population as 'African', 'coloured' ('mixed race'), 'Indian' or 'white'. These categories are used in this paper as, although the structures of apartheid have been dismantled, this classification has had, and continues to have, profound effects on socio-economic conditions, the provision of health services and health status. The use of these categories is not intended in any way to legitimise or support the notion of genetically distinct race groups. The term 'black' is used to refer to those designated, under apartheid legislation, as 'African', 'coloured' or 'Indian'.

Symptoms of TB rapidly improve during the first two to three weeks of therapy and patients usually report feeling much better after one month. However, in order to be effective, treatment needs to be continued for the full six month period. The management of TB therefore parallels that of many chronic illnesses, such as hypertension, in that patients are expected to continue therapy despite feeling physically well. The rationale for DOT is that it ensures patients complete their course of therapy, maximising the chance of cure and reducing the risk of drug resistance. DOT is also portrayed, on paper, as an opportunity for the health worker to provide support to the patient (WHO, 2002). Patient support and treatment completion are important goals, but considerable research evidence suggests that DOT does not fulfil these aims (Ogden, 1999; Volmink & Garner, 2007). If not clinical effectiveness, what, then, is the function of DOT within the primary health clinic? Is it meaningful at the symbolic level, and if so, for which of its different constituencies?

DOT is clearly 'ritualised activity', in that there are formalised arrangements of objects, people, bodies and spaces which "trigger the perception that these practices are distinct and the associations that they engender are special" (Bell, 1992, p. 220). DOT involves specific and specialised 'personnel' – the health care provider and the TB patient – both of whom are assigned specific roles and follow a largely predefined series of steps or tasks during their interactions. The interactions often involve several patients and take place within a designated space to which public access is restricted. The interaction also involves a range of objects used largely in this activity alone, such as the cups of pills labelled with each patient's name and the TB treatment supervision card. We suggest, however, that DOT is more than ritualised activity. It derives its significance as 'ritual' from its symbolic meanings, evident in the ways it produces and reproduces relations of power between patients and providers: first, through the medicalisation of the illness to create a sustainable 'sick role', and second, through constructing the patient as a passive, non-trustworthy recipient of care in need of monitoring and control.

Having received a diagnosis of TB, the patient is cast into the sick role, with a responsibility to follow the prescribed treatment of the health provider and to endeavour to become 'well' (Parsons, 1951). In the early stages of treatment, ongoing symptoms reinforce the provider's message that this is a serious ailment requiring careful treatment and supervision. As the patient's health improves, however, it becomes less clear that the sick role is appropriate. The illness is resolved, and she may now wish to shed the sick role and resume a normal life. However, this is not possible as patients are expected to return daily to the clinic for treatment for the full six months if they are to be cured. This ambiguous period of transition between resolution of illness and cure, in which the patient no longer feels ill but still harbours TB bacilli, is dangerous for the health care system in that patients may fail to attend the clinic for daily treatment. Indeed, providers' frequently expressed considerable frustration and anger towards patients who did not comply:

I'm very much on the defaulter patients. I hate those who default [laughs]. I would [makes a guillotine noise] them. You have to push them. You do become frustrated and moody... [staff nurse – Old Oak Clinic]

You have to run after [patients] and make sure they take their medication. [nurse – Tortoise Lane]

DOT, by labelling people as ill, helps to delineate and maintain the ambiguous and dangerous boundary between illness, as perceived by patients, and 'disease', relating to biomedical cure. It is a collective attempt by health providers to extend the sick role beyond the period of symptomatic illness. The resistance of patients to inhabiting a 'sick role' beyond the symptom period

creates conflict for providers between the need to support patient choice, which may include requests to self-supervise treatment, and the need to apply rigorously treatment policies. The DOT strategy, as applied in this setting, does not have the flexibility to adapt to patient needs as these evolve over the course of treatment. The same ritual is rigidly maintained, sometimes creating frustration and anger in both patients and staff. The value of DOT here is therefore primarily symbolic – it indicates to patients, providers and society at large that the disease is still present and that the patient is not yet ready to re-enter the world of the well.

If DOT is in part a ritual to sustain the sick role, one might expect it to include an element to indicate the end of illness and the reintegration of the patient into society. Interestingly, this was not found. For providers, treatment completion is marked by entering the words 'cured' or 'treatment completed' into the official TB Register. For patients, treatment is merely stopped from one day to the next. The absence of any form of closure suggests a flawed ritual, which fails to give meaning to the illness or to shape the boundaries between disease and cure.

The second set of symbolic meanings of DOT relates to the ways it functions to construct the patient as a passive, non-trustworthy recipient of care in need of monitoring and control. Health care providers had ambivalent feelings towards TB patients. On the one hand, they espoused a need for more 'patient centred' care, even if this was difficult to enact within the clinic:

...I try to be at the same level as the patient and not talk down to them. Then it's a pleasure for them to come to the clinic. [professional nurse – Old Oak]

If there was time to sit down with the patient and ask them, 'How do you feel?', it would strengthen the nurse-patient relationship. But unfortunately there is no time for this. [nurse – New Township]

On the other hand, providers also viewed patients as child-like and irresponsible, in need of constant surveillance:

There's something about the TB patient – I don't really trust them. We watch them swallow their tablets. If not, they can put it in their pockets. [staff nurse – Old Oak]

Must have all eyes on the patient during the TB session. That to me is very important. [senior professional nurse – Old Oak]

Beyond the desire to monitor patients, all cadres of nurses expressed concern about the problem of 'control'. This was an immediate issue for them in terms of controlling the physical bodies of patients within the clinic:

...there were lots of patients [in the clinic] and I am new. I told them finally that they must sit down and I will call them. They were all crowding around. You don't want to come across too aggressively, but you want to show that you are in control. You have to make them understand that there are boundaries and they have to respect those. I realised that this is my clinic and this has to be safe to me. [professional nurse – Old Oak]

It also referred to the more general problem of control of bodies within the community:

...some patients should be admitted [to hospital] to ensure compliance, but they refuse. As a health worker, you don't have any control over that. [nurse – Tortoise Lane]

Although professing to provide patient support, DOT is, then, largely orientated towards control of patients and their bodies, and the suppression of resistance to the treatment regimen. This desire for control at the clinic level mirrors in many ways the public health policies of 'TB control' at management level. Others have suggested that, in the case of TB care, the desire to control the spread of the TB

bacillus has extended to a desire to control the person in whom the bacillus is resident (Ogden, 2000; van der Walt, 1998). The more stringent the control of the patient, the more likely control of the bacillus will be achieved. DOT sanctions the surveillance and disciplining of patients who, through 'ignorance' and 'poverty', have contracted TB. They are belittled by a ritual that emphasises their dependency and disempowerment and the need for them to accept the moral authority of health care professionals. Furthermore, patients who do not adhere to TB therapy are constructed as being to blame for their own illness. This scapegoating places the accountability for treatment failure on the patient rather than on the disempowering rituals enacted within the primary care system or the deeper structural issues such as poverty and migrancy which have contributed to disease spread and to poor treatment adherence (Munro et al., 2007). DOT therefore juxtaposes professional authority with patient disempowerment, constructing and maintaining the micro-level power relations within the provider–patient interaction in which patients are subordinated and in which the patient's body is the centre of both control and resistance. Studies from other spheres of health care delivery in South Africa have identified similar difficulties in relationships between nurses and patients (Jewkes, Abrahams, & Mvo, 1998; Kim & Motsei, 2002), perhaps suggesting that poor nurse attitudes to patients extend beyond care for people with TB.

Patients, of course, do not necessarily subscribe to norms of obedience to medical authority embodied in DOT, seeing instead the ritual as inappropriate or humiliating (van der Walt et al., 1999). Turner suggests that, "By exposing their ill-feeling in a ritual context to beneficial ritual forces, individuals are purged of rebellious wishes and emotions and willingly conform once more to the public mores" (Turner, 1970, p. 49–50). However, rather than being purged by the ritual of 'dangerous' emotions related to their non-adherent behaviour in this case patients simply resist by not returning to the clinic. In effect, in terms of adherence, the ritual may have the opposite effect from that originally intended. DOT, as ritual, therefore has potentially conflicting symbolic meanings to the different constituencies who participate in it. The performance of DOT is functional for health care providers and the health care system as, at the micro-level, it allows control to be asserted over patients and the medicalisation of illness to be sustained. At the macro-level, it allows providers to adhere to international policies for TB control. In this, the DOT ritual may speak as much to the local constituency – health care providers and managers – as to the more distant constituency of national and international policy makers. On the other hand, the ritual is dysfunctional for patients in that it does not sufficiently incorporate their values and beliefs, or address their need for empathy and support nor their likely perception of their own progress in being 'cured'. The failure of DOT, as a ritual, to engage patients in a way that allows them to manage their transition to 'wellness', instead of potentially prompting their resistance to treatment, may be one of the major failings of the current system of TB care.

Morning prayers in the clinic: breaching the boundaries?

A contrasting ritual activity was morning prayers, which were observed in clinics in Xhosa-speaking areas. These clinics, largely staffed by Xhosa-speaking nurses, served clients who mainly belonged to a range of Christian denominations. Here staff and clients therefore shared more cultural resources than was the case in the other settings of this study. Morning prayers are a long established part of clinic practice in many parts of South Africa. As Marks and others have noted (Marks, 1994; Stein, Lewin, & Fairall, 2007; Sweet, 2004), nursing, and biomedicine more broadly, are closely associated with Christian belief systems in the country.

However, the ways in which these connections play out in the day-to-day provision of care is little described or analysed from a sociological perspective.

Although not a formal part of health care provision, and at first sight more inclusive than DOT, prayers too enacted and facilitated power relations within the clinic. At Hilltop clinic, staff led patients in prayer every morning before starting clinical work:

At 8.25am the clinic staff start morning prayers. They stand at the front of the clinic waiting area, facing the rows of clients, and lead the waiting clients in a hymn, the Lord's Prayer, and a second hymn. Everyone in the clinic stands, and almost all of the clients participate in the singing. [Observation – Hilltop]

These prayers lasted approximately 10 minutes and had a solemnity and restfulness which contrasted with the usual hurly-burly of the clinic. Although the clinic prayers could be led by staff or patients, they were usually initiated by the staff. Nurses indicated that many gatherings in the Xhosa-speaking community routinely began with prayers, including meetings at schools and clinics.

From the staff perspective, prayers served a number of explicit functions. One of the nurses noted that the morning prayers helped the staff to relax before they started work, so that they could face the day. She also suggested that the prayers drew patients and staff together and reinforced the idea that everyone in the clinic was human and should be treated as such. Another nurse explained that prayers allowed patients to "open up" to staff as, "If I [the patient] prayed with so-and-so, they can't be that bad" [nurse trainer – 7/6/01]. In the view of some staff, the prayers, as a shared activity, facilitated communication with their clients in a setting in which there were few opportunities to release emotion and establish rapport (Dick & Pekeur, 1995; Jewkes et al., 1998). Prayers were, then, a form of emotional labour (James, 1992) in that they provided for the sharing and management of feelings between providers and patients. During this process the clinic staff acted as 'priests', albeit unofficially and temporarily. Although their roles as clinicians and managers were temporarily suspended, the hierarchy of provider (priest)–patient (congregant) was maintained.

On a symbolic level, however, prayers enacted some key tensions between different ritual constituencies, through the apparent breaching, but in a limited and controlled way, of three key boundaries. The first was the separation between the clinic – and the cultural 'world' of biomedicine – and the broader community in which the clinic is located. The presence of prayer introduced elements of the community's world into the medical world and thereby acted to emphasise the clinic's location within a particular socio-cultural setting and to provide a bridge between these two worlds. By participating in the prayers, both patients and providers exposed and shared a part of their private (non-medical) selves. Patients were also allowed to 'see' an aspect of providers which they would otherwise not usually be able to observe. However, this breaching was limited and controlled, in that the ritual took place in separate time, before the official start of clinical work. As others have noted in this setting, nurses may attempt to limit their emotional relationships with clients. This may occur particularly where nurses' clients are very similar to themselves and therefore act to undermine nurses' feelings of being safe from these diseases of poverty (van der Walt & Swartz, 2000).

The second partial breach is that of the normal relationship between professional and client. Prayers in which both patients and staff actively contribute, rather than one being the recipient of the ministrations of the other, provided a mechanism for displaying unity across the typically hierarchical nurse–client relationship in this and other settings. However, this brief display of unity did not significantly challenge the underlying power relations in normal 'clinic time'.

Thirdly, introducing a spiritual element into daily work breached the boundary of 'scientific' biomedical practice, indicating to both staff and patients that care and healing are not simply rational processes amenable to health care intervention. The prayers suggested that there were other forces operating to which both patients and staff might appeal, in their respective roles as 'healers' and the 'sick'. Morning prayers cast the staff into the role of healers in a broader sense, both spiritual and physical, emphasising that they were responsible for the physical and spiritual health of their clients. In some ways, this resembled more traditional forms of healing which do not routinely separate the physical from the spiritual, as is typically the case in Western biomedicine, and act to both treat illness and reduce the tensions brought on by it. However, the use of Christian prayer in the clinics also echoed the historical role played by nurses in South Africa in bringing 'enlightenment' to what were seen as heathen, diseased communities (Marks, 1994). The use of prayer in conjunction with the delivery of nursing care therefore also reinforced the links between Western biomedicine, and the scientific and moral superiority it claims, and the godliness and order of 'Christian civilisation'. It acts, if subtly, to marginalise more traditional health systems.

In the example of prayers there appeared, then, to be more cohesion and continuity between the different constituencies to the ritual – that is, patients and providers – than was the case for DOT. Prayers spoke to a single congregation of both clients and providers, for whom this ritual had shared symbolic content. The ritual was not generated from within the world of biomedicine, from which non-professionals are largely excluded, except as patients. Rather, it was generated from the world of religion, where patients and professionals could participate, on apparently equal terms. However, the separation in time between 'prayers' and clinical work demonstrates the limits of this equality. As ritual, the prayers reproduce relations of power in the clinic rather than challenge the roles of providers and clients. Prayers also embody the tensions experienced by nursing staff, who are simultaneously apart from and part of the community they serve (and of course potentially also patients) and thus anxious to establish boundaries for control.

Discussion

This paper provides insights into two areas that have been under-explored – the roles of ritual within TB care, and the more general issue of the organisation of nursing work in middle- and low-income settings. DOT is used worldwide as part of the management strategy for TB, although its form varies from setting to setting (Volmink et al., 2000). The use of DOT does not appear, in Cape Town at least, to achieve its aim of improving adherence to TB treatment and, indeed, research evidence suggests that it is unlikely to do so (Munro et al., 2007; Volmink & Garner, 2007). For many health care professionals within the TB programme in South Africa, the national goal of 85% cure rates may therefore seem unachievable. Unfeasible goals, it has been suggested, may contribute to work becoming 'ritualised', focusing labour on its physical and measurable aspects rather than on interaction and patient care (Coser, 1963).

While DOT has generally been viewed as a method of ensuring patient adherence to TB treatment, we suggest that it needs to be seen as both a medical procedure and a ritual. As ritual, DOT has a range of symbolic meanings for patients and staff within the world of clinic care, facilitating the medicalisation of TB treatment and its ongoing control by health care professionals. DOT reinforces traditional modes of interaction in which the patient accepts the 'sick role', and relinquishes responsibility for the management of therapy to the health care professional. The patient's role is

confined to becoming well (Parsons, 1951). That the DOT ritual usually fails to include any form of closure for patients – an issue that they seem to see as important – illustrates its limitations in assisting patients in coping with their illness and its focus on the needs of the health system.

Much of the work on ritual in nursing and health care has assumed, at least implicitly, a functionalist perspective. Ritual is seen as serving particular social or psychological purposes, with all those participating sharing the values and meanings of these performances. We argue here that the constituencies to a ritual performance do not necessarily share a common relationship to its symbols and meanings. Indeed, in this case the DOT ritual acts to divide health care providers from patients. Unlike providers, who appear to 'buy-in' to the DOT ritual, many patients resist participation. The most obvious form of resistance is a refusal to subject their bodies and persons to this form of control. That absenting themselves from treatment is one of the very few avenues of resistance available to patients is unfortunate, given the repercussions on individual wellbeing and the ways in which their resistance is seen by providers to confirm their view of patients as irresponsible and non-compliant. In contrast, participants in the prayer ritual seemed to share a common relationship to its symbols and meanings. Here too, however, ritual was used to circumscribe the limits to this common bond, separating it from 'clinical' relationships and underlining the co-option of religious symbolism to medical power. Prayer rituals may therefore act to maintain the distancing by providers of clients by reinforcing how any bond that nurses and their clients share in the wider social world is constrained within the world of the clinic.

The public rituals described here are concerned with shaping relationships with others – in this case providers and patients – who form the constituencies to the ritual performance. Their reasons for participating; the meanings that they bring to these rituals; and their responses to them reflect the position of their constituency, both within biomedicine and the wider community in which these clinics are situated. There are, of course, other approaches to understanding the roles of ritual activities and the meanings that these communicate within health care (Bell, 1997). However, by considering the meanings that different constituencies bring to ritual performances, we show how DOT can be functional for health care providers, in reinforcing relations of power with patients. Simultaneously, DOT can be dysfunctional for patients, in that it attempts to render them as passive subjects of health care. Rather than uniting patients and providers in the treatment of disease, DOT highlights the different viewpoints of those participating in it.

There is growing evidence that the asymmetrical power relations of health care encounters are being challenged by both consumers and providers (Brown, 1999; Farrell, 2004). In many settings health care is shifting towards models of shared decision making and patient centredness (Cline, Granby, & Picton, 2007; van der Weijden, van Veenendaal, & Timmermans, 2007). This is reflected to a limited extent within the field of TB care (Macq, Torfoss, & Getahun, 2007). In general, however, it remains one of the few areas of health care where this asymmetry continues to be actively promoted both explicitly in policies and implicitly through the symbolic content of these policies. This can be contrasted with the rollout of highly active anti-retroviral treatment (HAART) in South Africa and other low- and middle-income country settings. For example, the South African government's national plan for the treatment of HIV and AIDS notes that, "specific education or drug-readiness training is essential to provide the knowledge to enable individuals to take ownership of their own health" (p. 73). It also suggests that providers need to "negotiate a treatment plan that the patient can understand and to which he/she commits" (p. 75) (National Department of Health, 2003). Findings from a recent

study of nurses' views on HAART implementation in South Africa appear to reinforce these differences between the TB and HAART programmes, highlighting the strong engagement of nurses with people living with HIV and AIDS and nurses' strong desire to be able to offer a patient centred approach to treatment (Stein et al., 2007). Similar views have been described in other studies (Rajaraman & Palmer, 2008). A number of factors may account for these differences between the HAART and TB programmes. These include the very large number of people who have died from AIDS; the politicisation of the government's response to the epidemic in South Africa; and the fact that most health care providers have experienced HIV and AIDS in their household or social group, which is not the case for TB.

We would argue that efforts to change professional practice in TB, for example to make it more 'patient centred', need to engage with the symbolic level of clinic ritualised practices, as well as with the more usual concerns of the clinical and public health evidence base for practice. Viewing ritual simply as an impediment to evidence based practice in nursing fails to acknowledge these symbolic functions and their importance in the construction of health and health care. Furthermore, by ignoring ritual in health care organisations, policy makers may inadvertently doom their change efforts to failure or, at best, partial success. Their efforts may result, as Douglas (1996) has suggested, in one ritual simply being replaced by another that embodies similar power relations.

It is not clear how generalisable the findings presented here are to TB care in other settings or, indeed, to care for other health problems. It seems likely, however, that the findings would be widely applicable in South African settings that share a similar organisation of care (Oskowitz, Schneider, & Hlatshwayo, 1997; Petersen, 2000). Further, we acknowledge that patient-provider relations, and the rituals and structures that construct them, are only several of many factors impacting on treatment adherence. We do not intend to suggest that addressing the one component discussed here might result in measurable improvements in adherence in TB care. However, turning a sociological lens on the current patterns of care with a view to unpacking the less obvious meanings of these organisational behaviours does suggest that interventions relating to rituals of closure might be worth considering.

We started this paper with the observation that, in the study setting, there was no marker of the reintegration of patients into the healthy social body on the completion of their TB treatment. Given that ritual may be an important element of healing, is it possible to create rituals within TB care which are more responsive to both patient and staff needs over the course of therapy? Can rituals be established that create a sense of closure for patients who complete a long course of medical treatment and have to re-adjust to being well again? This applies not only to TB but also to a wide range of other chronic illnesses, and might include markers such as a certificate or a completion ceremony, organised by the health services, for people who complete successfully their course of TB treatment (Blumenfeld, de los Santos, Teoxon, Cruz, & Dizon, 1999), or other acknowledgements of patients' progress through the treatment cycle. Such attempts to 'engineer' culture through creating rituals that speak to disparate constituencies are widespread within the so-called post-Fordist workplace (Ezzy, 2001; Manley, 1998). Even within health care, it has been suggested that rituals may be manipulated to make care more patient oriented and flexible (Brooks, 1996; Brooks & Brown, 2002). Our findings could be read as suggesting that any such interventions would need to have symbolic value to both the provider and patient constituencies and, possibly, to the policy-making constituency. There may, however, be difficulties with 'engineering' rituals that, on the one hand, do not act as a form of normative control and, on the other hand, speak symbolically to a wide range of groups. Rituals that

genuinely embody the wide range of values of the constituencies involved in health care, foster empowerment and are therapeutic, may have to evolve rather than be specifically engineered. More research in this area, which draws on sociological analyses of work organisation, is needed.

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4. Advances in impact evaluation

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Although there is a rich body of literature on health programme evaluation, the work that focuses on system-level interventions is smaller. However, recent years have seen a growth of interest in understanding the ‘impact’ of development interventions, including health system interventions, in order to guide development practice and investments using evidence about ‘what works’ and an understanding of why it works (Evaluation Gap Working Group, 2006). New bodies have been established to promote and finance impact evaluations, such as the International Initiative for Impact Evaluation (3IE) (<http://www.3ieimpact.org>), and bilateral donors and other funders have given renewed emphasis to strengthening their approaches to evaluation and their capacity to use this evidence in their decision-making. At the same time, influenced by trends within social programme evaluation in higher-income countries (Harrison, 2001), there is an emerging interest in critical realist approaches to evaluation (for example see FEMhealth: <http://www.abdn.ac.uk/femhealth>). Such approaches consider the question: What works for whom in what circumstances? All approaches to impact evaluation, thus, aim to explain health policy and systems changes and interventions.

Rigour in impact evaluation

There are different meanings of ‘impact’ in the general evaluation literature, but in the contemporary literature, impact is understood to refer to a causal mechanism – the change in an outcome that is caused by a particular programme. This focus on causal mechanisms has meant that a lot of attention is paid to methods for arriving at an unbiased measure of the change that is due to the programme or intervention. A starting point to measure such impacts is to consider what would have happened

without the intervention – known as the ‘counterfactual’ – in order to be able to attribute the observed change to the intervention under study. Methodological development in this field has focused to a substantial degree on different approaches to establishing this counterfactual, and on how best to minimize different forms of selection bias.

This body of work also recognizes the importance of external validity – the extent to which findings can be generalized to other settings. This requires understanding the causal mechanism, looking more closely at its causal pathway and testing the validity of assumptions that are made about the route between intervention and impact, in order to assess whether those assumptions are likely to hold in other contexts. It also means paying careful attention to the implementation setting and how this mediates the effects of the intervention.

Two main types of study design are currently used within impact evaluations:

- *Experimental design*: This involves a random assignment of the programme to an intervention group and a control group, with the effect that potential unobserved confounding factors are also randomly distributed between the two groups, minimizing risks of bias.
- *Quasi-experimental designs*: These can involve ‘natural experiments’ which take advantage of a policy or other change that generates an appropriate control group. Study designs then compare groups or areas with and without the intervention; make before-and-after comparisons; adopt ‘difference-in-difference’ approaches (before and after with a control group); or take advantage of a phased implementation that provides variation in the duration of exposure to the programme. Another approach is to use matching methods (such as propensity score matching) in a cross-sectional design to create a control group that is matched on as many observable factors as possible.

Health system interventions have some particular features that influence the choice of evaluation approach. First, they often work through complex causal pathways and are particularly influenced by features of the policy and implementation context. Recent guidance on the

(impact) evaluation of complex public health interventions can also be applied to health system interventions, and emphasizes the need to:

- develop a good theoretical understanding of the change mechanism;
- address explicitly the risk of implementation failure by including a process evaluation;
- recognize the higher level influences on individual behaviour, and design studies that take these into account;
- adopt multiple measures of outcome, including potential unintended consequences of an intervention;
- recognize that strict fidelity to a protocol is unlikely, and allow for local adaptation in the intervention model (Craig et al., 2008).

Writing about interventions from a public health perspective, Victora, Habicht & Bryce (2004) challenge the primacy of the randomized controlled trial as contributing the best evidence for policy-making when causal pathways are complex. They describe the value of 'plausibility designs' in which studies that are non-randomized nonetheless aim at making causal statements using observational designs with a comparison group. This form of causal reasoning can be supported by evidence that implementation has been adequate, demonstrating progress in intermediate steps along the causal pathway, analysing the temporal sequence of events and using 'dose-response' reasoning to link the strength of programme implementation to changes in the outcome. de Savigny & Adam (2009) also identify the need for adaptations to conventional study designs when evaluating health system interventions, emphasizing the need to measure a wide variety of outcomes (intended or unintended) and for a comprehensive analysis of the contextual factors that may help to explain the success or failure of an intervention.

Another feature of evaluation designs for health system interventions is that it is often difficult to use a 'control group' to establish the counterfactual because, for example, a policy change takes place at national level (the 'small n' (sample size) problem). For instance, changes in regulatory or health financing systems often occur across a whole country at one time so there is no other unit to use as a comparison group.

For both reasons – complexity and the need for alternative approaches to establish the counterfactual – it seems appropriate to recommend that to enhance their rigour all evaluations of health system interventions should be based on a strong programme theory (White, 2009).

Indeed, theory-based evaluation approaches represent a third form of study design for impact evaluation. These approaches are based on an explicit programme theory that sets out the links between inputs, outputs and impacts and tests these causal links using a mix of qualitative and quantitative methods. Realist evaluation, meanwhile, focuses attention on the links between context, mechanisms of change and outcomes, given its interest in how the intervention leads to which effects, under what circumstances (Pawson & Tilley, 1997). It requires that middle range theory, the analysts' initial ideas about these links is developed prior to, and then tested through, the evaluation. Realist evaluation tends to rely on mixed-methods, with greater use of qualitative methods than other impact evaluations, and adopts approaches to generalization which rely more on analytic, rather than statistical, generalization. Its rigour is then safeguarded by the adoption of approaches common in case-study practice (see section on the case study approach).

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Overview of selected papers

The papers in this section were chosen because they address system-level interventions and reflect a broad range of approaches to impact evaluation.

- Björkman and Svensson (2009) use a randomized study design to evaluate the impact of a report-card approach to improving community accountability. This paper was selected because of its focus on a novel health system intervention and its use of an experimental design to measure impact.
- Macinko et al. (2007) examine a large-scale health system intervention (a national community-based primary care programme in Brazil) using a quasi-experimental design which takes advantage of the gradual expansion of the programme to generate an internal control group to measure impact.
- Marchal, Dedzo & Kegels (2010) use realist evaluation methods to examine the impact of a particular human resource management approach within one hospital in Ghana. It looks at the link between organizational practices and performance, has strong theoretical underpinnings, and uses exclusively qualitative methods to explore the causal links between management practice and behaviour within the organization.
- Wang et al. (2009) look at the impact on health status of a community-based health insurance scheme in China, in which increased financial risk protection was accompanied by service innovations including more selective purchasing, changes to the provider payment mechanism, and changes to the prescription system. They both adopt a quasi-experimental approach (before-and-after with a control group) and employ propensity score matching to construct a comparison group.

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Björkman M, Svensson J (2009). Power to the people: evidence from a randomized field experiment on community-based monitoring in Uganda. *The Quarterly Journal of Economics*, 124(2) :735–769.

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POWER TO THE PEOPLE: EVIDENCE FROM A RANDOMIZED FIELD EXPERIMENT ON COMMUNITY-BASED MONITORING IN UGANDA*

MARTINA BJÖRKMAN AND JAKOB SVENSSON

This paper presents a randomized field experiment on community-based monitoring of public primary health care providers in Uganda. Through two rounds of village meetings, localized nongovernmental organizations encouraged communities to be more involved with the state of health service provision and strengthened their capacity to hold their local health providers to account for performance. A year after the intervention, treatment communities are more involved in monitoring the provider, and the health workers appear to exert higher effort to serve the community. We document large increases in utilization and improved health outcomes—reduced child mortality and increased child weight—that compare favorably to some of the more successful community-based intervention trials reported in the medical literature.

I. INTRODUCTION

Approximately eleven million children under five years die each year and almost half of these deaths occur in sub-Saharan Africa. More than half of these children will die of diseases (e.g., diarrhea, pneumonia, malaria, measles, and neonatal disorders) that could easily have been prevented or treated if the children had had access to a small set of proven, inexpensive services (Black, Morris, and Bryce 2003; Jones et al. 2003).

Why are these services not provided? Anecdotal, and recently more systematic, evidence points to one possible reason—ineffective systems of monitoring and weak accountability

*This project is a collaborative exercise involving many people. Foremost, we are deeply indebted to Frances Nsonzi and Ritva Reinikka for their contributions at all stages of the project. We would also like to acknowledge the important contributions of Gibwa Kajubi, Abel Ojoo, Anthony Wasswa, James Kanyesigye, Carolyn Winter, Ivo Njosa, Omiat Omongin, Mary Bitekerez, and the field and data staff with whom we have worked over the years. We thank the Uganda Ministry of Health, Planning Division, the World Bank's Country Office in Uganda, and the Social Development Department, the World Bank, for their cooperation. We are grateful for comments and suggestions by Paul Gertler, Esther Duflo, Abhijit Banerjee, and seminar and conference participants at Stanford, Berkeley, LSE, Oxford, IGIER, MIT, World Bank, NTNU, Namur, UPF, CEPR/EUDN conference in Paris, and BREAD & CESifo conference in Venice. We also thank three anonymous referees and the editor, Lawrence Katz, for very constructive suggestions. Financial support from the Bank-Netherlands Partnership Program, the World Bank Research Committee, the World Bank Africa Region division, and the Swedish International Development Agency, Department for Research Cooperation is gratefully acknowledged. Björkman also thanks Jan Wallander's and Tom Hedelius' Research Foundation for funding.

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The Quarterly Journal of Economics, May 2009

relationships.¹ This paper focuses on one of these accountability relationships, citizen-clients' ability to hold providers accountable, using primary health care provision in rural Uganda as a testing ground.

To examine whether community-based monitoring works, we designed and conducted a randomized field experiment in fifty communities from nine districts in Uganda. In the experiment, local nongovernmental organizations (NGOs) facilitated village and staff meetings in which members of the communities discussed baseline information on the status of health service delivery relative to other providers and the government standard. Community members were also encouraged to develop a plan identifying key problems and steps the providers should take to improve health service provision. The primary objective of the intervention was to initiate a process of community-based monitoring that was then up to the community to sustain and lead.

The community-based monitoring project increased the quality and quantity of primary health care provision. A year after the first round of meetings, we found a significant difference in the weight of infants—0.14 *z*-score increase—and a markedly lower number of deaths among children under five—33 percent reduction in under-5 mortality—in the treatment communities. Utilization for general outpatient services was 20 percent higher in the treatment compared to the control facilities and the overall effect across a set of utilization measures is large and significantly positive. Treatment practices, including immunization of children, waiting time, examination procedures, and absenteeism, improved significantly in the treatment communities, thus suggesting that the changes in quality and quantity of health care provision are due to behavioral changes of the staff. We find evidence that the treatment communities became more engaged and began to monitor the health unit more extensively. Using variation in treatment intensity across districts we show that there is a significant relationship between the degree of community monitoring and health utilization and health outcomes, consistent with the community-based monitoring mechanism.

Community-based, randomized, controlled field trials have been used extensively in medical research to evaluate the

1. For anecdotal and case study evidence, see World Bank (2003). Chaudhury et al. (2006) provide evidence on the rates of absenteeism. On misappropriation of public funds and drugs, see McPake et al. (1999) and Reinikka and Svensson (2004).

effectiveness of various health interventions (see footnote 14). Our paper is related but differs in one important dimension. Whereas the medical field trials address the question of impact of a biological agent or treatment practice when the health workers competently carry out their tasks, we focus on how to ensure that the health workers actually carry out their tasks and the impact that may have on health utilization and health outcomes.

This paper also relates to a small literature on improving governance and public service delivery through community participation. Olken (2007) finds minor effects of an intervention aimed at increasing community participation in the monitoring of corruption in Indonesia. Our work differs in several ways. First, the intervention we evaluate was structured in a way to reduce the risk of elite capture. Second, unlike corruption, which is not easily observable, the information discussed in the meetings was basic facts on utilization and quality of services based on the community's own experience. Finally, the intervention sought to address two constraints highlighted in the literature on community monitoring: lack of relevant information and inadequate participation. Banerjee, Deaton, and Duflo (2004) evaluate a project in Rajasthan in India where a member of the community was paid to check whether the nurse-midwife assigned to the health center was present at the center. The intervention had no impact on attendance and the authors speculate that a key reason for this is that the individual community member did not manage to use his or her information on absenteeism to invoke community participation. Here, on the contrary, we explicitly try to address the participation constraint by involving a large number of community members and encouraging them to jointly develop a monitoring plan.

Finally, the paper links to a growing empirical literature on the relationship between information dissemination and accountability (Besley and Burgess 2002; Strömberg 2004; Ferraz and Finan 2008). In this paper, however, we focus on mechanisms through which citizens can make providers, rather than politicians, accountable. Thus, we do not study the design or allocation of public resources across communities, but rather how these resources are utilized. Second, we use microdata from households and clinics rather than disaggregated national accounts data. Finally, we identify impact using an experimental design.

The next section describes the institutional environment. The community-based monitoring intervention is described in

Section III. Section IV lays out the evaluation design and the results are presented in Section V. Section VI concludes. Details about the experiment and additional results are reported in the Online Supplemental Appendix.

II. INSTITUTIONAL SETTING

Uganda, like many newly independent countries in Africa, had a functioning health care system in the early 1960s. The 1970s and 1980s saw the collapse of government services as the country underwent political upheaval. Health indicators fell dramatically during this period until peace was restored in the late 1980s. Since then, the government has been implementing major infrastructure rehabilitation programs in the public health sector.

The health sector in Uganda is composed of four types of facilities: hospitals, health centers, dispensaries, and aid posts or subdispensaries. These facilities can be government-operated and -owned, private for-profit, or private not-for-profit. The impact evaluation focuses on public dispensaries. Dispensaries are in the lowest tier of the health system where a professional interaction between users and providers takes place. Most dispensaries are rural. According to the government health sector strategic plan, the standard for dispensaries includes preventive, promotional, outpatient care, maternity, general ward, and laboratory services (Republic of Uganda 2000). As of 2001, public health services are free. In our sample, on average, a dispensary was staffed by an in-charge or clinical officer (a trained medical worker), two nurses, and three nursing aids or other assistants.

The health sector in Uganda is decentralized, and a number of actors are responsible for supervision and control of the dispensaries. At the lowest tier, the Health Unit Management Committee (HUMC) is supposed to be the main link between the community and the facility. Each dispensary has an HUMC, which consists of both health workers and nonpolitical representatives from the community. The HUMC should monitor the day-to-day running of the facility but it has no authority to sanction workers. The next level in the institutional hierarchy is the health subdistrict. The health subdistrict monitors funds, drugs, and service delivery at the dispensary. Supervision meetings by the health subdistrict are supposed to appear quarterly but, in practice, monitoring is infrequent. The health subdistrict has the authority to reprimand,

but not dismiss, staff for indiscipline. Thus in severe cases of indiscipline, the errand will be referred to the chief administrative officer of the district and the District Service Commission, which are the appointing authorities for the district. They have the authority to suspend or dismiss staff.

Various local NGOs, so-called community-based organizations (CBOs), focusing primarily on health education, are also active in the sector.

III. EXPERIMENTAL DESIGN AND DATA

III.A. Overview

In response to perceived weak health care delivery at the primary level, a pilot project (citizen report cards) aimed at enhancing community involvement and monitoring in the delivery of primary health care was initiated in 2004. The project was designed by staff from Stockholm University and the World Bank, and implemented in cooperation with a number of Ugandan practitioners and eighteen community-based organizations.

The main objective of the intervention was to strengthen providers' accountability to citizen-clients by initiating a process, using trained local actors (CBOs) as facilitators, which the communities themselves could manage and sustain.

Based on a small but rigorous empirical literature on community participation and oversight, and extensive piloting in the field, our conjecture was that lack of relevant information on the status of service delivery and the community's entitlements, and failure to agree on, or coordinate expectations of, what is reasonable to demand from the provider, were holding back initiatives to pressure and monitor the provider. Although individual community members have private information—for example, they know whether their own child has died and whether the health workers did anything to help them—they typically do not have any information on aggregate outcomes, such as how many children in their community did not survive beyond the age of 5 or where citizens, on average, seek care, or what the community can expect in terms of quality and quantity of service provision (Khemani 2006). Partly as a response to this information problem, and partly because monitoring a public facility is a public good that may be subject to serious free-rider problems, few people actively participate in monitoring their service providers. Relaxing

these two constraints was therefore the main objective of the intervention.

The key behavioral change induced by more extensive community-based monitoring was expected to be increased effort by the health unit staff to serve the community. In Uganda, as in many other developing countries, health workers have few pecuniary incentives to exert high effort. Public money does not follow patients, and hiring, salaries, and promotions are largely determined by seniority and educational qualifications—not by how well the staff performs. An individual worker may of course still put in high effort if shirking deviates from her ideal choice (Akerlof and Kranton 2005). The effort choice may also be influenced by social rewards from community members or social sanctions against shirking workers. Social rewards and sanctions are key instruments available to the community to boost the health worker's effort.

III.B. Experimental Design

The experiment involved fifty public dispensaries, and health care users in the corresponding catchment areas, in nine districts covering all four regions in Uganda. All project facilities were located in rural areas. We define a facility's catchment area, or the community, as the five-kilometer radius around the facility.² A community in our sample has, on average, 2,500 households residing within the five-kilometer radius of the clinic, of which 350 live within a one-kilometer radius. For the experimental design, the facilities were first stratified by location (districts) and then by population size. From each group, half of the units were randomly assigned to the treatment group and the remaining 25 units were assigned to the control group.

III.C. Data

Data collection was governed by two objectives. First, data were required to assess how the community at large views the quality and efficacy of service delivery. We also wanted to contrast the citizens' view with that of the health workers. Second, data were required to evaluate impact. To meet these objectives, two surveys were implemented: a survey of the fifty providers and

2. Dispensaries are designed to serve households in a catchment area roughly corresponding to the five-kilometer radius around the facility (Republic of Uganda 2000).

a survey of users. Both surveys were implemented prior to the intervention (data from these surveys formed the basis for the intervention) and one year after the project had been initiated.

A quantitative service delivery survey was used to collect data from the providers. Because agents in the service delivery system may have a strong incentive to misreport key data, the data were obtained directly from the records kept by facilities for their own need (i.e., daily patient registers, stock cards, etc.) rather than from administrative records. The former, often available in a highly disaggregate format, were considered to suffer the least from any incentive problems in record keeping. Data were also collected through visual checks by enumerators.

The household survey collected data on both households' health outcomes and health facility performance as experienced by the household. A stratified random sample of households within the catchment area of each facility was surveyed. In total, roughly 5,000 households were surveyed in each round.³ To the extent that it was possible, patient records (i.e., patient exercise books and immunization cards) supported the household's response. The postintervention household survey also included a shorter module on health outcomes. Specifically, data on under-5 mortality were collected and we measured the weight of all infants in the surveyed households.

III.D. Intervention

A smaller subset of the findings from the preintervention surveys, including utilization, quality of services, and comparisons vis-à-vis other health facilities, were assembled in report cards. Each treatment facility and its community had a unique report card, translated into the main language spoken in the community, summarizing the key findings from the surveys conducted in their area.

The process of disseminating the report card information, and encouraging participation, was initiated through a series of meetings: a community meeting, a staff meeting, and an interface meeting. Staff from various local NGOs (CBOs) acted as facilitators in

3. The sampling strategy for the baseline household survey was designed to generate representative information on the core users' variables in each community (such as the proportion of patients being examined with equipment). In total, 88% of the households surveyed in the baseline survey were resurveyed in the ex-post survey. The households that could not be surveyed were replaced.

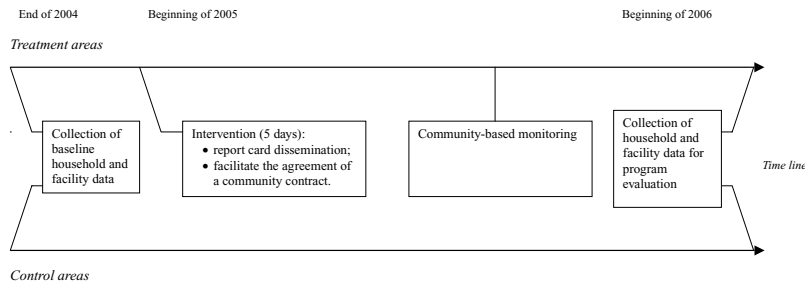


FIGURE I
Timing of the Project

these meetings.⁴ A time line of the intervention is depicted in Figure I.

The community meeting was a two-afternoon event with approximately 100 invited participants from the community. To avoid elite capture, the invited participants consisted of a selection of representatives from different spectra of society (i.e., young, old, disabled, women, mothers, leaders). The facilitators mobilized the village members by cooperating with village council representatives in the catchment area. Invited participants were asked to spread the word about the meeting and, in the end, a large number of uninvited participants also attended the meeting. More than 150 participants per day attended a typical village meeting.

In the community meeting, the facilitators used a variety of participatory methods to disseminate the information in the report cards and encouraged community members to develop a shared view on how to improve service delivery and monitor the provider. Information on patients' rights and entitlements was also discussed. The participants were divided into focus groups so that also more marginalized groups such as women and youth could raise their voices and discuss issues specific to their group.

4. The eighteen participating CBOs had been active in 64% of the treatment communities and half of the control communities prior to the intervention. A handful of them covered more than one treatment community. The CBOs were primarily focused on health, including issues of health education and HIV/AIDS prevention, although other objectives such as agricultural development, women's empowerment, support of orphans and vulnerable children, and peace-building initiatives, were also common. The CBO facilitators were trained for seven days in data interpretation and dissemination, utilization of the participatory methodology, and conflict resolution and management. Various other CBOs also operate in the project communities.

At the end of the meeting, the community's suggestions for improvements, and how to reach them without additional resources, were summarized in an action plan. The action plan contained information on health issues/services that had been identified by the community as the most important to address, how these issues could be addressed, and how the community could monitor improvements (or lack thereof). Although the issues raised in the action plans differed across communities, a common set of concerns included high rates of absenteeism, long waiting time, weak attention of health staff, and differential treatment.

The health facility meeting was a one-afternoon event held at the facility with all staff present. In the meeting, the facilitators contrasted the information on service provision as reported by the provider with the findings from the household survey.

An interface meeting with members from the community, chosen in the community meeting, and health workers followed the community and health facility meetings. During the interface meeting, the community representatives and the health workers discussed suggestions for improvements. The participants discussed their rights and responsibilities as patients or medical staff. The outcome was a shared action plan, or a contract, outlining the community's and the service provider's agreement on what needs to be done, and how, when, and by whom. The "community contract" also identified how the community could monitor the agreements and a time plan. Because the problems that were raised in the community meetings constituted the core issues discussed during the interface meetings, the community contract was in many respects similar to the community's action plan.

The three separate meetings aimed at kick-starting the process of community monitoring. Thus, after the initial meetings the communities were themselves in charge of establishing ways of monitoring the provider. After a period of six months, the communities and health facilities were revisited. The CBOs facilitated a one-afternoon community meeting and a one-afternoon interface meeting with the aim of tracking the implementation of the community contract. Health facility staff and community members jointly discussed suggestions for sustaining or improving progress, or in the case of no improvements, why so.⁵

5. Details on the report cards and the participatory methods used, as well as an example of an action plan, are provided in the Online Supplemental Appendix.

IV. EVALUATION DESIGN AND EXPECTED OUTCOMES

IV.A. *Outcomes*

The main outcome of interest is whether the intervention increased the quantity and quality of health care provision and hence resulted in improved health outcomes. We are also interested in evaluating changes in all steps in the accountability chain: Did the treatment communities become more involved in monitoring the health workers? Did the intervention change the health workers' behavior?

As a robustness test we also assess alternative explanations. One concern is spillovers. Another concern is that the intervention did not only (or primarily) increase the extent of community monitoring, but had an impact on other agents in the service delivery chain, such as the health subdistrict. The intervention could also have affected the health workers' behavior directly, or affected it through the actions of the CBOs, rather than through more intense community-based monitoring as we hypothesize. Although this would not invalidate the causal effect of the intervention, it would, of course, affect the interpretation. Therefore, these alternative hypotheses are also subject to a battery of tests.

IV.B. *Statistical Framework*

To assess the causal effect of the intervention we estimate

$$(1) \quad y_{ijd} = \alpha + \beta T_{jd} + \mathbf{X}_{jd}\pi + \theta_d + \varepsilon_{ijd},$$

where y_{ijd} is the outcome of household i (when applicable) in community/health facility j in district d , T_{jd} is an indicator variable for assignment to treatment, and ε_{ijd} is an error term. Equation (1) also includes a vector, $\mathbf{X}$, of preintervention facility-specific covariates and district fixed effects (θ_d).⁶ Because of random assignment, T should be orthogonal to $\mathbf{X}$, and the consistency of β does not depend on the inclusion of $\mathbf{X}$ in the model. The regression adjustment is used to improve estimation precision and to account for stratification and chance differences between groups

6. The baseline covariates included are number of villages in the catchment area, number of days without electricity in the past month, indicator variable for whether the facility has a separate maternity unit, distance to nearest public health provider, number of staff with less than advanced A-level education, indicator variable for whether the staff could safely drink from the water source, and average monthly supply of quinine.

in the distribution of pre-random assignment (Kling, Liebman, and Katz 2007).

We report the results of estimating equation (1) with $\mathbf{X}$ and θ excluded in the Online Supplemental Appendix. For a subset of variables we can also stack the pre- and postdata and explore the difference-in-differences in outcomes; that is, we estimate⁷

$$(2) \quad y_{ijt} = \gamma \text{POST}_t + \beta_{\text{DD}}(T_j * \text{POST}_t) + \mu_j + \varepsilon_{ijt},$$

where POST is an indicator variable for the postintervention period, μ_j is a facility/community specific fixed effect, and β_{DD} is the difference-in-differences estimate (program impact).

For some outcomes we have several outcome measures. To form judgment about the impact of the intervention on a family of K related outcomes, we follow Kling et al. (2004) and estimate a seemingly unrelated regression system,

$$(3) \quad Y = [I_K \otimes (T\mathbf{X})]\theta + v,$$

where I_K is a K by K identity matrix. We then derive average standardized treatment effects, $\tilde{\beta} = 1/K \sum_{k=1}^K \hat{\beta}_k / \hat{\sigma}_k$, where $\hat{\beta}_k$ and $\hat{\sigma}_k$ are the point estimate and standard error, respectively, for each effect (see Duflo, Glennerster, and Kremer [2007]). The point estimate, standard error, and p -value for $\tilde{\beta}$ are based on the parameters, $\hat{\beta}_k$ and $\hat{\sigma}_k$, jointly estimated as elements of θ in (3).

V. RESULTS

V.A. Preintervention Differences

The treatment and the control group were similar on most characteristics prior to the intervention. Average standardized pretreatment effects are estimated for each family of outcomes (utilization, utilization pattern, quality, catchment area statistics, health facility characteristics, citizen perceptions, supply of resources, and user charges) using preintervention data. As shown in Table I, we cannot reject the null hypotheses of no difference between the treatment and the control group.⁸

7. It is a subset of variables because the postintervention surveys collected information on more variables and outcomes.

8. We report the test of difference in means across control and treatment groups for each individual variable in the Online Supplemental Appendix.

TABLE I
PRETREATMENT FACILITY AND CATCHMENT AREA CHARACTERISTICS AND AVERAGE
STANDARDIZED EFFECTS

Variables	Treatment group	Control group	Difference
<i>Key characteristics</i>			
Outpatient care	593 (75)	675 (57)	-82 (94)
Delivery	10.3 (2.2)	7.5 (1.4)	2.8 (2.6)
No. of households in catchment area	2,140 (185)	2,224 (204)	-84.4 (276)
No. of households per village	93.9 (5.27)	95.3 (6.32)	-1.42 (8.23)
Drank safely today	0.40 (0.10)	0.32 (0.10)	0.08 (0.14)
No. of days without electricity in past month	18.3 (2.95)	20.4 (2.90)	-2.12 (4.14)
<i>Average standardized pretreatment effects</i>			
Utilization			0.11 (0.77)
Utilization pattern			-0.48 (0.33)
Quality measures			-0.35 (0.84)
Catchment area statistics			0.11 (0.66)
Health facility characteristics			0.14 (0.31)
Citizen perceptions			0.37 (0.67)
Supply of drugs			0.73 (0.83)
User charges			-0.65 (0.63)

Notes. Key characteristics are catchment area/health facility averages for treatment and control group and difference in averages. Robust standard errors in parentheses. Description of variables: Outpatient care is average number of patients visiting the facility per month for outpatient care. Delivery is average number of deliveries at the facility per month. Number of households in catchment area and number of households per village are based on census data and Uganda Bureau of Statistics maps. Drank safely today is an indicator variable for whether the health facility staff at the time of the preintervention survey could safely drink from the water source. Number of days without electricity in the month prior to preintervention survey is measured out of 31 days. Average standardized pretreatment effects are derived by estimating equation (3) on each family of outcomes. Utilization summarizes outpatients and deliveries. Utilization pattern summarizes the seven measures in Supplemental Appendix Table A.I, reversing sign of traditional healer and self-treatment. Quality measure summarizes the two measures in Table A.I, reversing sign of waiting time. Catchment area statistics summarize the four measures in Table A.I. Health facility characteristics summarize the eight measures in Table A.I and drank safely today and days without electricity, reversing sign of days without electricity and distance to nearest local council. Citizen perceptions summarize the four measures in Table A.I. Supply of drugs summarizes the five measures in Table A.I. User charges summarize the four measures in Table A.I, reversing all signs. The χ^2 test-statistic on the joint hypothesis that all average standardized effects are 0 is 4.70 with p -values = .79.

V.B. Processes

The initial phase of the project, that is, the three separate meetings, followed a predesign structure. A parallel system whereby a member of the survey team originating from the district participated as part of the CBO team also confirmed that the initial phase of the intervention was properly implemented. After these initial meetings, it was up to the community to sustain and lead the process. In this section we study whether the treatment communities became more involved in monitoring the providers.

To avoid influencing local initiatives, we did not have external agents visiting the communities and could therefore not document all actions taken by the communities in response to the intervention. Still, we have some information on how processes in the community have changed. Specifically, the CBOs submitted reports on what type of changes they observed in the treatment communities and we also surveyed the local councils in the treatment communities. We use facility and household survey data to corroborate these reports.

According to the CBO reports and the local council survey, the community-based monitoring process that followed the first set of meetings was a joint effort mainly managed by the local councils, HUMC, and community members. A typical village in the treatment group had, on average, six local council meetings in 2005. In those meetings, 89% of the villages discussed issues concerning the project health facility. The main subject of discussion in the villages concerned the community contract or parts of it, such as behavior of the staff.

The CBOs reported that concerns raised by the village members were carried forward by the local council to the facility or the HUMC. However, although the HUMC is an entity that should play an important role in monitoring the provider, it was in many cases viewed as being ineffective. As a result, mismanaged HUMCs were dissolved and new members elected. These claims are confirmed in the survey data: more than one-third of the HUMCs in the treatment communities were dissolved and new members were elected or received following the intervention, whereas we observed no dissolved HUMCs in the control communities. Further, the CBOs report that the community, or individual members, also monitored the health workers during visits to the clinic, when they rewarded and questioned issues in the community contract that had or had not been addressed, suggesting a

more systematic use of nonpecuniary rewards. Monitoring tools such as suggestion boxes, numbered waiting cards, and duty rosters were also reported to be put in place in several treatment facilities.

In Table II, we formally look at the program impact on these monitoring tools. We use data collected through visual checks by enumerators during the postintervention facility survey. As shown in columns (1) and (2), one year into the project, treatment facilities are significantly more likely to have suggestion boxes (no control facility had these, but 36% of the treatment facilities did) and numbered waiting cards (only one control facility had one, but 20% of the treatment facilities did). Columns (3) and (4) show that a higher share of the treatment facilities also posted information on free services and patients' rights and obligations. The enumerators could visually confirm that 70% of the treatment facilities had at least one of these monitoring tools, whereas only 4 of 25 control clinics had at least one of them. The difference is statistically significant (Online Supplemental Appendix, Table A.II). Column (5) reports the average standardized effect of the monitoring tools. The estimate is significantly different from zero at the 1% level.

The results based on household data mirror the findings reported in columns (1)–(5). The performance of the staff is more often discussed in local council meetings in the treatment communities, shown in column (6), and community members in the treatment group are, on average, better informed about the HUMC's roles and responsibilities, as reported in column (7). Combining the evidence from the CBO reports and the household survey data thus suggests that both the "quantity" of discussions about the project facility and the subject, from general to specific discussions about the community contract, changed in response to the intervention.

V.C. Treatment Practices

The qualitative evidence from the CBOs and, to the extent that we can measure them, the findings reported in Table II suggest that the treatment communities became more involved in monitoring the provider. Did the intervention also affect the health workers' behavior and performance? We turn to this next.

We start by looking at examination procedures. The estimate based on equation (2) with the dependent variable being

TABLE II
PROGRAM IMPACT ON MONITORING AND INFORMATION

Dependent variable	Suggestion box (1)	Numbered waiting cards (2)	Poster informing free services (3)	Poster on patients' rights (4)	Average standardized effect (5)	Discuss facility in LC meetings (6)	Received information about HUMC (7)
Specification:							
Program impact	0.32*** (0.08)	0.16* (0.09)	0.27*** (0.09)	0.14 (0.10)	2.55*** (0.55)	0.13*** (0.03)	0.04*** (0.01)
Mean control group	0	0.04	0.12	0.12	—	0.33	0.08
Observations	50	50	50	50	50	3,119	4,996

Notes. Robust standard errors in parentheses. Disturbance terms are clustered by catchment areas in columns (6)–(7). Point estimates, standard errors, and average standardized effect, columns (1)–(5), are derived from equation (3). Program impact measures the coefficient on the assignment to treatment indicator. Outcome measures in columns (1)–(4) are based on data collected through visual checks by the enumerators during the postintervention facility survey. Outcome measures in columns (6) and (7) are from the postintervention household survey. The estimated equations all include district fixed effects and the following baseline covariates: number of villages in catchment area, number of days without electricity in the past month, indicator variable for whether the facility has a separate maternity unit, distance to nearest public health provider, number of staff with less than advanced A-level education, indicator variable for whether the staff could safely drink from the water source, and average monthly supply of quinine. Specification: (1) indicator variable for whether the health facility has a suggestion box for complaints and recommendations; (2) indicator variable for whether the facility has numbered waiting cards for its patients; (3) indicator variable for whether the facility has a poster informing about free health services; (4) indicator variable for whether the facility has a poster on patients' rights and obligations; (5) average standardized effect of the estimates in columns (1)–(4); (6) indicator variable for whether the household discussed the functioning of the health facility at a local council meeting during the past year; (7) indicator variable for whether the household has received information about the Health Unit Management Committee's (HUMC's) roles and responsibilities.

*Significant at 10%.

**Significant at 5%.

***Significant at 1%.

TABLE III
PROGRAM IMPACT ON TREATMENT PRACTICES AND MANAGEMENT

Spec.	Dep. variable	Model	Program impact	2005	Mean control group 2005	Obs.
(1)	Equipment used	DD	0.08** (0.03)	−0.07*** (0.02)	0.41	5,280
(2)	Equipment used	OLS	0.01 (0.02)		0.41	2,758
(3)	Waiting time	DD	−12.3* (7.1)	−12.4** (5.2)	131	6,602
(4)	Waiting time	OLS	−5.16 (5.51)		131	3,426
(5)	Absence rate	OLS	−0.13** (0.06)		0.47	46
(6)	Management of clinic	OLS	1.20*** (0.33)		−0.49	50
(7)	Health information	OLS	0.07*** (0.02)		0.32	4,996
(8)	Importance of family planning	OLS	0.06*** (0.02)		0.31	4,996
(9)	Stockouts	OLS	−0.15** (0.07)		0.50	42

Notes. Each row is based on a separate regression. The DD model is from equation (2). The OLS model is from equation (1) with district fixed effects and baseline covariates as listed in Table II. Robust standard errors, clustered by catchment areas, are in columns (1)–(4) and (7)–(8), in parentheses. Program impact measures the coefficient on the assignment to treatment indicator in the OLS models and the assignment to treatment indicator interacted with an indicator variable for 2005 in the DD models. Specifications: (1) and (2) indicator variable for whether the staff used any equipment during examination when the patient visited the health facility; (3) and (4) difference between the time the citizen left the facility and the time the citizen arrived at the facility, minus the examination time; (5) ratio of workers not physically present at the time of the postintervention survey to the number of workers employed preintervention (see text for details); (6) first component from a principal components analysis of the variables Condition of the floors of the health clinic, Condition of the walls, Condition of furniture, and Smell of the facility, where each condition is ranked from 1 (dirty) to 3 (clean) by the enumerators; (7) indicator variable for whether the household has received information about the importance of visiting the health facility and the danger of self-treatment; (8) indicator variable for whether the household has received information about family planning; (9) share of months in 2005 in which stock cards indicated no availability of drugs (see text for details).

*Significantly different from zero at 90% confidence level.

**Significantly different from zero at 95% confidence level.

***Significantly different from zero at 99% confidence level.

an indicator variable for whether any equipment, for instance, a thermometer, was used during examination is shown in the first row in Table III. Fifty percent (41) of the patients in the treatment (control) community reported that equipment was used the last time the respondent (or the respondent's child) visited the project clinic. The difference-in-differences estimate, a 20% increase, is highly significant. The cross-sectional estimate in row (2), based on equation (1), is less precisely estimated.

In row (3) we report the result with an alternative measure of staff performance—the waiting time—defined as the difference between the time the user left the facility and the time the user arrived at the facility, subtracting the examination time. On average, the waiting time was 131 minutes in the control facilities and 119 in the treatment facilities. The estimate based on equation (1), shown in column (4), is less precisely estimated.

The results on absenteeism are shown in row (3).⁹ The point estimate suggests a substantial treatment effect. On average, the absence rate, defined as the ratio of workers not physically present at the time of the postintervention survey to the number of workers on the list of employees as reported in the preintervention survey, is 13 percentage points lower in the treatment facilities. Thus, in response to the intervention, health workers are more likely to be at work.

Enumerators also visually checked the condition of the health clinics, that is, whether floors and walls were clean, the condition of the furniture, and the smell of the facility. We combine these variables through principal components analysis into a summary score. Treatment clinics appear to have put more effort into keeping the clinic in decent condition in response to the intervention. The point estimate, reported in row (6), implies a 0.56 standard deviation improvement in the summary score in the treatment compared to the control facilities.

According to the government health sector strategic plan, preventive care is one of the core tasks for health providers at the primary level. A significantly larger share of households in the treatment communities have received information about the dangers of self-treatment, reported in row (7), and the importance of family planning, reported in row (8). The difference is 7 and 6 percentage points, respectively.

There is no systematic difference in the supply of drugs between the treatment and control groups (see Section V.F). However, as shown in row (9), stockouts of drugs are occurring at a higher frequency in the control facilities even though, as reported

9. The postintervention survey was not announced in advance. At the start of the survey, the enumerators physically verified the provider's presence. A worker was counted as absent if, at the time of the visit, he or she was not in the clinic. Staff reported to be on outreach were omitted from the absence calculation. Four observations were dropped because the total number of workers verified to be present or reported to be on outreach exceeded the total number of workers on the preintervention staff list. Assuming instead no absenteeism in these four facilities yields a point estimate (standard error) of -0.20 (0.065).

below, the control facilities treat significantly fewer patients. These findings suggest that more drugs leaked from health facilities in the control group.¹⁰

The findings on immunization of children under five are reported in Table IV. We have information on how many times (doses) in total each child has received polio, DPT, BCG, and measles vaccines and vitamin A supplements. On the basis of the recommended immunization plan, we create indicator variables taking the value of 1 if child i of cohort (age) j had received the required dose(s) of measles, DPT, BCG, and polio vaccines, respectively, and 0 otherwise.¹¹ We then estimate (3), for each age group, and calculate average standardized effects.

The average standardized effects are significantly positive for the younger cohorts. Looking at individual effects (Online Supplemental Appendix Table A.IV), there are significant positive differences between households in the treatment and control community for all five vaccines, although not for all cohorts. For example, twice as many newborns in the treatment group have received vitamin A supplements, 46% more newborns have received the first dose of BCG vaccine, and 42% more newborns have received the first dose of polio vaccine as compared to the control group.

V.D. Utilization

To the extent we can measure it, the evidence presented so far suggests that treatment communities began to monitor the health unit more extensively in response to the intervention and that the health workers improved the provision of health services. We now turn to the question of whether the intervention also resulted in improved quantity and quality of care.

Cross-sectional estimates based on equation (3) are given in Table V, Panel A. For outpatients and deliveries, we have

10. The dependent variable is the share of months in 2005 in which stock cards indicated no availability of drugs, averaged over erythromycin, mebendazole, and septrin. We find no significant difference between treatment and control clinics for chloroquine—the least expensive of the drugs on which we have data. Not all clinics had accurate stock cards and these clinics were therefore omitted.

11. According to the Uganda National Expanded Program on Immunization, each child in Uganda is supposed to be immunized against measles (one dose at nine months and two doses in case of an epidemic); DPT (three doses at six, ten, and fourteen weeks); BCG (one dose at birth or during the first contact with a health facility); and polio (three doses, or four if delivery takes place at the facility, at six, ten, and fourteen weeks). Because measles vaccination should not be given at birth, we exclude immunization against measles in the plan for infants under twelve months.

TABLE IV
PROGRAM IMPACT ON IMMUNIZATION

Group Specification:	Newborn (1)	Under 1 year (2)	1 year old (3)	2 years old (4)	3 years old (5)	4 years old (6)
Average standardized effect	1.30* (0.70)	1.44** (0.72)	1.24** (0.63)	0.72 (0.58)	2.01*** (0.67)	0.86 (0.80)
Observations	173	929	940	951	1,110	526

Notes: Average standardized effects are derived from equation (3) with the dependent variables being indicator variables for whether the child has received at least one dose of measles, DPT, BCG, and polio vaccines and vitamin A supplement, respectively (see text for details), and with district fixed effects and baseline covariates listed in Table II included. Robust standard errors clustered by catchment areas in parentheses. Groups: (1) Children under 3 months; (2) Children 0–12 months; (3) Children 13–24 months; (4) Children 25–36 months; (5) Children 37–48 months; (6) Children 49–60 months.

*Significant at 10% level.

**Significant at 5% level.

***Significant at 1% level.

TABLE V
PROGRAM IMPACT ON UTILIZATION/COVERAGE

Dep. variable	Outpatients	Delivery	Antenatal	Family planning	Average std effect	Use of project facility	Use of self-treatment/traditional healers	Average std effect
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>A: Cross-sectional data</i>								
Program impact	130.2** (60.8)	5.3** (2.1)	15.0 (11.2)	3.4 (3.2)	1.75*** (0.63)	0.026* (0.016)	-0.014 (0.011)	1.43* (0.87)
Observations	50	50	50	50	50	50	50	50
	(9)	(10)			(11)	(12)	(13)	(14)
<i>B: Panel data</i>								
Program impact	189.1*** (67.2)	3.48* (1.96)			2.30*** (0.69)	0.031* (0.017)	-0.046** (0.021)	1.96** (0.89)
Observations	100	100			100	100	100	100
Mean control group 2005	661	9.2	78.9	15.2	-	0.24	0.36	-

Notes. Panel A reports program impact estimates from cross-sectional models with district fixed effects and baseline covariates as listed in Table II, with robust standard errors in parentheses. Panel B reports program impact estimates from difference-in-differences models with robust standard errors clustered by facility in parentheses. Point estimates, standard errors, and average standardized effects in specifications (1)–(5), (6)–(8), (9)–(11), and (12)–(13) are derived from equation (3). Program impact measures the coefficient on the assignment to treatment indicator in the OLS models and the assignment to treatment indicator interacted with an indicator variable for 2005 in the DD models. Specifications: First column is average number of patients visiting the facility per month for outpatient care; second column is average number of deliveries at the facility per month; third column is average number of antenatal visits at the facility per month; fourth column is average number of family planning visits at the facility per month; fifth column is average standardized effect of estimates in specifications (1)–(4) and (9)–(10), respectively; sixth column is the share of visits to the project facility of all health visits, averaged over catchment area; seventh column is the share of visits to traditional healers and self-treatment of all health visits, averaged over catchment area; eighth column is average standardized effect of estimates in specifications (6)–(7) and (12)–(14), respectively, reversing the sign of use of self-treatment/traditional healers.

*Significant at 10% level.

**Significant at 5% level.

***Significant at 1% level.

preintervention data and can also estimate difference-in-differences models, shown in Panel B, and value-added models, shown in Table A.V in the Online Supplemental Appendix.¹²

One year into the program, utilization (for general outpatient services) is 20% higher in the treatment facilities as shown in specification (1). For the difference-in-differences and the value-added models (reported in specification (9) in Table V and specification (ix) in Table A.V), the coefficients on the treatment indicator are larger both in absolute magnitude and relative to their standard errors. Thus, controlling for baseline outcomes, y_{jt-1} , improves the precision of the treatment effect, which is to be expected given the persistent nature of the outcome variable. The difference in the number of deliveries, shown in specification (2), albeit starting from a low level, is 58% and is fairly precisely estimated. There are also positive differences in the number of patients seeking antenatal care (19% increase) and family planning (22% increase), although these estimates are not individually significantly different from zero. The average standardized effect, reported in specification (5), however, is highly significant.

The last three columns in Table V, Panels A and B, report changes in utilization patterns based on household data. We collected data on where each household member sought care during 2005 in case of illness that required treatment and collapsed this information by community. There is an 11%–13% increase, specifications (6) and (12), in the use of the project facility in treatment as compared to the control group—a result consistent with that reported in specification (1) using facility records.

Households in the treatment community also reduced the number of visits to traditional healers and the extent of self-treatment, specifications (7) and (13), but there are no statistically significant differences across the two groups in the use of other providers (not reported). Thus, as summarized in the average standardized treatment effects, specifications (8) and (9), households in the treatment communities switched from traditional healers and self-treatment to the project facility in response to the intervention.

12. The value-added specification is $y_{jt} = \alpha_{VA} + \beta_{VA}T_j + \lambda y_{jt-1} + \varepsilon_{jt}$.

V.E. Health Outcomes

We collected data on births, pregnancies, and deaths of children under five years in 2005. We also measured the weight of all infants (i.e., under age 18 months) and children (between ages 18 and 36 months) in the surveyed households.

Health outcomes could have improved for several reasons. As noted in the Introduction, access to a small set of proven, inexpensive services could, worldwide, have prevented more than half of all deaths of children under age 5. For a country with an epidemiological profile as in Uganda, the estimate of preventable deaths is 73 percent (Jones et al. 2003).¹³ In the community monitoring project specifically, increased utilization and having patients switch from self-treatment and traditional healers to seek care at the treatment facility could have an effect. Holding utilization constant, better service quality, increased immunization, and more extensive use of preventive care could also have resulted in improved health status.

As a reference point we review the set of health interventions feasible for delivery at high coverage in low-income settings with sufficient evidence of effect on reducing mortality from the major causes of under-5 deaths (Jones et al. 2003). We focus on community-based, randomized, controlled field trials that bear some resemblance (because they are community-based) to our project. Several of these field trials document reductions in under-5 mortality rates of 30%–50% one to two years into the project.¹⁴ There is, however, a fundamental difference between the

13. This is likely to be a conservative number because only medical interventions for which cause-specific evidence of effect was available were included in the estimation. For example, increased birth spacing, which has been estimated to reduce under-5 mortality by 19 percent in India, was not considered. Several perinatal and neonatal health interventions that could be implemented in low-income countries were not included either (Darmstadt et al. 2005).

14. For example, a project in Tigray, Ethiopia, in which coordinators, supported by a team of supervisors, were trained to teach mothers to recognize symptoms of malaria in their children and provide antimalarials, reduced under-5 mortality by 40% (Kidane and Morrow 2000). Bang et al. (1990) document a 30% reduction in under-5 mortality from an intervention that included mass education about childhood pneumonia and case management of pneumonia by trained village health workers—a result similar to the meta-analysis estimate by Sazawal and Black (2003). Bang et al. (1999) evaluate a project in which trained village health workers, assisted by birth attendants and supervisory visits, provided home-based neonatal care, including treatment of sepsis. Two years into the project, they document a reduction in infant mortality by nearly 50 percent. Rahmathullah et al. (2003) assess the impact of a community-based project in two rural districts of Tamil Nadu, India, where newborn infants in the treatment group were allocated oral vitamin A after delivery. The intervention resulted in a 22% reduction in total mortality at age 6 months. Manandhar et al. (2004) evaluate a project in which a

interventions discussed in footnote 14 and our work. The medical field trials study the impact of a biological agent or treatment practice in a community setting when the community health workers and medical personnel competently carry out their tasks. In the experiment we consider, on the contrary, no new health interventions were introduced and the supply of health inputs was unchanged. Instead, we focused on incentivizing health workers to carry out their tasks through strengthened local accountability.

Estimates for births and pregnancies are given in Table VI, columns (1) and (2). To the extent that the intervention had an effect on fertility, for example, through increased use of family planning services, it would primarily affect the incidence of pregnancies in 2005, given the forty-week period between conception to birth. The incidence of births is not significantly different across treatment and control groups. However, the treatment groups had 10% fewer incidences of pregnancies in 2005.

Column (3) shows the treatment effect on under-5 mortality.¹⁵ The point estimate suggests a substantial treatment effect. The average under-5 mortality rate in the control group is 144, close to the official figure of 133 for 2005 (UNICEF 2006). In the treatment group, the under-5 mortality rate is 97, which is a 33% reduction in under-5 mortality. The difference is significant (and somewhat larger in absolute magnitude) when controlling for district fixed effects as reported in column (3). Although the effect is large, it is worth emphasizing that the 90% confidence interval of our estimate also includes much lower effects (90% CI: 8%–64% reduction in under-5 mortality rate). With a total of approximately 55,000 households residing in the treatment communities, the treatment effect corresponds to approximately 550 averted under-5 deaths in the treatment group in 2005.

facilitator convened nine women's group meetings every month in the Makwanpur district in Nepal in which perinatal problems were identified and strategies to address them formulated. Two years into the project they document a 30% reduction in neonatal mortality. Rahman et al. (1982) evaluate the impact of immunization of women with tetanus injections during pregnancy in rural Bangladesh. The intervention reduced neonatal mortality by 45%. Mtango and Neuvians (1986) evaluate a project in rural Tanzania in which trained village health workers visited families at their homes every six to eight weeks, giving health education on recognition and prevention of acute respiratory infections, treating children with pneumonia with antibiotics or referring them to the next higher level of care. Within a two-year period, they document a 27% reduction in under-5 mortality—a reduction slightly lower than that found in a similar study in rural Bangladesh (Fauveau et al. 1992).

15. The under-5 mortality rate is the sum of the death rates for each cohort (age groups 0–1, 1–2, 2–3, 3–4, and 4–5) per community in 2005, expressed per thousand live births.

TABLE VI
PROGRAM IMPACT ON HEALTH OUTCOMES

Dependent variable	Births (1)	Pregnancies (2)	U5MR (3)	Child death (4)	Weight-for-age z-scores (5)	Weight-for-age z-scores (6)
Specification:						
Program impact	-0.016 (0.013)	-0.03** (0.014)	-49.9* (26.9)		0.14** (0.07)	0.14** (0.07)
Child age (log)						-1.27*** (0.07)
Female						0.27*** (0.09)
Program impact × year of birth 2005				-0.026** (0.013)		
Program impact × year of birth 2004				-0.019** (0.008)		
Program impact × year of birth 2003				0.003 (0.009)		
Program impact × year of birth 2002				0.000 (0.006)		
Program impact × year of birth 2001				0.002 (0.006)		
Mean control group 2005	0.21	0.29	144	0.029	-0.71	-0.71
Observations	4,996	4,996	50	5,094	1,135	1,135

Notes. Estimates from equation (1) with district fixed effects and baseline covariates as listed in Table II included. Specification (4) also includes a full set of year-of-birth indicators. Robust standard errors in parentheses (3), clustered by catchment area (1)–(2), (4)–(6). Program impact measures the coefficient on the assignment to treatment indicator. Specifications: (1) Number of births in the household in 2005; (2) indicator variable for whether any women in the household are or were pregnant in 2005; (3) U5MR is under-5 mortality rate in the community expressed per 1,000 live births (see text for details); (4) indicator variable for child death in 2005; (5)–(6) weight-for-age z-scores for children under 18 months excluding observations with recorded weight above the 90th percentile in the growth chart reported in Cortinovis et al. (1997).

*Significant at 10% level.

**Significant at 5% level.

***Significant at 1% level.

Column (4) shows the age range of the mortality effects. We have information on the birth year of all children (under age 5) alive at the beginning of 2005 and the birth year of all deceased children in 2005. Using these data we estimate (1), replacing the treatment indicator with a full set of year-of-birth indicators and year-of-birth-by-treatment interactions. We can then address the question: Conditional on having a child of age x at the end of 2004, or a child born in 2005, what is the probability that the child died in 2005? As evident, children younger than two years old drive the reduction in under-5 mortality. The point estimate for the youngest cohort, for example, implies a 35% reduction in the likelihood of death of a child born in 2005 in the treatment compared to the control group.

The program impact on the weight of infants is reported in columns (5) and (6). On the basis of weight-for-age z -scores, Ugandan infants have values of weight far lower than the international reference of the U.S. National Center for Health Statistics of the Centers for Disease Control and Prevention (CDC) and the gap increases for older infants, consistent with the findings in Cortinovis et al. (1997).¹⁶ The difference in means of z scores of infants between the treatment and the control group is reported in column (5): The estimated effect (difference) is 0.14 in weight-for-age. Figure II plots the distribution of z scores for the treatment and control groups. The difference in measured weight is most apparent for underweight children. This is consistent with a positive treatment effect arising from improved access and quality of health care, rather than a general increase in nutritional status, because underweight status causes a decrease in immune and nonimmune host defenses and, as a consequence, underweight children are at a higher risk of suffering from infectious diseases or severe complications of infectious diseases, and therefore in higher demand of health care. In column (6) of Table VI, we add controls for age and gender. The results remain qualitatively unchanged.

The treatment effect is quantitatively important. For this purpose, the baseline proportion of infants in each risk category

16. The z -score is a normally distributed measure of growth defined as the difference between the weight of an individual and the median value of weight for the reference population (2000 CDC Growth Reference in the United States) for the same age, divided by the standard deviation of the reference population. We exclude z -scores $> |4.5|$ as implausible and omit observations with a recorded weight above the 90th percentile in the growth chart reported in Cortinovis et al. (1997). Because weight is measured by trained enumerators, the reporting error is likely due to misreported age of the child. The coefficient estimate (standard error) on the treatment indicator is 0.16 (0.09) when including these outliers.

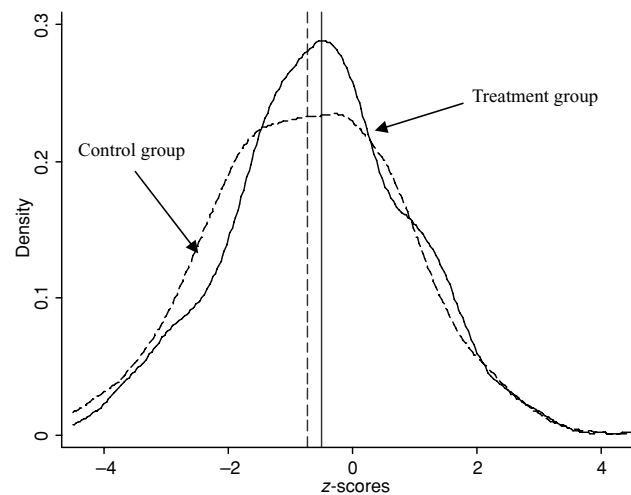


FIGURE II

Distributions of Weight-for-Age z-Scores for Treatment and Control Groups

Weight-for-age z-scores for children under 18 months excluding observations with recorded weight above the 90th percentile in the growth chart reported in Cortinovis et al. (1997). Sample size is 1,135 children. Solid line depicts the distribution for the treatment group and dashed line the distribution for the control group. Vertical solid line denotes mean in treatment group; dashed line denotes mean in control group.

(severe, < -3 z-scores; moderate, $-3 \leq$ z-scores < -2 ; mild, $-2 \leq$ z-scores < -1) in the control group was calculated. Applying the shift in the weight-for-age distribution (adding 0.14 z-score) with the odds ratio for each category—children who are mildly (moderately) [severely] underweight have about a twofold (fivefold) [eightfold] higher risk of death from infectious disease (Jones et al. 2003)—the reduction in average risk of mortality is estimated to be approximately 7 percent.¹⁷

V.F. Getting Inside the Box and Robustness Tests

The findings of large treatment effects on our proxies of community-based monitoring and outcomes are consistent with the community-based monitoring mechanism, but the findings do

17. To put this into perspective, a review of controlled trials designed to improve the intake of complementary food for children ages six months to five years showed a mean increase of 0.35 z-score (Jones et al. 2003). Jones and colleagues argue that this is one of the most effective preventive interventions feasible for delivery at high coverage in a low-income setting.

not rule out other explanations. In this section we assess a number of these alternative hypotheses.

To examine the plausibility of community-based monitoring as a key mechanism for the health utilization and health outcomes treatment effects, we follow the methodology used by Kling, Liebman, and Katz (2007). Specifically, we test whether the differences between treatment and control in outcomes across districts are larger in districts with large treatment-control differences in monitoring and information outcomes. This relationship is summarized by the parameter δ , the coefficient on the summary index of monitoring and information, in the outcome equation

$$(4) \quad y_j = \delta M_j + \mathbf{X}_j \pi + \varepsilon_j.$$

The summary index of monitoring M in (4) is the first component from a principal components analysis of the six monitoring and information variables in Table II. We examine two outcome measures (y_j), under-5 mortality and number of outpatients.

Following Kling, Liebman, and Katz (2007), we estimate (4) by two-stage least squares (2SLS), using a full set of district-by-treatment interactions as the excluded instruments for the monitoring index M , while controlling for district fixed effects. The IV estimation of (4) will be consistent if M is the mediating factor between treatment and outcomes.

The IV approach is depicted graphically in Figure III.¹⁸ There is a consistent pattern across districts and groups that larger differences in monitoring (relative to the district mean) are associated with larger differences in outcomes—a result in line with the community-based monitoring mechanism.

Estimates based on equation (4) are given in Table VII. The first two columns show 2SLS estimates of δ with district-by-treatment interactions as excluded instruments for the monitoring index M . To increase precision, we control for baseline outcomes y_{jt-1} , when data allow it (i.e., for number of outpatients treated). The estimates are large in absolute terms and precisely estimated.

18. If $\mathbf{X}$ contains only district indicators, the 2SLS estimate of δ using the district-by-treatment interactions instruments is the slope of the line fit through a scatterplot of the outcome and monitoring index means for the treatment and control groups in each of the nine districts, normalized so that each district has mean 0 (Kling, Liebman, and Katz 2007). We plot the average values by group (treatment and control) for each district for y and M expressed in standard deviation units relative to the control group overall standard deviation for each variable.



Partial regression plots. The community monitoring index, outpatients, and under-5 mortality rate in the community (all three variables are described in the main text) are expressed in standard deviation units relative to the control group overall standard deviation for each variable. The points are the average values by group (treatment and control) for each district, normalized so that each district has mean 0. The line passes through the origin with the slope from the 2SLS estimation of equation (4) of the outcome on community monitoring and district indicators, using district-by-treatment interactions as instrumental variables. T (C) denotes treatment (control) group.

TABLE VII
MECHANISMS AND ROBUSTNESS

Dep. variable	Out- patients (1)	U5MR (2)	Out- patients (3)	U5MR (4)	Out- patients (5)	U5MR (6)	Out- patients (7)	U5MR (8)
Specification:								
Community monitoring index	0.77*** (0.22)	-0.43* (0.25)	0.86* (0.53)	-0.43 (0.82)	0.77** (0.21)	-0.54* (0.30)		
Staff's knowledge about patients' rights					-0.01 (0.28)	0.47 (0.29)		
Program impact			-0.12 (0.66)	0.01 (0.88)			190.5** (92.6)	-41.3 (45.8)
CBO presence							-8.3 (69.4)	-21.0 (37.9)
Program impact $\times$ CBO presence							-127.9 (126.1)	-4.0 (58.4)
<i>F</i> -test on program impact							6.17 (.05)	
<i>F</i> -test on CBO presence							0.37 (.83)	
<i>F</i> -test on program impact $\times$ CBO presence							1.03 (.60)	

Notes. Columns (1)–(4) report 2SLS estimates from equation (4) with district-by-treatment interactions as the excluded instruments and district fixed effects and outpatients_{*i*-1} (in specifications (1) and (3)) as controls. The variables in columns (1)–(4) are expressed in standard deviation units relative to the control group overall standard deviation for each variable. Robust standard errors are in parentheses. Program impact measures the coefficient on the assignment to treatment indicator. *F*-test statistics (with *p*-values in parentheses) on the excluded instruments Community monitoring and Staff's knowledge about patients' rights are 15.9 (.00) and 7.23 (.00), respectively. Point estimates and standard errors in columns (5)–(6) and columns (7)–(8), respectively, are jointly estimated from equation (3). Explanatory variables: Community monitoring is the first component from a principal components analysis of the six monitoring and information proxies presented in Table II. Staff's knowledge about patients' rights is a measure of the in-charge's knowledge about patients' rights and obligations (see text for details). CBO presence is an indicator variable for whether a participating CBO had been operating in the community before the intervention. *F*-test on program impact (CBO presence) [Program impact $\times$ CBO presence] is the test statistic, with *p*-values in parenthesis, on the test that the coefficients on program impact (CBO presence) [Program impact $\times$ CBO presence] are jointly 0 in columns (5)–(6) and (7)–(8), respectively.

*Significant at 10% level.

**Significant at 5% level.

***Significant at 1% level.

A stricter test of whether the extent of the program impact varies with the size of the community monitoring impact is to add a treatment dummy (an overall treatment effect regardless of the community monitoring impact) to the IV regressions in equation (4). The community monitoring index is then identified by cross-district variation in changes in community monitoring by treatment from the district-by-treatment interactions as the excluded instruments, with the main effect for treatment no longer excluded; the results are reported in columns (3) and (4) of Table VII. Comparing the results without and with controls for treatment is quite similar for both outpatients and under-5 mortality, while the coefficients on the treatment indicator have the wrong sign and are small relative to their standard errors, providing some evidence that community monitoring had the primary effects on outcomes as opposed to other effects induced by the intervention.

To examine the hypothesis that differences in monitoring are driving the results as opposed to the supply-driven hypothesis that health workers, once being informed that their effort deviates from what is expected (in the health facility staff meeting), decided to exert greater effort in serving the community, we augment specification (4) with a measure of the staff's knowledge about patients' rights and obligations.¹⁹ This model thus has two endogenous variables. If large treatment effects on outcomes across districts are associated with differences in staff knowledge about patients' rights rather than more intense community monitoring, this would be evidence against the community-based monitoring hypothesis. As reported in columns (5) and (6), the coefficients on community monitoring remain largely unaffected, and the coefficients on staff knowledge are insignificant and with the wrong signs, providing additional evidence, albeit not conclusive, that the demand-driven mechanism is more important than the supply-driven mechanism.

The CBOs played an integral role in the intervention as facilitators of the meetings. However, it is possible that these CBOs had a role (as educators or activists, for example) beyond the described treatment itself. There is no definitive way to sort out the

19. The in-charge was asked to list patients' rights and obligations according to the Ministry of Health's plan for basic health service delivery. Patients' rights were discussed in the interface meeting. Each correct answer (out of five) was given a score of 0.2, and so this test score ranges from 0 to 1. We also examined other measures of staff engagement, including number of staff meetings in 2005 and if the in-charge had initiated training of staff on proper conduct. The results using these alternative proxies mirror those reported in Table VII.

role of community-based monitoring from the possible roles of the CBOs, but because around 60 percent of the CBOs that took part in the intervention had been operating in the communities before the intervention, and several of them also had activities in the control areas, we can investigate whether the outcomes are correlated with preintervention CBO activity. This would be the case if the CBOs that participated in the experiment, and that had been present in the communities prior to intervention, had a direct impact on health outcomes (through various preventive activities, for example) or indirectly by being more involved in monitoring the provider. The number of outpatients treated per month, shown in column (7), and the under-5 mortality rate, shown in column (8), are not significantly different in communities where the CBOs had been active prior to the intervention. We have also examined whether the treatment effect varies conditional on observable CBO characteristics or actions. For example, CBOs that are located (have an office) in the community might, everything else equal, be in a better position to monitor the health provider. Moreover, at ten of the treatment sites, the CBOs reported that they regularly visited the clinic. If the CBOs, rather than the community, were pushing the service providers into action, presumably the effect would be more pronounced at sites where the CBO actually visited the clinic regularly. However, the treatment effects are independent of whether the office of the CBO is located within a five-kilometer radius of the health facility or if the CBO reported that it regularly visited the clinic.²⁰

Given that within each district there are both treatment and control units, one concern with the evaluation design is the possibility of spillovers from one catchment area to another. In practice, there are reasons to believe spillovers will not be a serious concern. The average (and median) distance between the treatment and control facility is thirty kilometers, and in a rural setting, it is unclear to what extent information about improvements in

20. Given the small sample size, we test whether the distribution of outcomes in the subsample $\{T = 1 \text{ \& CBO located in community} = 1\}$ is the same as in the subsample $\{T = 1 \text{ \& CBO located in community} = 0\}$, and whether the distribution of outcomes in the subsample $\{T = 1 \text{ \& CBO regularly carries out monitoring visits to the facility} = 1\}$ is the same as in the subsample $\{T = 1 \text{ \& CBO regularly carries out monitoring visits to the facility} = 0\}$, using the Wilcoxon rank-sum test. The test statistics (with p -values in parentheses) are 0.88 (.38) and -1.10 (.27) for outpatients and 0.31 (.76) and -0.03 (.98) for under-5 mortality rate. We get similar results if we enrich equation (1) with an interaction term $T \times \text{CBO characteristic}$. The estimates of the interaction term are not statistically different from 0 in any of the specifications.

treatment facilities has spread to control communities. Still, the possibility of spillovers is a concern. Following Miguel and Kremer (2004), and taking advantage of the variation in distance to the nearest treatment clinic induced by randomization, we estimate spillovers from treatment to control groups by enriching $\mathbf{X}$ in equation (1) to include an indicator variable for whether the control clinic is within ten kilometers of the nearest treatment clinic. The results are presented in the Online Supplemental Appendix (for utilization, delivery, and child death). We do not find evidence in favor of the spillover hypothesis.

Another concern is if the district or subdistrict management changed its behavior or support in response to the intervention. For example, the health subdistrict or local government may have provided additional funding or other support to the treatment facilities. The results in Table A.VIII in the Online Supplemental Appendix do not provide any evidence of this being the case. The treatment facilities did not receive more drugs or funding from the subdistrict or district as compared to the control facilities during 2005.

Upper-level authorities could also have increased their supervision of treatment facilities in response to the intervention. As shown in Online Supplemental Appendix Table A.IX, however, supervision of providers by upper-level government authorities remained low in both the treatment and the control group. As a complement we also assessed sanctions. Only a handful of staff were dismissed or transferred in 2005 and there is no systematic pattern that distinguishes treatment from control facilities. There is also no difference between treatment and control facilities in the number of staff that voluntarily left the facility during 2005 (Table A.IX).

VI. DISCUSSION

Based on a small but rigorous empirical literature on community participation and oversight, and extensive piloting in the field, our conjecture was that lack of relevant information and failure to agree on, or coordinate expectations of, what is reasonable to demand from the provider were holding back individual and group action to pressure and monitor the provider. We designed an intervention aimed at relaxing these constraints. Through two rounds of community meetings, local NGOs initiated a process

aimed at energizing the community and agreeing on actions to improve service provision.

We document large increases in utilization and improved health outcomes that compare favorably to some of the more successful community-based intervention trials reported in the medical literature. However, whereas medical field trials address the question of impact of a biological agent or treatment practice when the health workers do what they are supposed to do, we focus on a mechanism to ensure that health workers exert effort to serve the community.

The project was implemented in nine districts in Uganda with an estimated catchment population of approximately 55,000 households. In this dimension, therefore, the project has already shown that it can be brought to scale. However, the literature on how to enhance local accountability and participation is still in its infancy. And although the results in the paper suggest that community monitoring can play an important role in improving service delivery when traditional top-down supervision is ineffective, there are still a number of outstanding questions. For example, we know little about long-term effects and cross-sector externalities. It may also be the case that combining bottom-up monitoring with a reformed top-down approach could yield even better results. Before scaling up, it is also important to subject the project to a cost-benefit analysis. This would require putting a value on the improvements we have documented. To provide a flavor of such a cost-benefit analysis, consider the findings on averting the death of a child under five. A back-of-the-envelope calculation suggests that the intervention, including the cost for collecting data for the report cards (the main cost item), at \$3 per household in the catchment areas or \$160,000 in total, only judged on the cost per death averted, must be considered to be fairly cost-effective. The estimated cost of averting the death of a child under five is around \$300, which should be compared to the estimate that the average cost per child life saved through the combined and integrated delivery of 23 interventions shown to reduce mortality from the major causes of death in children younger than 5 years is \$887 (Bryce et al. 2003).

As argued in a recent *Lancet* article, a systematic program of research to answer questions about how best to deliver health (child survival) interventions is urgently needed (Bryce et al. 2003). In this paper we have focused on a mechanism that has been highlighted, but not examined, in the literature—a mechanism of

accountability enabling (poor) people to scrutinize whether those in authority have fulfilled their health responsibilities. Future research should address long-term effects, identify which mechanisms or combination of mechanisms that are important, and study the extent to which the results generalize to other social sectors.

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Going to scale with community-based primary care: An analysis of the family health program and infant mortality in Brazil, 1999–2004

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Available online 8 August 2007

Abstract

This article assesses the effects of an integrated community-based primary care program (Brazil's Family Health Program, known as the PSF) on microregional variations in infant mortality (IMR), neonatal mortality, and post-neonatal mortality rates from 1999 to 2004. The study utilized a pooled cross-sectional ecological analysis using panel data from Brazilian microregions, and controlled for measures of physicians and hospital beds per 1000 population, Hepatitis B coverage, the proportion of women without prenatal care and with no formal education, low birth weight births, population size, and poverty rates. The data covered all the 557 Brazilian microregions over a 6-year period (1999–2004).

Results show that IMR declined about 13 percent from 1999 to 2004, while Family Health Program coverage increased from an average of about 14 to nearly 60 percent. Controlling for other health determinants, a 10 percent increase in Family Health Program coverage was associated with a 0.45 percent decrease in IMR, a 0.6 percent decline in post-neonatal mortality, and a 1 percent decline in diarrhea mortality ($p < 0.05$). PSF program coverage was not associated with neonatal mortality rates. Lessons learned from the Brazilian experience may be helpful as other countries consider adopting community-based primary care approaches.

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Keywords: Primary health care; Family health program; Brazil; Health services evaluation; Infant mortality

Introduction

There is renewed worldwide interest in primary health care and its potential for improving human health (Pan American Health Organization, 2007).

But there have been few peer-reviewed studies that assess the effectiveness of national primary health care strategies on improving population health in the developing world. This study attempts to fill this gap by analyzing the effects of the Brazilian Family Health Program (*Programa Saúde da Família* or PSF in Portuguese) on child health. Child health outcomes are particularly important to examine because of the higher-than-expected rates of infant

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and child mortality in Brazil as compared to other countries of similar gross national income, the PSF's emphasis on improving infant and child health, and the possibility of observing rapid changes in these outcomes over a relatively short period of time.

The PSF is the main approach to provide primary care services within Brazil's national health system, known as the *Sistema Único de Saúde* or SUS (Almeida & Pêgo, 2002). The PSF has its roots in the community health agents program begun in the state of Ceará in the early 1990s (Cufino Svitone, Garfield, Vasconcelos, & Araujo Craveiro, 2000). Since it was adopted as a national strategy in 1994, the program had grown by 2007 to encompass 26,730 community-based teams responsible for providing care to about 85 million people, making it one of the world's largest systems of community-based primary care (Brazilian Ministry of Health Department of Primary Care, 2007).

The PSF is a decentralized approach to providing core primary care functions, including first-contact access for each new health need, comprehensive and person-focused care over the lifecourse, coordination of care between different providers and types of health services, and family and community-oriented health promotion activities (Ministry of Health of Brazil, 2003). These functions are achieved through the program's organization (municipalities manage the program with national supervision and each PSF team is assigned to a geographical area with responsibility for enrolling and monitoring the health status of about 3500 people), its financing (services are delivered free of charge, are financed on a capitation basis, and municipalities have incentives for increasing the number of neighborhoods with access to the program), and delivery mechanisms (multidisciplinary teams are composed of, at minimum, a physician and nurse who deliver clinic-based care and most teams include community health workers who make regular home visits and perform community-based health promotion activities) (Ministry of Health of Brazil, 2003). Family Health Program teams in many areas also include dental and social work professionals.

Despite the ambitious scope of this undertaking there have been only a few evaluations of the program (Conill, 2002; Escorel et al., 2002; Ministério da Saúde, 2004; Serra, 2005; Viana & Pierantoni, 2002) although several more are underway. To date, only one peer-reviewed article has assessed the relationship between PSF coverage and

changes in health outcomes at the national level (Macinko, Guanais, & Marinho de Souza, 2006). The present article expands and strengthens earlier work by employing local-level analyses, examining several different outcomes, and by assessing the effects of the rapid expansions in PSF coverage over the past few years.

Methods

This study follows a quasi-experimental design since each municipality in Brazil adopted the PSF at different times and coverage in each municipality grew at different rates. To take advantage of this heterogeneity, we use a pooled, cross-sectional, time series approach to assess the relationships between dependent and independent variables over a 6-year period. This technique pools together 6 years (1999–2004) of cross-sections (composed of all 557 Brazilian microregions for each year) for a maximum sample size of 3342 observations. The approach provides an estimate of the health effects of program expansion by testing the association between differences in coverage in each microregion with differences in infant mortality outcomes, while controlling for potential confounders (Hsiao, 2003).

In order to strengthen the study design, we analyze two types of outcomes. Based on previous literature, we hypothesize that the PSF will have a strong association with outcomes most sensitive to primary care: post-neonatal mortality (deaths of children from 30 days to 1 year per 1000 live births) and deaths from diarrheal diseases (deaths of children under 1 year from diarrhea per 1000 live births) (Caldeira, França, & Goulart, 2001; Caldeira, França, Perpetuo, & Goulart, 2005). It should have a modest impact on IMR (all deaths of children under 1 year per 1000 live births in the same year) that will depend on the proportion of IMR that is composed of post-neonatal mortality (Moore, Castillo, Richardson, & Reid, 2003). We hypothesize that there should be little or no relation between PSF coverage and neonatal mortality rates (deaths of children within their first month of life per 1000 live births), since these outcomes are most sensitive to care provided primarily by specialist and hospital services outside the scope of the PSF (Lansky, França, & Leal Mdo, 2002).

The unit of analysis is the microregion. Each of the 557 microregions contains several of Brazil's 5564 municipalities that have been grouped together to be geographically contiguous and homogeneous

in terms of demography, agriculture, and transportation. Microregions represent smaller units of analysis and thus capture greater variation than would analysis of the 27 Brazilian states. Microregions also have a larger population size than individual municipalities, thus allowing for more stable mortality estimates over time.

Data on PSF coverage, health resources, and outcomes are from the Brazilian Ministry of Health (Ministry of Health of Brazil, 2007). In this study, we use official estimates of IMR that have been adjusted for underreporting of child deaths (Rede Interagencial de informações para a saúde (RIPSA), 2002; Szwarcwald, Leal Medo, de Andrade, & Souza, 2002). All other outcomes (neonatal, post-neonatal, and diarrhea mortality rates) are constructed directly from observed counts.

Independent variables known to influence infant mortality include poverty (proportion of the population in the lowest income quintile), women's health and development (proportion of women over 15 with no formal schooling, and proportion of women with no prenatal care), child health (proportion of children with Hepatitis B immunizations, low birth weight defined as percent of births under 2500 g), and health services (physicians and hospital beds per 1000) (Moore et al., 2003; Wang, 2003). Data on these variables are based on population surveys conducted by the Brazilian Institute of Geography and Statistics (IGBE) and developed for state-level representativity by the Institute of Applied Economic Research (IPEA) (Brazilian Institute of Geography and Statistics, 2005; Instituto de Pesquisa Econômica Aplicada (IPEA), May 2005).

Some independent variable data were missing for some years. Missing data were imputed using non-linear interpolation methods that modeled within-municipal changes as a function of prior values at the municipal level and contemporaneous values at the state level (Allison, 2002; Guanais, 2006). All values were then summed up to the microregional level.

Statistical analyses

The study uses a fixed-effects specification in order to correct for serial correlation of repeated measures and to control for time-invariant unobserved or unobservable microregional characteristics. An alternative approach, the random effects model, was rejected due to results of the Hausman test ($p < .0001$) that tested correlation between the

regressors and error terms. (Wooldridge, 2002) All analyses were conducted using Stata 9 software and use robust standard errors to correct for heteroskedasticity (Statacorp, 2005).

Advantages of the fixed-effects model over cross-sectional analyses include the fact that it is able to establish temporal ordering between exposures and outcomes and it can control for unmeasured time-invariant characteristics of the microregion (such as geography, historical disadvantages, urban/rural location, and local cultural practices) that might influence health outcomes (Hsiao, 2003). One disadvantage of the fixed-effects approach is that the results obtained are conditional on the data used to estimate them; that is, results cannot be generalized to other years or microregions not included in the study (Hsiao, 2003).

In order to compare how variables changed over time, we calculate the mean values and standard deviations for 1999 and 2004 and the percent change during this time. Differences in mean values between time periods were assessed using *t*-tests. Regression analyses are presented as a series of nested models. The *F*-test is used to assess whether the inclusion of an additional set of independent variables improved regression models. In order to compare the magnitude of the effects of the main explanatory variables on the outcomes, we calculated their marginal effects. This statistic represents the percent change in the outcome given a one-percent change in the independent variable, when all other values are set at their mean (Greene, 2003).

We also assessed several pathways by which the PSF might influence IMR. Primary care access is associated with lower post-neonatal mortality and fewer deaths from diarrhea (UNICEF, 2002). In order to test potential mechanisms of the health effects of PSF expansion we developed a set of dummy variables representing microregions in the highest 75th percentile of under-five deaths from both of these conditions (called “high diarrhea deaths” and “high postneonatal deaths,” respectively). We then created interaction terms between these binary variables and PSF coverage to test if the PSF effect was higher in those microregions where a greater share of infant and child mortality was amenable to primary care. Other interactions of the PSF term (with physicians per 1000 population and Hepatitis B coverage) were not significant and therefore not included in the final models.

Because there are great differences in health and economic development between the poorer north

and northeastern regions of Brazil, as compared with the south, southeast, and central-west regions, we present analyses stratified by region.

In order to test if there might be a threshold effect for certain levels of PSF coverage, we transformed PSF coverage into quartiles of coverage and included these in regression models.

Finally, we performed a number of sensitivity tests, including using statistical models to control for potential panel-level autocorrelation and using Poisson regression to directly model count data for each outcome (Greene, 2003). None of these alternative specifications significantly affected the sign, significance, or main conclusions reached with the fixed effects models, suggesting that the results presented here are robust.

Results

Table 1 presents descriptive statistics. Between 1999 and 2004 some measures of infant mortality declined: IMR was reduced by 13 percent, post-neonatal mortality by 16 percent and diarrhea-specific mortality by 44 percent. However, neonatal mortality increased by 5 percent and the percentage of births that were low birth weight increased 10 percent. By 2004, the PSF covered about 60 percent of the population in the microregions, ranging from a low of 6 percent to over 100 percent for the top 90th percentile. Access to some forms of healthcare appeared to increase: Physician availability increased by 87 percent, Hepatitis B coverage

increased by 20 percent, and access to prenatal care increased by 50 percent. Hospital beds per 1000 declined slightly. Average population size for microregions increased by nearly a quarter and most of this increase occurred in large metropolitan areas. The proportion of the population in the lowest income quintile increased slightly, while the proportion of mothers with no education declined by nearly one-third from 1999 levels.

Table 2 presents the results of the fixed effects analyses. Model 1 shows the bivariate relationship between PSF and IMR: the larger the proportion of the state's population served by the PSF, the lower the expected infant mortality rate. Model 2 adds health system covariates to model 1. PSF coverage remains significant and negatively associated with IMR. In terms of covariates, physician supply and Hepatitis B coverage were negatively associated with IMR, while hospital beds were positively associated with it. The *F*-test is statistically significant, suggesting that addition of these covariates improves the explanatory power of model 2 over model 1.

Model 3 adds a set of social and economic variables. Population size was negatively associated with IMR, suggesting that IMR is lower in microregions with larger populations. Both the proportion of women with no formal education and the proportion of the population in the lowest income quintile were positively associated with IMR. The PSF coefficient remains significant and negative (although slightly reduced in magnitude),

Table 1
Descriptive statistics for Brazilian microregions 1999–2004 (*n* = 557)

Indicator	Statistic	1999	2004	Difference	% Change
Adjusted infant mortality rate ^a (per 1000 live births)	Mean (s. dev)	30.155 (13.776)	26.096 (12.429)	−4.059***	−13.46
Neonatal mortality rate (per 1000 live births)	Mean (s. dev)	4.581 (0.108)	4.844 (0.087)	0.263*	5.74
Post-neonatal mortality rate (per 1000 live births)	Mean (s. dev)	16.961 (8.286)	14.177 (4.670)	−2.784***	−16.41
Neonatal mortality (as % of IMR)	Mean (s. dev)	21.591 (9.532)	25.783 (9.480)	4.192***	19.41
Proportionate mortality from diarrhea (as % of IMR)	Mean (s. dev)	3.215 (0.271)	1.782 (0.149)	−1.432***	−44.54
Coverage of family health program (%)	Mean (s. dev)	13.714 (15.862)	59.883 (31.137)	46.169***	336.66
Physicians per 1000 population ^b	Mean (s. dev)	1.647 (1.141)	3.079 (1.983)	1.432***	86.97
Hospital beds per 1000 population ^b	Mean (s. dev)	2.992 (1.867)	2.591 (1.662)	−0.401***	−13.40
Children immunized against Hepatitis B (%)	Mean (s. dev)	74.088 (33.192)	93.215 (12.098)	19.127***	25.81
Population (1000s)	Mean (s. dev)	294.953 (772.812)	318.211 (828.998)	23.259***	7.88
Population in poorest income quintile (%) ^b	Mean (s. dev)	20.703 (88.715)	23.756 (97.122)	3.053***	14.74
Mothers with no formal education (%)	Mean (s. dev)	5.722 (7.659)	4.015 (4.605)	−1.707***	−29.83
Mothers with no prenatal care (%)	Mean (s. dev)	6.247 (7.262)	2.855 (4.382)	−3.392***	−54.30
Low birth weight (% of all births)	Mean (s. dev)	6.765 (1.502)	7.423 (1.546)	0.658***	9.73

Sources: IBGE, SIM/SINASC, IPEA, MAS.* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; from paired *t*-test.

^aAdjusted infant mortality rate takes into account underreporting of infant deaths in some municipalities.

^bMissing values for 2001 and 2003–2004 calculated through interpolation.

Table 2

Fixed effects regression models of infant mortality rates^a for the microregions of Brazil, 1999–2004

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Family health program (% population covered)	−0.057** (0.001)	−0.042** (0.003)	−0.038** (0.002)	−0.030** (0.002)	−0.028** (0.002)	—
Family health program (Coverage quartile 2)	—	—	—	—	—	−0.715** (0.066)
Family health program (Coverage quartile 3)	—	—	—	—	—	−1.346** (0.105)
Family health program (Coverage quartile 4)	—	—	—	—	—	−2.188** (0.147)
Physicians (per 1000 population)	—	−0.385** (0.139)	−0.333** (0.128)	−0.296** (0.113)	−0.299** (0.112)	−0.353** (0.117)
Hospital beds (per 1000 population)	—	0.478** (0.063)	0.343** (0.056)	0.350** (0.055)	0.366** (0.055)	0.365** (0.056)
Hepatitis B vaccination (% children covered)	—	−0.013** (0.001)	−0.014** (0.001)	−0.012** (0.001)	−0.011** (0.001)	−0.012** (0.001)
Population (1000s)	—	—	−0.012** (0.002)	−0.009** (0.001)	−0.009** (0.001)	−0.009** (0.001)
Population in poverty (% in lowest income quintile)	—	—	0.035** (0.009)	0.027** (0.007)	0.025** (0.007)	0.025** (0.007)
No formal education (% of all mothers)	—	—	0.158** (0.017)	0.098** (0.015)	0.097** (0.014)	0.104** (0.015)
No prenatal care (% of all mothers)	—	—	—	0.160** (0.016)	0.149** (0.015)	0.160** (0.015)
LBW births (% of all births)	—	—	—	−0.214** (0.028)	−0.217** (0.028)	−0.213** (0.028)
High diarrhea deaths (75th percentile)	—	—	—	—	0.452** (0.096)	—
Interaction: (PSF* high diarrhea deaths)	—	—	—	—	−0.007** (0.002)	—
High post-neonatal mortality (75th percentile)	—	—	—	—	0.333** (0.092)	—
Interaction: PSF* high post-neonatal mortality	—	—	—	—	−0.003* (0.001)	—
Constant	30.200** (0.059)	30.340** (0.393)	32.530** (0.574)	32.531** (0.516)	32.277** (0.512)	32.059** (0.526)
Observations	3342	3337	3337	3337	3337	3337
Number of microregions	557	557	557	557	557	557
R-squared (within)	0.567	0.625	0.688	0.733	0.725	0.74
F-test (model 2 v 1)	—	71.49**	—	—	—	—
F-test (model 3 v 2)	—	—	55.52**	—	—	—
F-test (model 4 v 3)	—	—	—	78.25**	—	—

Robust standard errors in parentheses. Microregion fixed effects not shown.

* $p < 0.01$; ** $p < 0.001$.^aInfant mortality rate expressed as per 1000 live births and adjusted for underreporting of infant deaths in some municipalities.

and socioeconomic variables remain stable. Based on the results of the F -test, Model 3 is considered superior to the previous models.

Model 4 includes additional maternal and child health indicators. The proportion of women with no prenatal care is positively associated with IMR while the percentage of births that are low weight is negatively associated with IMR. The PSF variable is lightly reduced in magnitude, but remains similar in

direction and statistical significance. Results of the F -test indicate that Model 4 is superior to any previous models. The R -squared value suggests that the model explains up to 73 percent of the within-microregion variation in IMR from 1999 to 2004.

Model 5 further explores the relationship between PSF and IMR by including interaction terms between PSF coverage and microregions with high proportionate mortality from diarrhea and high

post-neonatal mortality. The coefficients for high diarrhea mortality and for high post-neonatal mortality are positive and significant, suggesting that IMR is higher in those microregions with very high levels of diarrhea-related and post-neonatal deaths. The interaction variable for PSF*diarrhea and PSF*post-neonatal deaths is significant and negative, suggesting that increases in PSF coverage have a particularly strong impact on lowering IMR by reducing diarrhea and post-neonatal deaths in areas where these rates are high.

Model 6 tests a transformation of the PSF variables to reflect quartiles of coverage. The results show that as PSF coverage increases, the magnitude of the regression coefficient likewise increases, suggesting a dose–response relationship.

Table 3 presents results for neonatal, post-neonatal, and diarrhea mortality rates. All covariates are the same as in the full model (Model 4 from Table 2). Family health program coverage was not associated with neonatal mortality, although it was negatively associated with both post-neonatal and diarrhea mortality rates.

Table 4 presents analyses stratified by geographic region. The main finding is that the PSF has a consistently significant negative association with IMR in each region. Covariates are generally similar to the full sample analysis, although in the regional analyses poverty is significant only for the north region, physicians are not significant in the southeast, and low birth weight is not significant for the south.

Table 5 presents the marginal effects of the main explanatory variables included in the final model (Model 4 in Table 2). Marginal effects have been multiplied by 10 to give a measure of the percent change in infant mortality associated with a 10 percent increase in the independent variable. Controlling for all other covariates, a ten percent increase in PSF coverage was associated, on average, with a 0.45 percent decrease in IMR, a 0.6 percent decrease in post-neonatal mortality, and a 1 percent decrease in diarrhea-related mortality. The largest contributor to reductions in all outcomes was the size of the microregion's population, suggesting an important urban advantage. For mortality from diarrhea, a ten percent increase in Hepatitis B coverage was associated with a 3.7 percent decline. Most other covariates had marginal effects near or less than that of PSF coverage.

Discussion

The analyses presented here suggest that PSF coverage is independently associated with better primary care-sensitive child health outcomes, including IMR, post-neonatal mortality, and deaths from diarrhea. As hypothesized, PSF coverage was not associated with neonatal mortality, which is strongly influenced by the availability and quality of care during and post-delivery, special care for low birth weight babies, and some aspects of prenatal care (Martines et al., 2005).

Table 3
Fixed effects regression of unadjusted infant mortality rates^a, Brazilian microregions 1999–2004

Variable	Neonatal mortality rate	Post-neonatal mortality rate	Diarrhea mortality rate
Family health program (% covered)	−0.004 (0.003)	−0.022** (0.006)	−0.012* (0.006)
Physicians (per 1000 population)	−0.008 (0.069)	−0.264 (0.14)	−0.216 (0.182)
Hospital beds (per 1000 population)	0.084 (0.103)	−0.297 (0.225)	−0.176 (0.217)
Hepatitis B coverage (% of children covered)	0.016** (0.002)	0.006 (0.005)	−0.020** (0.006)
Population (1000s)	−0.003 (0.002)	−0.015** (0.003)	−0.007** (0.002)
Population in poorest income quintile (%)	0.011 (0.007)	0.035* (0.017)	0.017 (0.011)
Mothers with no formal education (%)	−0.024 (0.024)	0.027 (0.082)	0.164** (0.056)
Mothers with no prenatal care (%)	0.046 (0.026)	0.279** (0.066)	−0.066 (0.052)
LBW births (% of all births)	0.192** (0.063)	0.214 (0.156)	−0.104 (0.124)
Constant	2.919** (0.77)	18.256** (1.775)	9.969** (1.479)
Observations	3336	3336	3228
Number of microregions	556	556	538
R-squared (within)	0.335	0.545	0.407

Robust standard errors in parentheses; microregion fixed effects not shown.

* $p < 0.05$; ** $p < 0.01$.

^aAll rates expressed as per 1000 live births and are based on observed counts that have not been adjusted for underreporting of infant deaths in some municipalities.

Table 4
Determinants of infant mortality rate by region, 1999–2004

Variable	North	Northeast	Southeast	South	Central-west
Coverage of family health program (%)	−0.037** (0.006)	−0.023** (0.003)	−0.038** (0.003)	−0.014** (0.002)	−0.013** (0.002)
Physicians (per 1000 population)	−1.401** (0.232)	−1.140** (0.111)	−0.048 (0.055)	−0.603** (0.065)	−0.853** (0.091)
Hospital beds (per 1000 population)	0.338** (0.113)	0.222* (0.09)	0.371** (0.07)	0.433** (0.124)	0.255** (0.059)
Hepatitis B immunization (% of children covered)	−0.016** (0.003)	−0.011** (0.002)	−0.006* (0.002)	0.003* (0.001)	−0.007* (0.003)
Population (1000s)	−0.006* (0.003)	−0.010** (0.003)	−0.005** (0.001)	−0.004 (0.004)	−0.011** (0.001)
Population in poorest income quintile (%)	0.046* (0.022)	−0.01 (0.036)	0.017 (0.009)	−0.01 (0.017)	−0.005 (0.005)
Mothers with no formal education (%)	0.060** (0.02)	0.147** (0.025)	0.062* (0.03)	0.071* (0.03)	0.088** (0.026)
Mothers with no prenatal care (%)	0.065** (0.023)	0.106** (0.021)	0.329** (0.04)	0.243** (0.048)	0.125** (0.043)
LBW births (% of all births)	−0.106* (0.052)	−0.194** (0.055)	−0.212** (0.033)	−0.066 (0.035)	−0.107** (0.029)
Constant	31.888** (0.670)	47.913** (0.845)	22.874** (0.614)	19.754** (1.098)	26.871** (0.544)
Observations	378	1122	957	564	312
Number of microregions	63	187	160	94	52
R-squared (within)	0.76	0.84	0.74	0.76	0.90
<i>Mean values for selected variables (1999–2004)</i>					
Infant mortality rate (IMR)	27.12	42.37	19.18	17.81	21.47
PSF coverage (%)	30.82	53.73	32.30	34.44	47.44
Physicians	1.22	1.83	3.34	2.67	2.16
Hospital beds	2.00	2.15	3.29	3.17	3.56
Hepatitis B coverage	80.69	85.49	96.98	97.02	92.41
Mothers with no prenatal care	7.48	10.24	1.97	1.77	2.34

Robust standard errors in parentheses; microregion fixed effects not shown.

* $p < 0.05$; ** $p < 0.01$.

Infant mortality rate expressed as per 1000 live births and adjusted for underreporting of infant deaths in some municipalities.

Table 5
Marginal effects^a by outcome, Brazilian microregions 1999–2004

Variable	Infant mortality rate	Post-neonatal mortality rate ^b	Diarrhea mortality ^b
Coverage of family health program	−0.447** (−0.506, −0.387)	−0.591** (−0.909, −0.273)	−1.034* (−2.030, −0.037)
Physicians per 1000 population	−0.251** (−0.439, −0.064)	−0.401* (−0.816, 0.015)	−1.088 (−2.880, 0.704)
Hospital beds per 1000 population	0.348** (0.242, 0.455)	−0.526 (−1.310, 0.257)	−1.038 (−3.536, 1.459)
Hepatitis B coverage (%)	−0.376** (−0.452, −0.300)	0.359 (−0.252, 0.971)	−3.770** (−5.951, −1.589)
Population (1000s)	−1.048** (−1.340, −0.755)	−2.873** (−4.154, −1.593)	−4.715** (−7.439, −1.991)
Population in poorest income quintile (%)	0.213** (0.102, 0.323)	0.497* (0.035, 0.958)	0.801 (−0.229, 1.831)
Mothers with no formal education (%)	0.190** (0.134, 0.245)	0.093 (−0.459, 0.644)	1.879** (−0.628, 3.130)
Mothers with no prenatal care (%)	0.252** (0.204, 0.300)	0.784** (0.420, 1.147)	−0.619 (−1.570, 0.332)
LBW births (% of all births)	−0.546** (−0.686, −0.406)	0.973 (−0.414, 2.360)	−1.572 (−5.245, 2.101)

Robust 95% confidence intervals in parentheses; microregion fixed effects not shown.

* $p < 0.05$; ** $p < 0.01$.

^aMarginal effects represent percent change in the outcome associated with a 10 percent change in the independent variable. All marginal effects were calculated in terms of elasticities evaluated at the means of all other independent variables.

^bRates expressed as per 1000 live births and are based on observed counts that have not been adjusted for underreporting of infant deaths in some municipalities.

Our results are consistent with evidence of potential mechanisms through which the PSF might work to lower primary care-sensitive infant mortality. For example, higher PSF coverage has been

found to be associated with higher population rates of breastfeeding, oral rehydration therapy, immunizations, and treatment of respiratory and other infections—interventions that address the leading

causes of post-neonatal mortality (Emond, Pollock, Da Costa, Maranhão, & Macedo, 2002; Escorel et al., 2002; Shi et al., 2004; Starfield, 1985).

The magnitude of the PSF effect was significant, albeit of lesser magnitude than observed in previous studies. This is likely to be due to the fact that IMR has experienced a dramatic decline throughout Brazil as a function of a range of interventions, including PSF coverage, improved water and sanitation, and better women's health and development (Macinko et al., 2006). Moreover, as noted above, as IMR declines a greater proportion of infant deaths tend to happen within the first month of life due to conditions that are less amenable to primary care. Neonatal mortality has been linked to increased preterm and low birth weight births and has become a more significant contributor to IMR in Brazil as post-neonatal mortality declined (Barros et al., 2005; Caldeira et al., 2001).

There were also important regional differences in the effects of PSF coverage. In the region-stratified analyses, the effect of the PSF program was reduced for the more developed southern regions where IMR has been lower relative to the north and northeast. The apparent protective effect of population size may represent either an urban advantage or the fact that since 1998, PSF expansion has focused on municipalities with populations greater than 100,000 people.

Physician supply was also associated with lower infant mortality: a finding that is consistent with other studies (Anand & Barnighausen, 2004). Sensitivity tests using nurses per 1000 instead of physicians found similar results, although both variables could not be included in the analyses due to their high correlation ($\rho = 0.74$; $p < 0.001$). This results suggests that the PSF has made progress in expanding primary care physician supply in underserved regions (such as the northeast) (Ministério da Saúde, 2004). This argument is supported by the observation that the physician supply effect was significant in all regions except the southeast where there has historically been less of a physician deficit than in other regions and where most physicians are specialists (rather than family practitioners or other primary care providers).

Not surprisingly, measures such as poverty, female illiteracy, lack of prenatal care, and low levels of Hepatitis B immunization were all found to be associated with higher mortality. Although earlier studies found no relationship between immunization rates and IMR (Macinko et al.,

2006), they used measures of all immunization schedules which are already over 90 percent in most states. Hepatitis B vaccination is a more recent initiative and coverage varies substantially between microregions, making it potentially a more sensitive indicator of primary care access.

Availability of hospital beds was positively associated with outcomes—a result that was not expected. One possible explanation is that in recent years hospitals may have experienced declines in accessibility, quality, or both. This hypothesis is partially supported by the results in Table 3 which show that hospital beds were not associated with neonatal mortality, the outcome that should be most highly correlated with indicators of hospital care. Lansky, França, and Kawachi (2007) suggest that there is considerable variation in hospital quality and this variation is associated with elevated perinatal mortality from potentially avoidable conditions such as intrapartum asphyxia. Potentially avoidable infant mortality was found to be especially high for normal birth weight babies born in government-contracted private hospitals in large urban areas, which were found to have lower quality care (Lansky et al., 2007).

Finally, low birth weight births were found to be negatively associated with IMR in this study. This “low birth weight paradox” has been observed elsewhere and may be explained by the fact that low birth weight infants from population groups in which LBW is most frequent often have a lower risk of death than low birth weight infants from the general population (Hernandez-Diaz, Schisterman, & Hernan, 2006). Our ecological analysis might be more prone to picking up this phenomenon than would an individual-level study. Removing LBW from the analyses does not significantly change any of our conclusions.

Limitations

This is an ecologic study, so it is not possible to test whether the reductions in IMR and other outcomes occurred within families that actually visited the Family Health Program. Ideally, we would conduct a multi-level analysis but there are currently no nationally representative data on individual PSF users and non-users. Nevertheless, there is evidence that improving PSF coverage leads to improvements in determinants of child health. For example, PSF clients regularly receive health education about breastfeeding, use of oral rehydration

therapy, immunization, and infant growth monitoring (Emond et al., 2002; Escorel et al., 2002). In a study of several large urban centers, more than three-quarters of PSF clients interviewed believed that child health services were of good quality and that the PSF was responsible for improvements in the health of the neighborhood and their family (Escorel et al., 2002). There is also evidence to suggest that the PSF program decreases financial barriers to access (Goldbaum, Gianini, Novaes, & Cesar, 2005). Finally, other studies have confirmed that in areas where the PSF or similar programs have been implemented, infant mortality has actually declined (Cufino Svitone et al., 2000; Macinko et al., 2006; Serra, 2005).

Ecological analyses are vulnerable to omitted variable problems. That is, there could be some latent, unmeasured variable confounding the apparent relationship between PSF and IMR. In this case, the existence of such a variable is unlikely given that we employed a comprehensive model of health determinants, included fixed effects to control for time-invariant unobserved characteristics of microregions, and tested several pathways and alternative explanations. The high *R*-squared values of the main regression models suggest that they explain a large proportion of the variation in infant mortality.

Finally, conclusions about outcomes based on unadjusted rates (post-neonatal, neonatal, and diarrhea deaths) need to be interpreted with caution since there is evidence of undercounting of child mortality in Brazil. Note that this undercounting has improved in recent years, so each year's data should be closer to real values. In this study, adjusted IMR values corresponded with observed IMR rates 85 percent of the time with an average difference of 4.7 deaths/1000 live births. Most of this variation was in the Northeast region of the country (60 percent agreement in the northeast, 84 percent agreement in the north, 90 percent agreement in the central-west, 99 percent agreement in the south and southeast). In sensitivity tests that excluded the 982 (out of 3337) data points with outcome data that was one or more standard deviation above or below the adjusted IMR rates for any year, there was no change in the main conclusions of the relationship between PSF coverage and IMR, neonatal mortality, or post-neonatal mortality. However, several covariates did become non-significant as did the relationship between PSF coverage and diarrhea mortality. This may be due to

that fact that the microregions excluded due to poor quality data were also those with the highest rates of diarrheal deaths and underscores the importance of using adjusted rates when available.

Conclusions

The study has shown that expanding coverage of a community-based primary care program, hand-in-hand with other socioeconomic developments, was consistently associated with reductions in primary care-sensitive measures of infant mortality. Despite the consistency of these findings, several issues need to be addressed in order to assess the program's overall effectiveness and potential relevance to other countries.

First, there is little data on the contribution of the PSF to health inequalities within Brazil. This study provides some evidence that due to its expansion in the north and northeast regions of the country, the PSF may have contributed to reducing inter-regional inequalities in primary care-sensitive infant mortality. But within regions, expanded PSF coverage has not always occurred in the most deprived municipalities (Morsch, Chavannes, van den Akker, Sa, & Dinant, 2001). In order to maximize the equity-enhancing potential of the program, national efforts should be directed at encouraging adoption of the program in the poorest municipalities. Within municipalities, program expansion should be encouraged within the most underserved neighborhoods. Such a strategy is likely to improve equity in outcomes since the greatest impact is likely to occur where infant mortality is still the highest, especially once outcomes have already improved for higher income groups (Victora, Vaughan, Barros, Silva, & Tomasi, 2000).

Second, financial incentives for municipalities to adopt the program are currently linked to increasing population coverage, but there are few systematic monitoring and evaluation processes in place to assess municipal or service-level performance. Surveys show that clients are generally satisfied with the quality of care delivered, but sustaining this level of satisfaction will be a critical challenge in maintaining popular and political support for the program (Trad et al., 2002). New initiatives have been proposed that would provide financial incentives for municipalities that reach or exceed certain health targets as a means to enhance access and quality of care. For these reasons, a major challenge will be to develop and use systems to monitor and

improve the quality of care delivered in order to maximize the potential health gains of this innovative approach to integrated primary care delivery.

Third, there is little data available on the cost-effectiveness of the PSF. In 2005, Federal government transfers to municipalities totaled \$5.7 billion Brazilian *Reais* (approximately \$US 2.6 billion), which represents about \$US 14 per person covered. This figure does not include the municipal contribution (which varies from zero to nearly 100 percent). Thus we estimate that the true costs of the program may be as much as \$US 30 per capita. While this is still a modest amount, there is, as yet, no national data to compare how well this program performs vis-à-vis the status quo. Such information will become increasingly important to mobilize the additional political and financial capital needed to reach the rest of the Brazilian population not currently covered and then to maintain adequate coverage in light of Brazil's rapid epidemiologic and demographic transition.

Fourth, Brazil has a large supply of health workers, which might make it different from most other developing countries. So far, the PSF strategy has been successful in hiring more than 26,000 physicians and nurses and over 220,000 community health workers. In principle, any trained health professional may apply to the program and competitive salaries have made it an increasingly attractive option. On-going training in primary care is an additional benefit of PSF affiliation, but there is not yet enough known on how well this in-service training prepares formerly specialty-trained physicians to function as primary care providers. As the program continues to expand, health authorities will need to develop longer-term plans for maintaining and expanding the health workforce, with particular attention to improving the stability of physician contracting mechanisms, and more concerted efforts to enhance provider skills in community-based primary care.

Finally, because it serves as part of the Brazilian national health system, the PSF is vulnerable to health system level factors that could undermine its potential impact, such as access to pharmaceuticals; the quality and supply of needed specialty, diagnostic, or hospital care; or the availability, training, and salaries of health workers (Chiesa & Batista, 2004; Franco, Bastos, & Alves, 2005). Key challenges as the program moves forward include ensuring coordination between different types of health services and vertically focused disease control

programs, improving quality of care, and maximizing community-based health promotion. Taken together these actions may help to assure that the PSF becomes more than just another program, but fulfills its promise as a central organizing feature of a more accessible, effective, and equitable national health system.

Acknowledgments

This study was partially supported by the Brazilian Ministry of Health. Frederico Guanais was supported by the National Council for Research and Development (CNPq). The conclusions presented in this paper represent the opinion of the authors alone.

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RESEARCH ARTICLE

Open Access

A realist evaluation of the management of a well-performing regional hospital in Ghana

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Abstract

Background: Realist evaluation offers an interesting approach to evaluation of interventions in complex settings, but has been little applied in health care. We report on a realist case study of a well performing hospital in Ghana and show how such a realist evaluation design can help to overcome the limited external validity of a traditional case study.

Methods: We developed a realist evaluation framework for hypothesis formulation, data collection, data analysis and synthesis of the findings. Focusing on the role of human resource management in hospital performance, we formulated our hypothesis around the high commitment management concept. Mixed methods were used in data collection, including individual and group interviews, observations and document reviews.

Results: We found that the human resource management approach (the actual intervention) included induction of new staff, training and personal development, good communication and information sharing, and decentralised decision-making. We identified 3 additional practices: ensuring optimal physical working conditions, access to top managers and managers' involvement on the work floor. Teamwork, recognition and trust emerged as key elements of the organisational climate. Interviewees reported high levels of organisational commitment. The analysis unearthed perceived organisational support and reciprocity as underlying mechanisms that link the management practices with commitment.

Methodologically, we found that realist evaluation can be fruitfully used to develop detailed case studies that analyse how management interventions work and in which conditions. Analysing the links between intervention, mechanism and outcome increases the explaining power, while identification of essential context elements improves the usefulness of the findings for decision-makers in other settings (external validity). We also identified a number of practical difficulties and priorities for further methodological development.

Conclusion: This case suggests that a well-balanced HRM bundle can stimulate organisational commitment of health workers. Such practices can be implemented even with narrow decision spaces. Realist evaluation provides an appropriate approach to increase the usefulness of case studies to managers and policymakers.

Background

In the wake of the numerous global health initiatives, the health workforce of low and middle-income countries is once again receiving a lot of attention [1-3]. While the key role of health workers in improving health care quality and implementing disease control programmes is widely recognised [4,5] operational aspects of health workforce management at service provision level remain poorly studied. Indeed, the focus has been mostly on macro-level aspects, such as brain drain,

the impact of human resource deficits on global health initiatives and planning and training capacity issues.

This relative neglect of studies of health workforce management explains why the current evidence base on the effectiveness of HRM policies and strategies is rather weak. More specifically, there are a number of weaknesses that limit their potential to inform decisions of policymakers or health service managers. First, the determinants of health worker performance in poor resource settings have not been studied well. Second, the HRM policies and strategies, too, are under-researched [6]. Third, systematic reviews indicate that most of the studies are methodologically flawed. A

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recent realist synthesis of the effect of human resource management interventions on health worker performance in LMIC found that very few studies provide adequate information on the assumptions, the context and the underlying mechanisms of these interventions [7]. The same applies to a review of the effect of HRM policies on supply, distribution, efficient use and performance of health workers [8]. Rowe and colleagues came to similar conclusions [9]. Fourth, few of these studies have been carried out in LMIC [8].

All this notwithstanding, policies and management strategies are still imported from other settings into health services of LMIC without a blink of the eye. The surge of performance based financing (PBF) provides a good example. PBF is being introduced at different levels of the health system [10-13] and in a wide variety of countries, including Nicaragua [13], Cambodia [14], Rwanda [15,16], Zambia [17], Sri Lanka, Ghana, Zimbabwe, Thailand and India [18]. The evidence base, however, is very narrow [19]. Most PBF studies were found to lack controls and to neglect the analysis of confounding factors [6], which reduces the validity of the attribution of the reported effects to the intervention. Furthermore, very few studies offer indications of the conditions in which these approaches are working (see [20] for an example of a study that does).

In part, the methodological weakness of the health workforce management research resides in insufficiently rigorous studies. Some problems also stem from the widespread use of the case study. Indeed, although organisational studies is a domain marked by a lack of consensus on ontology and epistemology [21] and the consequent lack of consensus on methodology, the case study is a common research design for a number of reasons. First, it allows exploring a "phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" [22], and thus suits well the open systems-nature of human organisations. Second, it enables investigation of organisational behaviour as it happens in its natural setting [23]. Case studies are also useful in dynamic and complex situations where multiple, interacting variables may act upon intervention and outcome [24,25]. It is well suited to research on HRM [26]. Finally, Hartley argues that case studies can help in probing and developing theory [27].

Since the publication of *Experimental and quasi-experimental designs for research* by Campbell & Stanley [28], the major limitation held against the case study design is its limited external validity, or the weak potential to generalise findings from one case to another. Other authors raise its limited attribution power: case studies are good at analysing the intervening processes or documenting evolution in time, but weak at

demonstrating the causal links between intervention and outcome [29]. Much of this critique has its origins in quantitative criteria of validity, according to which case studies are based on too small numbers of cases and on non-randomised case selection, thus leading to problems of representation and inference [25]. It is exactly here that its adherents claim that theory-based methodologies can make a difference.

During the 1980s, Chen and Rossi developed the theory-based evaluation approach as an answer to policy and programme evaluation approaches that remained limited to before-after and input-output designs or that focused narrowly on methodological issues (method-driven evaluation) [30,31]. The theories of change approach [32] and realist evaluation (RE) [33] are among the most recent applications of theory-based evaluation. As we will discuss in detail below, both approaches aim at opening the black box between intervention and outcome.

For organisational research, realist evaluation seems to offer a number of advantages. It promises, first, to increase the external validity of case studies. Building upon existing knowledge, RE analyses why change occurs, or why not, and in which conditions. It aims at providing information that allows decision-makers to judge whether the lessons learnt could be applied elsewhere [34]. Repeated case studies lead to more refined middle range theories that offer increasingly refined information of context conditions, thereby increasing generalisability of such case studies [21,27,29] and improving our understanding of causal processes [35]. Second, based on its generative perspective on causality, it seeks to explain change by referring to the actors who change a situation under influence of particular external events (such as an intervention) and under specific conditions [33]. Accepting the role of actors in change (agency), realist evaluation also considers structural and institutional features to exist independently of the actors and researchers. If human action is embedded within a wider range of social processes and structures, then causal mechanisms reside in social relations and context as much as in individuals. As a consequence of this ontological perspective, evaluators need to unearth the social layers in order to understand the root causes of the problem at hand [36] and to find the mechanism that explains the outcomes of the intervention [33]. In short, Pawson & Tilley argue that realist evaluation indicates 'what works in which conditions for whom', rather than merely answering the question 'does it work?'. Realist evaluation is thus well suited to assessment of interventions in complex situations, which most organisational research is all about.

While the merits of theory-driven and realist evaluation have been amply discussed in journals on

evaluation (see for instance [36-41] and [42-44], there is little documented experience in the domain of health service organisation and public health, notable exceptions being [45] and [46]. This scarcity of realist studies could be interpreted as a sign of the limited academic credibility of theory-driven evaluation in general: 'objectivist' arguments overrule 'subjectivist' research [47]. Other reasons may be practical in nature: carrying out a full-blown theory-driven evaluation is resource- and time intensive [48]. The need of assessing the underlying theory in addition to the efficacy/outcome evaluation adds to the burden [41].

In this paper, we examine whether and how a realist evaluation design can be applied in research of well performing hospitals. We present the case of Central Regional Hospital (CRH) in Cape Coast, Ghana and discuss how we applied this method, from the stage of hypothesis formulation to the synthesis of the results. This case study is part of a longitudinal study on the links between management and performance in well-performing hospitals. We describe the latter as hospitals that ensure equitable access to high quality care and that provide such services in an efficient manner. We choose CRH both because it won the award for the best hospital of the Ghana Health Service in 2004 and on the basis of previous research.

The objective of the study was to analyse the management approach at CRH. We formulated the following research questions: (1) What is the management team's vision on its role?; (2) Which management practices are being carried out?; (3) What is the organisational climate? (defined by Takeuchi et al. as the perceptions of employees regarding how the management approach is practiced and implemented in their organisation [49]; (4) What are the results?; (5) What are the underlying mechanisms explaining the effect of the management practices?

Methods

Principles of realist evaluation

Drawing inspiration from [34,50,51], we structured our study in 4 steps: the formulation of the Middle Range Theory, the design of the study, the data analysis and synthesis, and presentation of the results. We briefly introduce these steps from a theoretical point of view, and then describe how we developed each step in practice.

A realist evaluation research starts from a middle range theory (MRT), which is understood as "*theor [y] that lie [s] between the minor but necessary working hypotheses (...) and the all-inclusive systematic efforts to develop a unified theory that will explain all the observed uniformities of social behavior, social organization and social change*" [52] p. 39). In essence, this

MRT states how the intervention leads to which effect in which conditions. Lipsey & Pollard identify different mechanisms to develop this MRT [53]. It can be formulated on the basis of existing theory and past experience. If the latter is not available, exploratory on-site research can be done to unearth the models used implicitly by the actors to make sense of the intervention - what Pawson & Tilley call 'folk theories' [33]. Through individual interviews or group discussions, the key elements of the problem or intervention, the expected outcomes and potential moderating factors are to be identified [50], p. 196). Additional information may be derived from programme or policy documents. Cause mapping or concept mapping can be used in this process [54]. Ideally, the resulting MRT is then compared with existing knowledge. A literature review identifies studies reporting other causal chains, moderating factors or unintended outcomes, allowing a plausibility check of the preliminary MRT. The result is then again discussed with the stakeholders and results in the middle range theory that will be tested. Byng constructed the middle range theory on the basis of a literature review, a description of the intervention and discussions with facilitators involved in the programmes in question [40].

Regarding designs and research methods, realist evaluation is neutral [33]: the hypothesis as expressed by the MRT is guiding the choice of data that should be collected and the methods and tools to do so. Most theory-driven evaluations in healthcare used the case study design and combine both quantitative and qualitative methods.

Pawson & Tilley call the working hypotheses that emerge during the analysis phase 'Context-Mechanism-Outcome configurations' (CMOC) [33]. Realist evaluators describe not only the intervention and its outcome, but also the context and the underlying mechanism. They seek to establish patterns or regularities that explain outcomes of interventions. In practice, the data from interview transcripts, document analysis and observation are coded with codes drawn from the initial MRT (See [40] for a practical example). Similar to other analysis methods, subsequent rounds of analysis lead to a refined set of themes, categories and codes. The emerging findings are compiled as conjectural CMOCs, which indicate how the intervention led to particular outcomes in which context and by which mechanism. Their fit with the data is checked to ensure internal validity. The retained CMOCs are then compared with the MRT, which in turn is modified if necessary [55]. In some studies, the resulting 'new' MRT was discussed with key actors in order to validate it. A new study then further refines the MRT and this cyclical process leads to accumulation of better insights in how particular interventions work, in which conditions and how [33,34].

In order to be useful in decision-making, the synthesis should present the combinations of attributes required for an intervention to be effective, a presentation of the various alternative explanations, an indication of the potential of transferability by showing the links with existing knowledge, and an indication of the preliminary nature of the findings [56].

Formulation of our MRT

We formulated our preliminary MRT on the basis of an explorative study at CRH. During that study, interviewees indicated the importance of trust between health workers and their management, and the high levels of commitment of staff to the hospital. We also found arguments that pointed to the importance of a contingency approach to management of health workers: effective managers implement management practices that have a good fit with the nature of their workforce, the tasks of the organisation and its environment.

A second source of inspiration was our literature review of human resource management and hospital performance, which led us to high commitment management (HICOM). We retained this concept because its comprehensive approach to management fitted well with our initial analysis. The central attribute of HICOM is the combination of several complementary practices (e.g. good selection of staff, providing training on a needs basis and individual mentoring) in what is called 'bundles'. Through their research in the industrial, commercial and service sectors, Pfeffer & Veiga identified a bundle of 7 elements, which they claim is universally valid [57]: providing employment security, ensuring comparatively high compensation contingent on organisational performance, instituting training and development, putting in place selective hiring, instituting self-managed teams and decentralisation, reduction of status differences and information sharing. Organisational commitment was identified as an outcome of such HRM practices [58] and has been shown to contribute to higher organisational performance. Such balanced bundles of management practices lead to better organisational performance [59-61]. We described elsewhere the key elements of high commitment management in health care organisations [62]. Some of the mechanisms that link HICOM to better performance include positive psychological links between managers and staff, organizational commitment and trust.

We drew another element from the work of Cameron & Quinn on organisational culture [63], which points to the importance of the coherence between the vision of the managers on their role, the practices they choose to implement, and the perception of their employees of these practices. Good fit between these would contribute to better organisational performance.

A final element is the notion of 'decision space'. This concept was developed by Bossert [64] to describe the margins of freedom of health service managers at the operational level. His framework analyses how decentralisation policies affect the management practice at operational level. We retained adequate decision spaces as a potentially important context factor and a potential condition for HICOM to be possible."

It should be noted that there is considerable debate about the outcomes of HRM, and even more about the methods to demonstrate these. In general, we would describe the proximal outcomes of human resource management in terms of three categories: improved staff availability, improved staff attitudes and affects (commitment, job satisfaction) and better staff behaviour (in terms of higher task performance and organisational citizenship behaviour, and lower absenteeism). We selected organisational commitment and trust as proximal outcomes of human resource management, because our literature review pointed out that these outputs are often found to explain the effect of HICOM.

Combining all these elements with the findings of our first exploration visit, we formulated the MRT as follows:

"Hospital managers of well-performing hospitals deploy organisational structures that allow decentralisation and self-managed teams and stimulate delegation of decision-making, good flows of information and transparency. Their HRM bundles combine employment security, adequate compensation and training. This results in strong organisational commitment and trust. Conditions include competent leaders with an explicit vision, relatively large decision-making spaces and adequate resources."

Study design and data collection tools

As will be clear at this point, we used the case study design as the basis. We collected both qualitative and quantitative data through document review of GHS and hospital records and reports, focusing on hospital HRM policies, and staffing levels and skill mix data.

In-depth interviews with all 6 members of the hospital management team (HMT) explored their management vision and practices. We based the HRM part of the interview guide on the 7 elements set of Pfeffer & Veiga [57](see some questions in Additional file 1). It must be noted that the interview guides only served as a guide to structure the interview when necessary, not as a questionnaire list that must be applied similarly in all interviews. In line with the concern that most studies focus on managers and ignore the perceptions of employees [65], we also explored the perceptions of staff regarding the management approach (the organisational climate).

In order to cover a wide range of views of different cadres, we made a purposive selection of staff. We identified the main cadres and within these, we randomly selected candidates for the interviews. This resulted in individual in-depth interviews of 3 nurses, 1 midwife, 1 doctor, 1 radiographer, 1 physiotherapist, 2 laboratory technologists, 1 clerical officer and 1 ward assistant. We also carried out 3 group discussions with heads of units, nurses, and paramedical staff (orderlies, clerical officers and account staff). Opportunistic non-participant observations were made of management meetings, ward procedures and OPD clinics.

We also developed a data collection form that focused on numbers of different cadres of staff (stocks) and on movement of personnel in or out of the hospital (flows in terms of transfer in/out, deceased staff, dismissed staff, absconded staff, retired staff).

During the preparation phase, a self-assessment of ethical issues, based on the working paper "Notes regarding ethical guidelines for health services research", of the Department of Public Health, Institute of Tropical Medicine was done. This covered the following issues: Minimal risk to participants; Invitation, information and informed consent; Feedback to interviewees and staff. We sought and obtained a written informed consent from all interviewees. Measures were taken to safeguard confidentiality and anonymity. All interviews were recorded and transcribed verbatim.

Data analysis

We used NVivo 2.0 software for data management and analysis. The initial coding was based on a preliminary list of codes inspired by the MRT and on additional ideas that emerged during the fieldwork.

In a second round of analysis, some themes and patterns emerged (see below). In order to structure these as CMO configurations, we found it useful to borrow categories from theory-driven evaluation [66]. We described the *intervention* (in this case the HRM practices) in terms of content and application, and the intended and actual outcomes. We drew on our interviews and observations to differentiate (proclaimed) vision (what the team wants), the discourse (what they say) and the actual practices (what they do). We described the organisational climate, defined as "the atmosphere that employees perceive is created in their organisation by practices, procedures and rewards" [67]. In order to indicate how the intervention works, we analysed both the *context* and the *intervening mechanisms*, and attempted to identify the essential conditions.

To assess the intensity of the implementation of the practices, we developed an analytical framework based on the paper by Richardson & Thompson [59]. These authors questioned the research tools used in HRM

surveys, which in their opinion often lack assessment of the intensity of application and coverage of the HRM practices. We selected coverage, intensity, internal fit and external fit as dimensions. 'Coverage' is understood as the degree to which the elements of the HRM bundle are applied to all cadres. 'Intensity' looks at the intensity of application. 'Internal fit' examines the synergistic and/or counterbalancing effect of the different elements. 'External fit' examines the appropriateness of the bundle for the cadre and organisation in question.

Reporting of findings

The preliminary results were discussed with the management team of the hospital, and the final analysis subsequently refined. A research report was sent to the commissioner of the study, a policy brief posted on the web and the findings were presented at the 2008 Geneva Health Forum.

Results

In this section, we present both primary findings and results from the analysis of the qualitative data in terms of the management vision, the actual management practices and the organisational climate. These sections correspond with the research questions presented above and are drawn from a 'thick' description of the case, or a detailed account of what the interviewees said, what we observed and what we learned from our document review.

The management vision

A first element we analysed was the views of the management team members of their own role in the hospital and on how they should manage the personnel. During the interviews, the management team members did not use words like 'bundle' or 'high commitment management', but they nonetheless expressed a clear view of the hospital's roles and of how the health workers should be managed accordingly. Key terms include striving for excellence, offering services to all, attention for their personnel and sound financial management. This vision is transmitted through what they say during staff meetings or write in the mission statement and the annual reports.

This vision is well shared: not only do the director, the financial manager, the nursing manager and the non-medical administrator maintain the same discourse, also interviewees from the operational staff expressed this vision clearly, from nurses to cleaners.

"Their vision is that, they want this place to be a first class hospital. Their aim is to save life, so that is their main focus. And whatever they want to do so that life is saved, to me is their agenda." (Non-medical worker, group discussion Non-medical staff)

The actual human resource management - what the management does

Based on the analysis of our interviews, observations and collected documents, we found that the actual set of practices at CRH includes more and different elements than Pfeffer and Veiga [57] listed. These authors list of seven elements includes:

- putting in place selective hiring
- providing employment security
- ensuring comparatively high compensation contingent on organisational performance
- instituting training and development
- deploying self-managed teams and decentralisation
- reduction of status differences
- information sharing

We found that selective hiring took place at the start-up of the new hospital in 1998, when the medical and para-medical staffs were almost handpicked from the pool of health workers in the region. At the time of the study (2005), however, the Ghana Health Service (GHS) regulations allowed only local recruitment of labourers and administrative staff.

The *employment security offered by the GHS* to its appointed staff was an often-mentioned reason why interviewees prefer employment in the GHS rather the private sector.

At the time of the study, setting *compensation* levels was not within the decision space of the HMT. Only financial incentives for night duties and expatriate doctors could be given. Remuneration was not linked to actual performance. Just prior to the study, health sector strikes led to the Additional Duty Hours Allowance (ADHA) policy, which significantly improved the purchasing power of the health workers - the ADHA initially constituted a mark-up of 100-250% to the salary of a doctor and of lesser proportions for other health workers.

Training and personal development was found to be an important part of the HRM package. A full-time in-service training coordinator was appointed and a budget allocated to organise continued medical education activities, including clinical meetings, mortality meetings, seminars and conferences. Staffs were actively stimulated to follow external courses, even during working hours and personnel from all cadres actually did.

We found *decentralised decision-making* to be a central feature. The different units enjoyed a moderate level of autonomy in terms of decision-making and objective setting. Considerable decision-making authority over a number of domains, including the highly sensitive distribution of ADHA funds, was delegated to committees composed of different cadres of staff. The management team members argued that such decision-making

structure would foster active participation of staff in decisions that affect the hospital.

In this decentralised decision-making structure, we found that *teamwork* is understood as '*working all together, all engaged, all involved*'. In the daily practice of curing and caring, teamwork was most visible at operational unit level. Deliberate efforts were made to include cleaners, sweepers and auxiliary staff in decision-making.

The nursing cadre decided to introduce an all-white uniform instead of the colour-coded uniforms. Interviewed nurses indicated this *reduction of status differences* as an important policy and perceived it as a sign of respect by management. In contrast, reduction of status differences between the management team and the operational staff seemed not a concern, neither for management, nor for the staff.

Information sharing was one of the most striking features. Formal communication channels were in place at all levels, including regular unit and ward meetings, heads of unit meetings and top management meetings. These were complemented by the committees mentioned above. General quarterly meetings (staff "durbars"), open to all staff, offered a voice even to the hierarchically lowest cadre. Observation showed that durbars effectively contributed to low-threshold, two-way communication.

Additional practices

We also found that the HMT developed HRM practices not included in Pfeffer & Veiga's set: they made substantial efforts to ensure good physical working conditions, ensured good accessibility of the top managers and stressed hands-on involvement of managers and staff socialisation.

Major attention was given to *creating optimal working conditions*. The interviewees pointed to the good communication system in the hospital, the promptness of repairs, the general cleanliness of building and compound, the availability of air conditioning in virtually all rooms and the good amenities for patients. Other elements of the physical environment that were appreciated include the subsidised staff canteen, the internet café, the staff bus and the staff library. This points to the leverage of improving the working conditions. In Ghana, this may be a management intervention that increases not only the effectiveness of health workers, but also their job satisfaction.

Top managers are accessible for all staff. As in most Ghanaian hospitals, we found a clear hierarchy, whereby superiors should never be bypassed. Hierarchy was strong in the nursing and administrative cadres. However, interviewees mentioned the possibility to see the director or nursing manager in person when problems

could not be solved with their direct supervisor. Our observations showed that staff members of any cadre effectively made use of this open door policy.

Management stays involved at the operational level. Interviewees reported that the nursing managers were regularly helping out staff in the wards during their twice-daily supervision rounds, while the director was still involved in clinical work. The interviews show that this was a deliberate management strategy: the top management aimed at boosting staff morale by actually working with them and by leading by example. We also found that the heads of unit steered this process by inviting senior managers and heads of other departments to their unit meetings in case of cross-border problems.

At the time of the study, *socialisation of staff* was a central element at CRH. Newcomers were given a formal induction course and rotated for a few weeks through different units before being posted to their first station. Both close supervision and peer pressure contributed to maintenance of the standards of work. Interviews show that unit heads would identify staff not following the procedures and correct such behaviour through tutoring.

Intensity of implementation

We analysed the actual implementation of the HRM practices with the framework we presented under Section 'Study design and data collection tools' and which was based on the paper by Richardson & Thompson [60]. First, our observations and interviews show that the elements of the HRM bundle are applied to all cadres (*good coverage*). The *intensity of application* was variable. The management team, indeed, adapts its practices in response to emerging priorities. For example, when confronted with problems of permanence of doctors at the emergency department, a custom-made incentive package was put in place. This unequal approach was not contested because all staff recognised the role of doctors in the performance of the hospital.

Second, it seems the management team reached a good *internal fit* of the bundle (good degree of synergy between elements of the bundle). There were no practices that cancelled each other out, except perhaps for the emphasis on training. This had the unintended effect of enabling staff to leave CRH for better posts. Most other elements have mutually reinforcing effects: (1) information sharing, recognition and participative decision-making; and (2) bottom-up access to management and managers getting involved in the wards.

Finally, the *external fit* of a HRM bundle is the fit of the management practices with the core activities of the hospital (caring and curing) and with the mission of the organisation (providing accessible quality care). The HRM practices stimulate good professional practice by

nurses, midwives and doctors by providing adequate autonomy to the operational units regarding their daily activities, while ensuring coordination between these units. The management is also perceived to provide effective support, information and resources (see below). As such, the bundle fits well to the task and mission of the hospital and to the professional values.

The organisational climate: the management practices as perceived by the staff

Four themes emerged in the analysis of the perceptions of the operational staff of the HMT's actions: team work, strong perceptions of support by the management team, recognition and trust. As we will discuss below, these themes point to mechanisms that help explain how the management strategies worked.

Teamwork stimulates staff from all cadres to be involved in care

The interviews indicated a strongly shared feeling among staff members that team work matters: they maintain that quality of care can only improve if all types of staff are involved.

"In some places, nobody gets close to the Nurse Manager and it is like she only decides what she wants at the place. (...) But here, everybody is important. We see everybody's job as important aspect of the health care delivery system, so we include everybody in the care." (IO 1, Unit head, Ind. interview)

Junior staff members pointed out the 'free' relations with their superiors.

"We are all free in our units. My head always comes round to see what is going on over here. If something is not in the right place, he will show you to do this or that. So, always the heads are helping us, so we also feel free to work with them." (Non-medical staff, GD Non-medical staff)

'Free relations' strengthen the collaboration between operational staff and their heads of units, but also with the top managers. Interviewees similarly mentioned the easy communication between the middle line staff and the HMT.

"I would say there is good relationship both formally and informally. We communicate by memos, but as soon as I came, I can just walk straight to Director and tell him: 'This is the problem', and we just brainstorm to see how the problem can be solved." (IM5, HMT member, Ind. interview)

Perceptions of support by the management team

Interviewed staff members often mentioned that they feel supported by the HMT. First, interviewees

expressed the feeling that the HMT is effectively solving problems. Unit meetings or ward conferences are a good example of how formal meetings can prevent or solve coordination problems.

"The ward conference is very good. The accountant is there, the pharmacist is there, the lab man is there, everybody is there. The meetings or presentations are not for fault finding. We pick issues from there and we make our corrections or cover loopholes." (Head of unit 1, GD Unit heads)

Informal and non-structured opportunities exist, too, and are used to good effect. Interviewees pointed out how open relationships and good access to top managers allows them to take a problem to the 'next level'.

"As a unit head, if I think that something is not going on well, my demands are not being met, I can approach the director and we sit down and talk about it. (...) You are free to enter his office anytime to discuss your problem, especially when you think things are not going on well" (Head of unit 4, GD Unit heads)

Staff members appreciated not only the possibility to discuss work-related problems with their superiors, but also the attention given by the latter to their professional development. This also applies to members of the hospital management team.

"He [the director] made every opportunity for my career advancement. He is always looking out, listening and trying to help where he can, to see how he can help people to progress. So, when you have someone doing that for you, at least you also have to return the same to him." (IMS, hospital management team member, Ind. interview)

Strong perception of recognition

The interviewees expressed strong feelings of recognition by the management team. They explained how a range of practices, from a word of appreciation to tangible rewards expresses the appreciation of the HMT for their work.

"At the end of the year, every staff here is given a token. Sometimes, something in the form of food, money, a get-together, occasionally words of motivation, a tap on your shoulder, meeting you and finding out how is it, how is the work going on. This serves as motivation." (IO7, Head of unit, Ind. interview)

Interestingly, several interviewees mentioned the initial staff selection, when the hospital was started up, as a

key event, not only because it helped set standards, but also because of its strong undertone of recognition.

"To start with, I can surely say that, the standard that was set right from the inception of the hospital has made such a mark. Because immediately when this hospital was instituted, we were to come for an interview. So, a high standard was set (...) and they see if you have the call to work. On that note, in coming out to publish the names of those to come here, it is like Government releasing a white paper. By that time, you feel as if you are in heaven. (...) With that alone, that standard was set and everybody was expected to give of his best." (Nurse, GD Nurses)

Perceptions of trust

We explored the issue of trust, which we found to be an important element in the explorative study, by asking staff how they would rate the levels of trust at CRH and how they believe trust is generated. The interviewees indicated fair levels of trust both amongst staff and between management and staff.

"In the whole hospital, there is some trust, but I don't think it is 100%. May be it is between 80% - 95%." (Unit head 3, GD Unit heads)

Asked how management practices influence the levels of trust, they pointed out the importance of meetings during which information is exchanged, the willingness of managers to discuss decisions and the resulting perception of transparency.

"At least, we have management meetings and after that, management meets the unit heads and tells them what the institution wants to do, the programmes they have embarked on. They discuss with the unit heads and if somebody does not understand something, management explains it. The unit heads are supposed to go down and explain to their subordinates. And when we have staff durbars, these things are also brought up. So, transparency is there, we can understand things. Anything they want to do is explained to workers. (Unit head 3, GD Unit heads)

These consultations and opportunities to discuss important issues contribute to perceived fairness of the decisions. Interviewees said that less rumour mongering and suspicion arise when people are informed why certain measures are implemented and others not.

"At the end of the day, like we had our last year's meeting after we presented our reports, management too presented their report, their financial report,

what they got and how they spent their expenditure and those things. So, there will be no room to think that somebody is cheating on you, or management is hiding certain things from us. So, we know what is happening, you don't need to or there is no room for suspicion. (...) I think it is a fair deal between management and staff." (IO2, Midwife, Ind. interview)

Another source of trust is the effective support staffs receive from their superiors in case of problems.

"Even the Director himself came here three days ago. So, what he said, he has done it. That is why I say I trust him." (Non-medical worker, GD Non-medical staff)

"The trust comes from the urgent action taken when there is a problem. If there is any problem on discipline for example, an ad-hoc committee is set up and within days, the matter is settled." (IM4, HMT member, Ind. interview)

Analysis

After categorising, and thus making sense, of the primary data in the form of CMO Configurations, a realist evaluation seeks to examine the link between these findings and the middle range theory it set out to examine. In practice, we searched for potential causal pathways between the management practices and the apparent outcomes of commitment and trust. To do so, we summarised the above findings and then searched for CMO configurations.

A summary of the intervention and its outcomes

Our interviews and document review show that the Hospital Management Team identified good hospital performance as the intended distant *outcome* of its management practices and a motivated and well-performing workforce as the proximal outcome. As mentioned above, the scope of this study did not allow examining the association between management practice and hospital performance, and we focus on the effect of these practices on organisational commitment and trust, the proximal outcomes we retained on the basis of our preliminary theory-building.

The *actual* intervention can be summarised as a combination of HRM practices: socialisation of (new) staff, training and personal development, good communication and information sharing between different levels of the organisation, and decentralised decision making to the level of ward and department teams. We also found important additional management practices: the creation of good working conditions, the good accessibility of top managers, and the active involvement of the manager on the work floor.

Regarding the *process of implementation*, we noted a good coherence between the HRM practices and the

management team's vision. Indeed, in line with their vision, the management team motivates the staff through different interventions: remuneration, effective support and recognition. The HRM practices are reinforcing each other (good internal fit). The bundle is well adapted to the different cadres of a healthcare organisation and its mission (good external fit). It is applied similarly to all cadres (good coverage). The intensity is variable, but this poses no problems for the staff.

Realist evaluation improves external validity of a case study by describing the *implementation context*. During the study, we found several potentially important elements in the context of Central Regional Hospital. First, as testified by the brain drain, Ghana has a well-trained health workforce from which the GHS (and thus CRH) can draw personnel. Its medical and paramedical cadres display a high degree of professionalism, and there is a general culture of professionalism in the GHS. Second, reasonably good resource availability in terms of hospital funding and management capacity allows investing in the workforce. Indeed, commitment eliciting management practices are costly, especially in management time and in terms of training costs.

We found that the *outcomes* of the HR management bundle at CRH included trust, commitment and strong perceptions of recognition and of support by management, which result in a positive organisational climate.

CMO configurations

During the later phases of the analysis, we found that the management practices can be grouped according to their key mechanism and this led to the description of two parallel CMO configurations, each with their own outcome.

The first CMO can be summarised as 'keeping up standards of excellence through organisational culture'. The hospital had a head start: staff members were selected on professional and motivational grounds by the management team. This lengthy selection procedure gave the staff a feeling of belonging to an elite corps of health professionals and reinforced their professional identity. The management team used this opportunity to initiate a culture of high standards of professional excellence. They set up an induction programme for new staff, and much attention was paid to teamwork and supervision. This reflects findings of Schein [68]: such practices serve as strong embedding mechanisms of the organisational culture. There was equally much attention for a clear role distribution and for task monitoring. In summary, both 'hard' and 'soft' management practices are balanced in the bundle. The former include general rules and procedures, task distribution for clinical and administrative staff and monitoring of task performance; the latter include induction courses, peer pressure mechanisms and training/personal development

opportunities. All this reinforced the initial capital of professional excellence. Availability of a pool of professional health workers is an important context element, and may be essential for such a bundle to work.

The second CMO configuration can be summarised as follows: a hospital management team can attain higher organisational commitment if it strengthens positive reciprocity relationships that are based on social exchange, even in hospitals with limited HRM decision spaces. Key practices in this set include creating open access to managers for all staff and grass-root involvement of managers at operational level. This reinforces open relationships and contributes to solving operational problems and conflict resolution. In turn, it stimulates the feeling of perceived organisational support. Eisenberger and colleagues describe this as the beliefs and perceptions of employees regarding the support provided and the commitment demonstrated by the organisation in their staff [69]. Employees interpret decisions and actions of their managers and their trustworthiness in terms of the commitment of managers to their staff. At CRH, the leadership and management style is indeed perceived to be effective (in meeting its promises and in ensuring adequate physical working conditions) and supportive, even on the personal level. Ultimately, such practices stimulate reciprocity and as a result, organisational commitment. This in turn contributes to organisational performance [70].

Availability of well-trained health workers and adequate funding seem intuitively to be *essential* context elements in both CMO configurations.

The new MRT

Our analysis identified two CMOCs that indicate causal pathways between sets of HRM practices and HRM outcomes, and we modified the MRT accordingly:

“The management of a well-performing hospital deploys organisational structures that allow decentralisation and self-managed teams and stimulates delegation of decision-making, good flows of information and transparency.

In the management of health workers, they implement a balanced bundle of management practices that includes both clear goal setting, role distribution and task monitoring (hard HRM) and training, support and recognition (soft HRM).

Based on the mechanism of perceived organisational support and reciprocity, such combinations lead to a positive organisational climate that includes recognition, respect, commitment and trust. If these are taken up into the organisational culture and newcomers are inducted into the OC, enduring effects of such practices can be expected.

Conditions for such management practices to work include competent leaders with an explicit vision, a minimum of resources and conducive institutional arrangements, including effective decentralisation and appropriate decision spaces (although the latter can be narrow for HRM).”

Discussion

On the basis of this one study, we cannot yet draw firm policy recommendations. Nevertheless, it offers interesting insights in health workforce management and in the use of realist evaluation.

Lessons for policy and practice

First, we found a proof of concept for HICOM in resource-poor health services. Second, our study found variant practices compared with the bundle described by Pfeffer and Veiga, which supports the findings of Richardson & Thompson [60] and Marchington & Grugulis [71]. Third, this case reinforces the point that in management of health workers, we need to apply coherent bundles of practices, and not focus on singular interventions. In HRM, the quality of management practices counts more than the quantity. It is not the actual number of practices, but rather the process by which these practices are put in place that is related with positive staff attitudes like commitment, job satisfaction and procedural justice [65]. This is in line with conclusions of other studies in other sectors [26,72].

Regarding the mechanisms, our findings relate to the analysis of Evans & Davis [73], who situate the underlying mechanisms of high commitment management at the level of the internal social structure of the organisation. Such practices improve knowledge, skills and abilities, but they exert also major effects at the level of relationships. Weak ties are strengthened [74], reciprocity is established and maintained [75] and shared mental models contribute to a strong organisational culture. This in turn affects behaviour of staff and improves organisational efficiency and flexibility, and ultimately, organisational performance. The evidence of the impact of such reciprocity relations or of organisational commitment on organisational performance is not strong, and further research should investigate whether and how high commitment leads to better performance in healthcare organisations.

We found that the decision spaces managers require to develop a responsive HRM approach may be smaller than is often thought. At the time of study, the decision spaces of regional hospital managers in Ghana were quite limited concerning HRM. As important as the formal decision space is its actual utilisation. At CRH, the team exploited its decision spaces well to create its own

way of management within the defined institutional arrangements of a 'regional hospital' (e.g. by using committees and delegation of decision-making power).

Finally, a balanced management approach is costly, especially in management time. It requires reasonable financial resources and a management capability to deal not only with administration but also with the less tangible issues of relationships, organisational culture and motivation of staff.

Future research should establish what other HRM approaches lead to high commitment, under which conditions HICOM works, and how it can be stimulated. This last question deserves attention. Health services in many LMIC are both ill equipped and not sufficiently supported to implement a HRM approach that differs from a mere administrative approach. In the first place, the managers of health services are mostly medical doctors. Human resource management is not an element of the medical education curriculum. Even if they received additional public health or management training, the curriculum mostly equates HRM to personnel administration and this hardly prepares future health service managers for responsive management.

Methodological lessons

In this case study, we used a realist evaluation approach because we consider health care organisations to be essentially social entities. Pawson argues that realist evaluation is well suited to investigate change in such social systems [34]. Its focus on the generative causality that underlies interventions, stimulates the analysis of how the intervention works and in which context conditions. This results in more detailed conclusions that indicate how the intervention was carried out, which effect it had and how it worked. It also offers insights in the context elements. Such theory building helps to overcome the limits of traditional case studies, and specifically their low external validity and low power to explain change [42]. However, appealing as it is, realist evaluation poses a number of challenges for the researcher.

The attribution paradox

Perhaps the most critical issue is the attribution paradox. Because of its ontological and epistemological basis, realist evaluation is quite fit to assess complexity [76,77] and may contribute most in research of exactly such topics. However, research of complex problems needs to confront multi-causality. In complex systems, the behaviour of people and organisations alike is determined by many interlinked factors. Health professionals act under influence of their professional norms, social pressure, management interventions, and not least, their intrinsic motivation. Assessing the exact contribution of a set of management practices to overall organisational performance may therefore be virtually impossible.

What realist evaluation *can* do is to stimulate the researcher to describe a detailed picture of the causal web that includes the multiple determinants and to categorise these as intervention, underlying mechanism or essential context factor. In our case, we have arguments to say that both commitment-eliciting management and personnel administration are required, but we cannot (yet) indicate which among these two sets is the most important in which setting.

The conclusion may be that one needs to accept that the kind of evidence provided by realist evaluation can never be put in the same categories of evidence produced by controlled experimental methods, not only because of its perspective on causality, but also because of the complexity of the subjects on which it will be applied.

The MRT fallacy

While any researcher adopts specific reference frameworks during her research, realist evaluation asks researchers to make these frameworks explicit in the form of a MRT. This implies a risk of developing a tunnel vision: the researcher may remain blind for the unexpected factors and alternative explanations. This risk can be reduced by the plausibility check during the development of the initial MRT, triangulation of findings, analysis by multiple researchers and discussion with stakeholders and peers.

The MRT fallacy also operates at the stage of analysis and of dissemination. During analysis, we did several rounds of plausibility checks, because we kept finding alternative explanations in disciplines such as organisational psychology, organisational theory and sociology. The CMOs and resulting MRTs are indeed most often just one way of explaining the findings. A middle-range theory can indeed never cover *all* possible explanations of change [34]. In Pawson and Tilley's view, a realist evaluator does not strive at nor pretend to provide the ultimate evidence that the intervention works. Rather, she aims at enlightening the decision-maker, a process of utilisation of research that may be the most frequent in case of social science [78]. In such cases, a pragmatic position should be taken, whereby one tries to refine the middle range theory as much as practically possible, with the explicit aim of providing options for improvement rather than reaching a perfect understanding of the intervention as such [56,79].

The CMO dilemma

As we mentioned, the CMO configuration is a powerful model to go beyond the classic case study, as it forces the researcher to go beyond description. However, a true application of realist evaluation requires not only a systematic description of the intervention in terms of intervention, outcome, context and mechanisms. Also the generative causal relationships between these

elements need to be assessed. In our analysis, this proved difficult at several levels.

The first important hurdle is the differentiation of the effect of the context from that of the intervention. This feeds the attribution paradox: is the outcome the result of the intervention - and to which degree - or are there context elements that explain the change in outcome - and to which degree? Furthermore, some context elements can be expected to moderate the relation between intervention and outcome, and in some cases, the outcome of an intervention will influence its context (initiating feedback). Regarding our case, probably more attention needs to be given to the role of professionalism. Professional values can steer providers' behaviour to an important degree and could partially explain the behaviour of certain staff, irrespectively of the management strategies. Most likely, we may find that the observed management strategies are in a close fit with professional behaviour traditions.

Secondly, the realist researcher seeks to describe the mechanism that is triggered by the intervention and that leads to the outcome. Confusion may result from the finding that some context elements are essential for the outcome: is this context element then part of the mechanism? We clarified this issue by considering context elements as actors or factors that are external to the intervention - that are present or occurring even if the intervention does not lead to an outcome -, but which nevertheless may have an influence on the outcome. The mechanism is the causal pathway that explains how the intervention leads to an observed outcome *in a particular context*. In other words, the intervention leads to an outcome in specific contexts if it triggers certain mechanisms. If the mechanism is found to be context-dependent, which in health services may often be the case, essential context elements can be identified. In our case, the professionalism of the staff selected to work at CRH is a context element, the decision to introduce an induction training was a management decision, and the effect of building an organisational culture was a mechanism.

The efficiency question

By its very nature, RE may yield information that is particularly useful for policymakers. However, by its same nature, a RE needs considerable expertise and ample time and resources, because of its comprehensive scope. Indeed, besides the efficacy/outcome evaluation, also the underlying theory and the context must be accounted for [41,80]. In our case, work at CRH started in 2004 with an exploratory visit, and much analysis went on after the second visit in 2005 and the third visit in 2007. Such timelines may still be acceptable in case of non-urgent issues, but far less in case of high-interest policy issues.

Conclusions

Realistic evaluation offers a comprehensive approach to assessment of interventions in complex situations that can go beyond the simple efficacy question. We developed a realist case study that unravelled the management practices put in place by a hospital management team in Ghana. This study shows that it is possible to implement high commitment management practices in LMIC and that these are perceived to be relevant by the health workers. We found that through a well-balanced bundle of HRM practices, management teams can stimulate organisational commitment and an organisational culture of excellence. At CRH, the HRM bundle included sound administrative management. Reciprocity and perceived organisational support emerged as an important underlying mechanism. In applying the realist methodology, we also encountered a number of pitfalls and paradoxes. Only through further practical applications will we find out how these can be overcome.

Additional file 1: Examples of interview questions from the interview guide
Click here for file
[http://www.biomedcentral.com/content/supplementary/1472-6963-10-24-S1.DOC]

Acknowledgements

We would like to thank all the staff of Central Regional Hospital (Ghana) for their warm welcome and collaboration during this study. This work was funded through the framework agreement (*Raamakkoord*) between the Belgian Directorate-General for Development Cooperation and the Institute of Tropical Medicine, Antwerp. The sponsors had no role in the study or in the writing of the paper.

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Authors' contributions

All three authors contributed to the original design and analysis. BM and MD carried out the data collection. BM and MD analysed the data. BM, MD and GK contributed to the discussion section and to writing the manuscript. BM edited the final draft. All authors read and approved the final manuscript.

Competing interests

The authors declare that they have no competing interests.

Received: 15 July 2009

Accepted: 25 January 2010 Published: 25 January 2010

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Pre-publication history

The pre-publication history for this paper can be accessed here:<http://www.biomedcentral.com/1472-6963/10/24/prepub>

doi:10.1186/1472-6963-10-24

Cite this article as: Marchal et al.: A realist evaluation of the management of a well-performing regional hospital in Ghana. *BMC Health Services Research* 2010 **10**:24.

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5. Investigating policy and system change over time

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A considerable body of HPSR work focuses on experience at one point in time (see Part 4: Cross-sectional perspectives) and studies investigating (describing and explaining) change over time are more rarely conducted.

Yet health policy *change* and health system *development*, around which many HPSR questions revolve, are processes that occur over time. Therefore the contextual influences over health policy and system experience are commonly recognized to include historical factors. Health systems never stop developing or evolving and past experience influences current development – perhaps by limiting or opening possibilities of future change. Indeed, ‘path dependency’ is a notion widely applied in institutional analysis that suggests that what happened in the past directly influences, and limits, the possibilities of institutional change today (North, 1998). Policy analysis theory, meanwhile, recognizes that policy change is a dynamic process evolving over considerable periods of time. For example, punctuated equilibrium theory seeks to explain how and why policy processes are characterized by largely incremental change for long periods of time, remaining fairly stable, but occasionally producing large-scale departures from this pattern of change (True, Jones & Baumgartner, 2007).

Longitudinal perspectives are also particularly important in understanding the complex causality embedded in processes of health policy and health systems change. At a system level, for example, a recently published volume (Balabanova, McKee and Mills, 2011) demonstrates the value of taking a long-term perspective in examining health system development. The country experiences presented (for example from Thailand, Tamil Nadu and

India) clearly demonstrate how a range of different decisions and interventions, taken at different times and sometimes with unexpected consequences, accumulate over time to shape the current state and performance of health systems. At a household level, meanwhile, longitudinal work allows for the assessment of the impacts on livelihoods over time of, for example, health seeking behaviour and the associated cost burdens.

But how can change over time be tracked and investigated? The range of possible approaches include prospective tracking of events, or phenomena, over time and retrospective analysis of past events and experiences.

Historical research, for example, “is unusual in ... asking big questions and in dealing with change” (Berridge, 2001:141) and these include “Why and how do we have our current health systems? How and why do they differ from the past?” or “How and for what reasons have different health professions established their areas of competence, and how have boundaries been established?” (Berridge, 2001:141–2). Drawing on documentary, quantitative and oral sources of data, historical work involves interpretive analysis of past experiences and seeks to open up debates rather than to draw direct lessons. In contrast, fixed longitudinal study designs involve repeated measures on the same variables for the same group, or groups, on an extended series of occasions and may support prospective analysis of trends over time (Robson, 2002).

Rigour in studies of the dynamics of policy change over time

The criteria for assessing the rigour and quality of studies examining the dynamics of policy and system change over time will vary with the disciplinary perspective or research strategy adopted and must be appropriate for the particular discipline and strategy (see also Part 2, and the sections in Part 4 relating to the case-study approach and advances in impact evaluation).

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Overview of selected papers

The papers in this section were chosen to illustrate some of the different approaches that can be used to investigate change over time in health policy and systems experience.

- Brown, Cueto & Fee (2006) address the changing role of the World Health Organization over time. Using an historical approach based on documentary review, they argue that over time and in response to larger political and historical processes, the World Health Organization has sought to reconstruct itself as the coordinator of global health initiatives, rather than being the undisputed leader in international health.
- Crichton (2008) traces the experience over time of a particular Kenyan health policy, using the theoretical lens of policy analysis and what is in essence a process tracing approach.
- Masanja et al. (2008) use statistical trends, based on epidemiological data, to support consideration of the performance of the Tanzanian health system and how and why its development has impacted positively on child survival.
- Van Ginnekan, Lewin & Berridge (2010) use an historical approach to examine the evolution over time of the South African community health worker programme, drawing on data collected through oral histories and witness seminars.

See also:

Russell & Gilson (2006) in the case-study approach section which reports on prospective studies of Sri Lankan case-study households in which change over time in household livelihoods was tracked and analysed, showing how these impacts were affected by the costs associated with seeking health care.

Wang et al. (2009) in the advances in impact evaluation section which reports a before and after, with control group, evaluation of the impact on health status of a community-based insurance scheme in China.

References for selected papers

Brown TM, Cueto M, Fee E (2006). The World Health Organization and the transition from 'international' to 'global' public health. *American Journal of Public Health*. January; 96(1):62–72.

<http://dx.doi.org/10.2105/AJPH.2004.050831>

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Van Ginneken N, Lewin S, Berridge S. (2010). The emergence of community health worker programmes in the late apartheid era in South Africa: an historical analysis. *Social Science & Medicine*, 71:1110–1118.

<http://dx.doi.org/10.1016/j.socscimed.2010.06.009>

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The World Health Organization and the Transition From “International” to “Global” Public Health

Theodore M. Brown, PhD, Marcos Cueto, PhD, and Elizabeth Fee, PhD

The term “global health” is rapidly replacing the older terminology of “international health.” We describe the role of the World Health Organization (WHO) in both international and global health and in the transition from one to the other. We suggest that the term “global health” emerged as part of larger political and historical processes, in which WHO found its dominant role challenged and began to reposition itself within a shifting set of power alliances.

Between 1948 and 1998, WHO moved from being the unquestioned leader of international health to being an organization in crisis, facing budget shortfalls and diminished status, especially given the growing influence of new and powerful players. We argue that WHO began to refashion itself as the coordinator, strategic planner, and leader of global health initiatives as a strategy of survival in response to this transformed international political context. (*Am J Public Health*. 2006;96:62–72. doi:10.2105/AJPH.2004.050831)

EVEN A QUICK GLANCE AT THE

titles of books and articles in recent medical and public health literature suggests that an important transition is under way. The terms “global,” “globalization,” and their variants are everywhere, and in the specific context of international public health, “global” seems to be emerging as the preferred authoritative term.¹ As one indicator, the number of entries in PubMed under the rubrics “global health” and “international health” shows that “global health” is rapidly on the rise, seemingly on track to overtake “international health” in the near future (Table 1). Although universities, government agencies, and private philanthropies are all using the term in highly visible ways,² the origin and meaning of the term “global health” are still unclear.

We provide historical insight into the emergence of the terminology of global health. We believe that an examination of this linguistic shift will yield important fruit, and not just information about fashions and fads in language use. Our task here is to

provide a critical analysis of the meaning, emergence, and significance of the term “global health” and to place its growing popularity in a broader historical context. In particular, we focus on the role of the World Health Organization (WHO) in both international and global health and as an agent in the transition from one concept to the other.

Let us first define and differentiate some essential terms. “International health” was already a term of considerable currency in the late 19th and early 20th century, when it referred primarily to a focus on the control of epidemics across the boundaries between nations (i.e., “international”). “Intergovernmental” refers to the relationships between the governments of sovereign nations—in this case, with regard to the policies and practices of public health. “Global health,” in general, implies consideration of the health needs of the people of the whole planet above the concerns of particular nations. The term “global” is also associated with the growing importance of actors beyond governmental or

intergovernmental organizations and agencies—for example, the media, internationally influential foundations, nongovernmental organizations, and transnational corporations. Logically, the terms “international,” “intergovernmental,” and “global” need not be mutually exclusive and in fact can be understood as complementary. Thus, we could say that WHO is an intergovernmental agency that exercises international functions with the goal of improving global health.

Given these definitions, it should come as no surprise that global health is not entirely an invention of the past few years. The term “global” was sometimes used well before the 1990s, as in the “global malaria eradication program” launched by WHO in the mid-1950s; a WHO Public Affairs Committee pamphlet of 1958, *The World Health Organization: Its Global Battle Against Disease*³; a 1971 report for the US House of Representatives entitled *The Politics of Global Health*⁴; and many studies of the “global population problem” in the 1970s.⁵ But the term was generally limited and its

use in official statements and documents sporadic at best. Now there is an increasing frequency of references to global health.⁶ Yet the questions remain: How many have participated in this shift in terminology? Do they consider it trendy, trivial, or trenchant?

Supinda Bunyavanich and Ruth B. Walkup tried to answer these questions and published, under the provocative title “US Public Health Leaders Shift Toward a New Paradigm of Global Health,” their report of conversations conducted in 1999 with 29 “international health leaders.”⁷ Their respondents fell into 2 groups. About half felt that there was no need for a new terminology and that the label “global health” was meaningless jargon. The other half thought that there were profound differences between international health and global health and that “global” clearly meant something transnational. Although these respondents believed that a major shift had occurred within the previous few years, they seemed unable clearly to articulate or define it.

In 1998, Derek Yach and Douglas Bettcher came closer to capturing both the essence and the origin of the new global health in a 2-part article on “The Globalization of Public Health” in the *American Journal of Public Health*.⁸ They defined the “new paradigm” of globalization as “the process of increasing economic, political, and social interdependence and integration as capital, goods, persons, concepts, images, ideas and values cross state boundaries.” The roots of globalization were long, they said, going back at least to the 19th century, but the process was assuming a new magnitude in the late 20th century. The globalization of public health, they argued, had a

dual aspect, one both promising and threatening.

In one respect, there was easier diffusion of useful technologies and of ideas and values such as human rights. In another, there were such risks as diminished social safety nets; the facilitated marketing of tobacco, alcohol, and psychoactive drugs; the easier worldwide spread of infectious diseases; and the rapid degradation of the environment, with dangerous public health consequences. But Yach and Bettcher were convinced that WHO could turn these risks into opportunities. WHO, they argued, could help create more efficient information and surveillance systems by strengthening its global monitoring and alert systems, thus creating “global early warning systems.” They believed that even the most powerful nations would buy into this new globally interdependent world system once these nations realized that such involvement was in their best interest.

Despite the long list of problems and threats, Yach and Bettcher were largely uncritical as they promoted the virtues of global public health and the leadership role of WHO. In an editorial in the same issue of the *Journal*, George Silver noted that Yach and Bettcher worked for WHO and that their position was similar to other optimistic stances taken by WHO officials and advocates. But WHO, Silver pointed out, was actually in a bad way: “The WHO’s leadership role has passed to the far wealthier and more influential World Bank, and the WHO’s mission has been dispersed among other UN agencies.” Wealthy donor countries were billions of dollars in arrears, and this left the United Nations and its agencies in “disarray,

hamstrung by financial constraints and internal incompetencies, frustrated by turf wars and cross-national policies.”⁹ Given these realities, Yach and Bettcher’s promotion of “global public health” while they were affiliated with WHO was, to say the least, intriguing. Why were these spokesmen for the much-criticized and apparently hobbled WHO so upbeat about “global” public health?

THE WORLD HEALTH ORGANIZATION

The Early Years

To better understand Yach and Bettcher’s role, and that of WHO

“War on the Malaria Mosquito!”
Poster produced by the Division of Public Information, World Health Organization, Geneva, 1958.
Courtesy of the World Health Organization. Source: Prints and Photographs Collection of the National Library of Medicine.

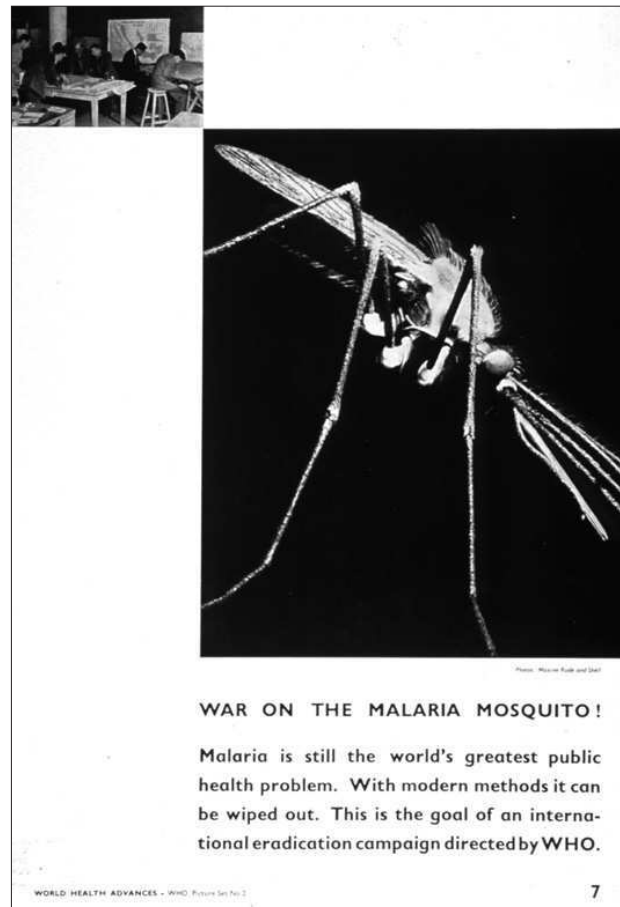


TABLE 1—Number of Articles Retrieved by PubMed, Using “International Health” and “Global Health” as Search Terms, by Decade: 1950 Through July 2005

Decade	International Health ^a	Global Health ^a
1950s	1 007	54
1960s	3 303	155
1970s	8 369	1 137
1980s	16 924	7 176
1990s	49 158	27 794
2000–July 2005	52 169 ^b	39 759 ^b

^aPicks up variant term endings (e.g. “international” also picks up “internationalize” and “internationalization”; “global” also picks up “globalize” and “globalization”).

^bNumber for 55 months only.

more generally, it will be helpful to review the history of the organization from 1948 to 1998, as it moved from being the unquestioned leader of international health to searching for its place in the contested world of global health.

WHO formally began in 1948, when the first World Health Assembly in Geneva, Switzerland, ratified its constitution. The idea of a permanent institution for international health can be traced to the organization in 1902 of the International Sanitary Office of the American Republics, which, some decades later, became the Pan American Sanitary Bureau and eventually the Pan American Health Organization.¹⁰ The Rockefeller Foundation, especially its International Health Division, was also a very significant player in international health in the early 20th century.¹¹

Two European-based international health agencies were also important. One was the Office Internationale d’Hygiène Publique, which began functioning in Paris in 1907; it concentrated on several basic activities related to the administration of international sanitary agreements and the rapid exchange of epidemiological information.¹² The second agency, the League of Nations

Health Organization, began its work in 1920.¹³ This organization established its headquarters in Geneva, sponsored a series of international commissions on diseases, and published epidemiological intelligence and technical reports. The League of Nations Health Organization was poorly budgeted and faced covert opposition from other national and international organizations, including the US Public Health Service. Despite these complications, which limited the Health Organization’s effectiveness, both the Office Internationale d’Hygiène Publique and the Health Organization survived through World War II and were present at the critical postwar moment when the future of international health would be defined.

An international conference in 1945 approved the creation of the United Nations and also voted for the creation of a new specialized health agency. Participants at the meeting initially formed a commission of prominent individuals, among whom were René Sand from Belgium, Andrija Stampar from Yugoslavia, and Thomas Parran from the United States. Sand and Stampar were widely recognized as champions of social medicine. The commission held meetings between 1946 and early 1948 to plan the new international health organization. Representatives of the Pan American Sanitary Bureau, whose leaders resisted being absorbed by the new agency, were also involved, as were leaders of new institutions such as the United Nations Relief and Rehabilitation Administration (UNRRA).

Against this background, the first World Health Assembly met in Geneva in June 1948 and formally created the World Health Organization. The Office Interna-

tionale d’Hygiène Publique, the League of Nations Health Organization, and UNRRA merged into the new agency. The Pan American Sanitary Bureau—then headed by Fred L. Soper, a former Rockefeller Foundation official—was allowed to retain autonomous status as part of a regionalization scheme.¹⁴ WHO formally divided the world into a series of regions—the Americas, Southeast Asia, Europe, Eastern Mediterranean, Western Pacific, and Africa—but it did not fully implement this regionalization until the 1950s. Although an “international” and “intergovernmental” mindset prevailed in the 1940s and 1950s, naming the new organization the *World Health Organization* also raised sights to a worldwide, “global” perspective.

The first director general of WHO, Brock Chisholm, was a Canadian psychiatrist loosely identified with the British social medicine tradition. The United States, a main contributor to the WHO budget, played a contradictory role: on the one hand, it supported the UN system with its broad worldwide goals, but on the other, it was jealous of its sovereignty and maintained the right to intervene unilaterally in the Americas in the name of national security. Another problem for WHO was that its constitution had to be ratified by nation states, a slow process: by 1949, only 14 countries had signed on.¹⁵

As an intergovernmental agency, WHO had to be responsive to the larger political environment. The politics of the Cold War had a particular salience, with an unmistakable impact on WHO policies and personnel. Thus, when the Soviet Union and other communist countries walked out of the UN system and

therefore out of WHO in 1949, the United States and its allies were easily able to exert a dominating influence. In 1953, Chisholm completed his term as director general and was replaced by the Brazilian Marcolino Candau. Candau, who had worked under Soper on malaria control in Brazil, was associated first with the “vertical” disease control programs of the Rockefeller Foundation and then with their adoption by the Pan American Sanitary Bureau when Soper moved to that agency as director.¹⁶ Candau would be director general of WHO for over 20 years. From 1949 until 1956, when the Soviet Union returned to the UN and WHO, WHO was closely allied with US interests.

In 1955, Candau was charged with overseeing WHO’s campaign of malaria eradication, approved that year by the World Health Assembly. The ambitious goal of malaria eradication had been conceived and promoted in the context of great enthusiasm and optimism about the ability of widespread DDT spraying to kill mosquitoes. As Randall Packard has argued, the United States and its allies believed that global malaria eradication would usher in economic growth and create overseas markets for US technology and manufactured goods.¹⁷ It would build support for local governments and their US supporters and help win “hearts and minds” in the battle against Communism. Mirroring then-current development theories, the campaign promoted technologies brought in from outside and made no attempt to enlist the participation of local populations in planning or implementation. This model of development assistance fit neatly into US Cold War efforts to promote

modernization with limited social reform.¹⁸

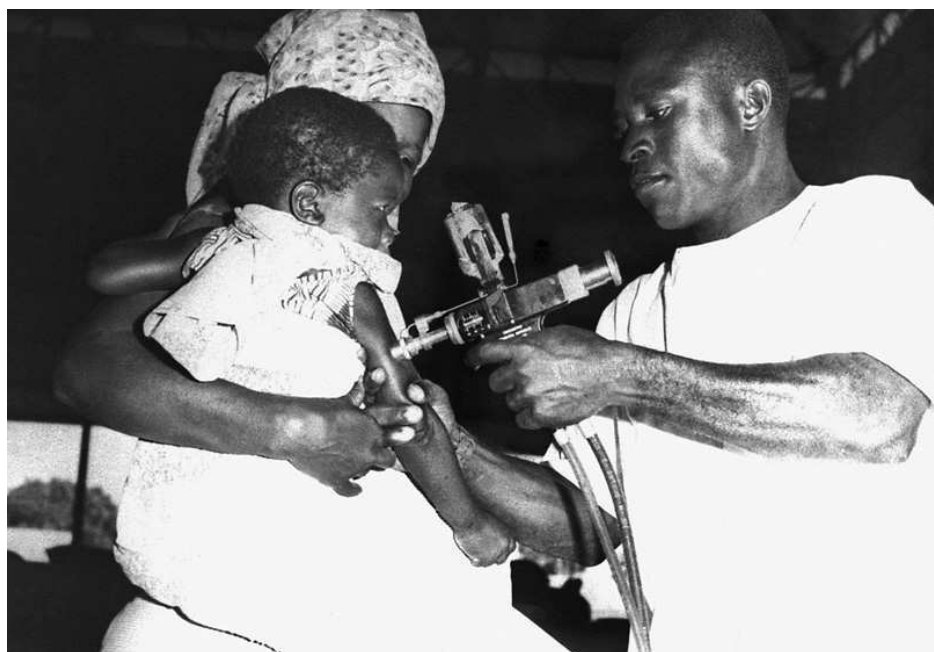
With the return of the Soviet Union and other communist countries in 1956, the political balance in the World Health Assembly shifted and Candau accommodated the changed balance of power. During the 1960s, malaria eradication was facing serious difficulties in the field; ultimately, it would suffer colossal and embarrassing failures. In 1969, the World Health Assembly, declaring that it was not feasible to eradicate malaria in many parts of the world, began a slow process of reversal, returning once again to an older malaria control agenda. This time, however, there was a new twist; the 1969 assembly emphasized the need to develop rural health systems and to integrate malaria control into general health services.

When the Soviet Union returned to WHO, its representative at the assembly was the national deputy minister of health.

He argued that it was now scientifically feasible, socially desirable, and economically worthwhile to attempt to eradicate smallpox worldwide.¹⁹ The Soviet Union wanted to make its mark on global health, and Candau, recognizing the shifting balance of power, was willing to cooperate. The Soviet Union and Cuba agreed to provide 25 million and 2 million doses of freeze-dried vaccine, respectively; in 1959, the World Health Assembly committed itself to a global smallpox eradication program.

In the 1960s, technical improvements—jet injectors and bifurcated needles—made the process of vaccination much cheaper, easier, and more effective. The United States’ interest in smallpox eradication sharply increased; in 1965, Lyndon Johnson instructed the US delegation to the World Health Assembly to pledge American support for an international program to eradicate smallpox from the earth.²⁰ At that

Smallpox Vaccination Program in Togo, 1967. Courtesy of the Centers for Disease Control and Prevention. Source: Public Health Image Library, CDC.



time, despite a decade of marked progress, the disease was still endemic in more than 30 countries. In 1967, now with the support of the world's most powerful players, WHO launched the Intensified Smallpox Eradication Program. This program, an international effort led by the American Donald A. Henderson, would ultimately be stunningly successful.²¹

The Promise and Perils of Primary Health Care, 1973–1993

Within WHO, there have always been tensions between social and economic approaches to population health and technology- or disease-focused approaches. These approaches are not necessarily incompatible, although they have often been at odds. The emphasis on one or the other waxes and wanes over time, depending on the larger balance of power, the changing

interests of international players, the intellectual and ideological commitments of key individuals, and the way that all of these factors interact with the health policymaking process.

During the 1960s and 1970s, changes in WHO were significantly influenced by a political context marked by the emergence of decolonized African nations, the spread of nationalist and socialist movements, and new theories of development that emphasized long-term socioeconomic growth rather than short-term technological intervention. Rallying within organizations such as the Non-Aligned Movement, developing countries created the UN Conference on Trade and Development (UNCTAD), where they argued vigorously for fairer terms of trade and more generous financing of development.²² In Washington, DC, more liberal politics succeeded the conservatism of

the 1950s, with the civil rights movement and other social movements forcing changes in national priorities.

This changing political environment was reflected in corresponding shifts within WHO. In the 1960s, WHO acknowledged that a strengthened health infrastructure was prerequisite to the success of malaria control programs, especially in Africa. In 1968, Candau called for a comprehensive and integrated plan for curative and preventive care services. A Soviet representative called for an organizational study of methods for promoting the development of basic health services.²³ In January 1971, the Executive Board of the World Health Assembly agreed to undertake this study, and its results were presented to the assembly in 1973.²⁴ Socrates Litsios has discussed many of the steps in the transformation of WHO's approach from an older model of health services to what would become the "Primary Health Care" approach.²⁵ This new model drew upon the thinking and experiences of nongovernmental organizations and medical missionaries working in Africa, Asia, and Latin America at the grass-roots level. It also gained saliency from China's reentry into the UN in 1973 and the widespread interest in Chinese "barefoot doctors," who were reported to be transforming rural health conditions. These experiences underscored the urgency of a "Primary Health Care" perspective that included the training of community health workers and the resolution of basic economic and environmental problems.²⁶

These new approaches were spearheaded by Halfdan T. Mahler, a Dane, who served as director general of WHO from

Alma Ata Conference, 1978.
Courtesy of the Pan American Health Organization. Source: Office of Public Information, PAHO.



1973 to 1988. Under pressure from the Soviet delegate to the executive board, Mahler agreed to hold a major conference on the organization of health services in Alma-Ata, in the Soviet Union. Mahler was initially reluctant because he disagreed with the Soviet Union's highly centralized and medicalized approach to the provision of health services.²⁷ The Soviet Union succeeded in hosting the September 1978 conference, but the conference itself reflected Mahler's views much more closely than it did those of the Soviets. The Declaration of Primary Health Care and the goal of "Health for All in the Year 2000" advocated an "inter-sectoral" and multidimensional approach to health and socioeconomic development, emphasized the use of "appropriate technology," and urged active community participation in health care and health education at every level.²⁸

David Tejada de Rivero has argued that "It is regrettable that afterward the impatience of some international agencies, both UN and private, and their emphasis on achieving tangible results instead of promoting change . . . led to major distortions of the original concept of primary health care."²⁹ A number of governments, agencies, and individuals saw WHO's idealistic view of Primary Health Care as "unrealistic" and unattainable. The process of reducing Alma-Ata's idealism to a practical set of technical interventions that could be implemented and measured more easily began in 1979 at a small conference—heavily influenced by US attendees and policies—held in Bellagio, Italy, and sponsored by the Rockefeller Foundation, with assistance from the World Bank. Those in attendance included the president of

the World Bank, the vice president of the Ford Foundation, the administrator of USAID, and the executive secretary of UNICEF.³⁰

The Bellagio meeting focused on an alternative concept to that articulated at Alma-Ata—"Selective Primary Health Care"—which was built on the notion of pragmatic, low-cost interventions that were limited in scope and easy to monitor and evaluate. Thanks primarily to UNICEF, Selective Primary Health Care was soon operationalized under the acronym "GOBI" (Growth monitoring to fight malnutrition in children, Oral rehydration techniques to defeat diarrheal diseases, Breastfeeding to protect children, and Immunizations).³¹

In the 1980s, WHO had to reckon with the growing influence of the World Bank. The bank had initially been formed in 1946 to assist in the reconstruction of Europe and later expanded its mandate to provide loans, grants, and technical assistance to developing countries. At first, it funded large investments in physical capital and infrastructure; in the 1970s, however, it began to invest in population control, health, and education, with an emphasis on population control.³² The World Bank approved its first loan for family planning in 1970. In 1979, the World Bank created a Population, Health, and Nutrition Department and adopted a policy of funding both stand-alone health programs and health components of other projects.

In its 1980 *World Development Report*, the Bank argued that both malnutrition and ill health could be countered by direct government action—with World Bank assistance.³³ It also suggested that improving health and nutrition could accelerate economic

“The Declaration of Primary Health Care and the goal of ‘Health for All in the Year 2000’ advocated an ‘inter-sectoral’ and multidimensional approach to health and socioeconomic development, emphasized the use of ‘appropriate technology,’ and urged active community participation in health care and health education at every level.”

growth, thus providing a good argument for social sector spending. As the Bank began to make direct loans for health services, it called for more efficient use of available resources and discussed the roles of the private and public sectors in financing health care. The Bank favored free markets and a diminished role for national governments.³⁴ In the context of widespread indebtedness by developing countries and increasingly scarce resources for health expenditures, the World Bank's promotion of "structural adjustment" measures at the very time that the HIV/AIDS epidemic erupted drew angry criticism but also underscored the Bank's new influence.

In contrast to the World Bank's increasing authority, in the 1980s the prestige of WHO was beginning to diminish. One sign of trouble was the 1982 vote by the World Health Assembly to freeze WHO's budget.³⁵ This was followed by the 1985 decision by the United States to pay only 20% of its assessed contribution to all UN agencies and to withhold its contribution to WHO's regular budget, in part as a protest against WHO's "Essential Drug Program," which was opposed by leading US-based pharmaceutical companies.³⁶ These events occurred amidst growing

tensions between WHO and UNICEF and other agencies and the controversy over Selective versus Comprehensive Primary Health Care. As part of a rancorous public debate conducted in the pages of *Social Science and Medicine* in 1988, Kenneth Newell, a highly placed WHO official and an architect of Comprehensive Primary Health Care, called Selective Primary Health Care a “threat . . . [that] can be thought of as a counter-revolution.”³⁷

In 1988, Mahler’s 15-year tenure as director general of WHO came to an end. Unexpectedly, Hiroshi Nakajima, a Japanese researcher who had been director of the WHO Western Pacific Regional Office in Manila, was elected new director general.³⁸

Crisis at WHO, 1988–1998

The first citizen of Japan ever elected to head a UN agency, Nakajima rapidly became the most controversial director general in WHO’s history. His nomination had not been supported by the United States or by a number of European and Latin American countries, and his performance in office did little to assuage their doubts. Nakajima did try to launch several important initiatives—on tobacco, global disease surveillance, and public–private partnerships—but fierce criticism persisted that raised questions about his autocratic style and poor management, his inability to communicate effectively, and, worst of all, cronyism and corruption.

Another symptom of WHO’s problems in the late 1980s was the growth of “extrabudgetary” funding. As Gill Walt of the London School of Hygiene and Tropical Medicine noted, there was a crucial shift from predominant

reliance on WHO’s “regular budget”—drawn from member states’ contributions on the basis of population size and gross national product—to greatly increased dependence on extrabudgetary funding coming from donations by multilateral agencies or “donor” nations.³⁹ By the period 1986–1987, extrabudgetary funds of \$437 million had almost caught up with the regular budget of \$543 million. By the beginning of the 1990s, extrabudgetary funding had overtaken the regular budget by \$21 million, contributing 54% of WHO’s overall budget.

Enormous problems for the organization followed from this budgetary shift. Priorities and policies were still ostensibly set by the World Health Assembly, which was made up of all member nations. The assembly, however, now dominated numerically by poor and developing countries, had authority only over the regular budget, frozen since the early 1980s. Wealthy donor nations and multilateral agencies like the World Bank could largely call the shots on the use of the extrabudgetary funds they contributed. Thus, they created, in effect, a series of “vertical” programs more or less independent of the rest of WHO’s programs and decisionmaking structure. The dilemma for the organization was that although the extrabudgetary funds added to the overall budget, “they [increased] difficulties of coordination and continuity, [caused] unpredictability in finance, and a great deal of dependence on the satisfaction of particular donors,”⁴⁰ as Gill Walt explained.

Fiona Godlee published a series of articles in 1994 and 1995 that built on Walt’s critique.⁴¹ She concluded with this dire

assessment: “WHO is caught in a cycle of decline, with donors expressing their lack of faith in its central management by placing funds outside the management’s control. This has prevented WHO from [developing] . . . integrated responses to countries’ long term needs.”⁴¹

In the late 1980s and early 1990s, the World Bank moved confidently into the vacuum created by an increasingly ineffective WHO. WHO officials were unable or unwilling to respond to the new international political economy structured around neoliberal approaches to economics, trade, and politics.⁴² The Bank maintained that existing health systems were often wasteful, inefficient, and ineffective, and it argued in favor of greater reliance on private-sector health care provision and the reduction of public involvement in health services delivery.⁴³

Controversies surrounded the World Bank’s policies and practices, but there was no doubt that, by the early 1990s, it had become a dominant force in international health. The Bank’s greatest “comparative advantage” lay in its ability to mobilize large financial resources. By 1990, the Bank’s loans for health surpassed WHO’s total budget, and by the end of 1996, the Bank’s cumulative lending portfolio in health, nutrition, and population had reached \$13.5 billion. Yet the Bank recognized that, whereas it had great economic strengths and influence, WHO still had considerable technical expertise in matters of health and medicine. This was clearly reflected in the Bank’s widely influential *World Development Report, 1993: Investing in Health*, in which credit is given to WHO, “a full partner with the World Bank at every step of the

preparation of the Report.”⁴⁴ Circumstances suggested that it was to the advantage of both parties for the World Bank and WHO to work together.

WHO EMBRACES “GLOBAL HEALTH”

This is the context in which WHO began to refashion itself as a coordinator, strategic planner, and leader of “global health” initiatives. In January 1992, the 31-member Executive Board of the World Health Assembly decided to appoint a “working group” to recommend how WHO could be most effective in international health work in light of the “global change” rapidly overtaking the world. The executive board may have been responding, in part, to the Children’s Vaccine Initiative, perceived within WHO as an attempted “coup” by UNICEF, the World Bank, the UN Development Program, the Rockefeller Foundation, and several other players seeking to wrest control of vaccine development.⁴⁵ The working group’s final report of May 1993 recommended that WHO—if it was to maintain leadership of the health sector—must overhaul its fragmented management of global, regional, and country programs, diminish the competition between regular and extrabudgetary programs, and, above all, increase the emphasis within WHO on global health issues and WHO’s coordinating role in that domain.⁴⁶

Until that time, the term “global health” had been used sporadically and, outside WHO, usually by people on the political left with various “world” agendas. In 1990, G. A. Gellert of International Physicians for the Prevention of Nuclear War had called



for analyses of “global health interdependence.”⁴⁷ In the same year, Milton and Ruth Roemer argued that further improvements in “global health” would be dependent on the expansion of public rather than private health services.⁴⁸ Another strong source for the term “global health” was the environmental movement, especially debates over world environmental degradation, global warming, and their potentially devastating effects on human health.⁴⁹

In the mid-1990s, a considerable body of literature was produced on global health threats. In the United States, a new Centers for Disease Control and Prevention (CDC) journal, *Emerging Infectious Diseases*, began publication, and former CDC director William Foege started using the phrase “global infectious disease threats.”⁵⁰ In 1997, the Institute of Medicine’s Board of International Health released a report, *America’s Vital Interest in Global Health: Protecting Our People, Enhancing Our Economy, and Advancing Our International Interests*.⁵¹ In 1998, the CDC’s *Preventing Emerging Infectious*

Diseases: A Strategy for the 21st Century appeared, followed in 2001 by the Institute of Medicine’s *Perspectives on the Department of Defense Global Emerging Infections Surveillance and Response System*.⁵² Best-selling books and news magazines were full of stories about Ebola and West Nile virus, resurgent tuberculosis, and the threat of bioterrorism.⁵³ The message was clear: there was a palpable global disease threat.

In 1998, the World Health Assembly reached outside the ranks of WHO for a new leader who could restore credibility to the organization and provide it with a new vision: Gro Harlem Brundtland, former prime minister of Norway and a physician and public health professional. Brundtland brought formidable expertise to the task. In the 1980s, she had been chair of the UN World Commission on Environment and Development and produced the “Brundtland Report,” which led to the Earth Summit of 1992. She was familiar with the global thinking of the environmental movement and had a broad and clear understanding of

Current Director General Jong-wook Lee with three former Directors-General at the celebration to mark the 25th Anniversary of the Alma Ata Declaration. From left: G. H. Brundtland, H. Mahler, H. Nakajima, Lee JW. Courtesy of the World Health Organization. Source: Media Center, WHO.

the links between health, environment, and development.⁵⁴

Brundtland was determined to position WHO as an important player on the global stage, move beyond ministries of health, and gain a seat at the table where decisions were being made.⁵⁵ She wanted to refashion WHO as a “department of consequence”⁵⁵ able to monitor and influence other actors on the global scene. She established a Commission on Macroeconomics and Health, chaired by economist Jeffrey Sachs of Harvard University and including former ministers of finance and officers from the World Bank, the International Monetary Fund, the World Trade Organization, and the UN Development Program, as well as public health leaders. The commission issued a report in December 2001, which argued that improving health in developing countries was essential to their economic development.⁵⁶ The report identified a set of disease priorities that would require focused intervention.

Brundtland also began to strengthen WHO’s financial position, largely by organizing “global partnerships” and “global funds” to bring together “stakeholders”—private donors, governments, and bilateral and multilateral agencies—to concentrate on specific targets (for example, Roll Back Malaria in 1998, the Global Alliance for Vaccines and Immunization in 1999, and Stop TB in 2001). These were semiautonomous programs bringing in substantial outside funding, often in the form of “public–private partnerships.”⁵⁷ A very significant player in these partnerships was the Bill & Melinda Gates Foundation, which committed more than \$1.7 billion between 1998 and 2000 to an international program to prevent or eliminate dis-

eases in the world’s poorest nations, mainly through vaccines and immunization programs.⁵⁸ Within a few years, some 70 “global health partnerships” had been created.

Brundtland’s tenure as director general was not without blemish nor free from criticism. Some of the initiatives credited to her administration had actually been started under Nakajima (for example, the WHO Framework Convention on Tobacco Control), others may be looked upon today with some skepticism (the Commission on Macroeconomics and Health, Roll Back Malaria), and still others arguably did not receive enough attention from her administration (Primary Health Care, HIV/AIDS, Health and Human Rights, and Child Health). Nonetheless, few would dispute the assertion that Brundtland succeeded in achieving her principal objective, which was to reposition WHO as a credible and highly visible contributor to the rapidly changing field of global health.

CONCLUSION

We can now return briefly to the questions implied at the beginning of this article: how does a historical perspective help us understand the emergence of the terminology of “global health” and what role did WHO play as an agent in its development? The basic answers derive from the fact that WHO at various times in its history alternatively led, reflected, and tried to accommodate broader changes and challenges in the ever-shifting world of international health. In the 1950s and 1960s, when changes in biology, economics, and great power politics transformed foreign relations and public health, WHO moved

from a narrow emphasis on malaria eradication to a broader interest in the development of health services and the emerging concentration on smallpox eradication. In the 1970s and 1980s, WHO developed the concept of Primary Health Care but then turned from zealous advocacy to the pragmatic promotion of Selective Primary Health Care as complex changes overtook intra- and interorganizational dynamics and altered the international economic and political order. In the 1990s, WHO attempted to use leadership of an emerging concern with “global health” as an organizational strategy that promised survival and, indeed, renewal.

But just as it did not invent the eradicationist or primary care agendas, WHO did not invent “global health”; other, larger forces were responsible. WHO certainly did help promote interest in global health and contributed significantly to the dissemination of new concepts and a new vocabulary. In that process, it was hoping to acquire, as Yach and Bettcher suggested in 1998, a restored coordinating and leadership role. Whether WHO’s organizational repositioning will serve to reestablish it as the unquestioned steward of the health of the world’s population, and how this mission will be effected in practice, remains an open question at this time. ■

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This article was accepted January 11, 2005.

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Acknowledgments

The authors are grateful to the Joint Learning Initiative of the Rockefeller Foundation, which initially commissioned this article, and to the Global Health Histories Initiative of the World Health Organization, which has provided a supportive environment for continuing our research.

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Changing fortunes: analysis of fluctuating policy space for family planning in Kenya

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Accepted 22 June 2008

Policies relating to contraceptive services (population, family planning and reproductive health policies) often receive weak or fluctuating levels of commitment from national policy elites in Southern countries, leading to slow policy evolution and undermining implementation. This is true of Kenya, despite the government's early progress in committing to population and reproductive health policies, and its success in implementing them during the 1980s. This key informant study on family planning policy in Kenya found that policy space contracted, and then began to expand, because of shifts in contextual factors, and because of the actions of different actors. Policy space contracted during the mid-1990s in the context of weakening prioritization of reproductive health in national and international policy agendas, undermining access to contraceptive services and contributing to the stalling of the country's fertility rates. However, during the mid-2000s, champions of family planning within the Kenyan Government bureaucracy played an important role in expanding the policy space through both public and hidden advocacy activities. The case study demonstrates that policy space analysis can provide useful insights into the dynamics of routine policy and programme evolution and the challenge of sustaining support for issues even after they have reached the policy agenda.

Keywords Policy analysis, family planning, health policy, contraception

KEY MESSAGES

- Policy space for the issue of family planning in Kenya contracted during the late 1990s, and has since begun to expand, due to changing contextual factors and the actions of different individuals.
- Proponents of family planning within two government ministries played an important role in expanding the policy space through both public and intra-government advocacy activities.
- Policy space analysis can provide useful insights into the dynamics of routine policy and programme evolution and the challenge of sustaining support for issues after they have made it onto the policy agenda.

Introduction

In many parts of the world policies relating to contraceptives tend to receive weak or fluctuating levels of commitment from national policy elites, leading to slow policy evolution and undermining implementation. This is true of Kenya, where the government made early progress in committing to population

policies during the 1960s and in contraceptive service provision during the 1970s and 1980s, yet where resource allocations and implementation subsequently declined (Chimwete and Zulu 2003). In Kenya, as elsewhere in sub-Saharan Africa, the past decade has seen a weakening prioritization of contraceptive programmes in national and international policy agendas (Cleland *et al.* 2006), undermining access to services and progress towards the Millennium Development Goals.

This key informant study examines factors affecting the fluctuating level of prioritization of contraceptive service

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provision among Kenyan government policy-makers since the mid-1990s. Contraceptive services are usually referred to as 'family planning' in national policy debates in Kenya and are framed as cutting across reproductive health and population concerns (Ministry of Health 2000, 2007; NCPD 2000, 2003, 2005, 2006a). Based on key informant interviews and a review of academic and official publications and reports, the paper focuses on the strategies and actions taken by a range of actors to 'reposition' family planning in government policy and to ensure the incorporation of contraceptive commodities in the national government budget of 2005, for the first time in the country's history.

The problem of sustaining political and bureaucratic commitment for the implementation and evolution of policies affects a variety of policy issues (Grindle and Thomas 1991; Buse *et al.* 2005). Waning commitment can lead to stagnation in implementation, and can undermine the likelihood that political and bureaucratic actors create new policies and strategies to adapt to changing contexts, such as shifts in external funding trends. In Southern countries and elsewhere, reproductive health policies are particularly vulnerable to weak political commitment, because they do not tend to have strong national support bases and have historically been controversial and perceived as driven by external actors (Jain 1998; Chimwete and Zulu 2003). Thomas and Grindle (1994), in their review of population reforms in 16 countries, explain that sustained commitment to the implementation of population policies tends to be constrained by two main factors: the dispersed and long-term nature of their impacts, and the lack of mobilized support from users of contraceptive services. Reproductive health and population policies have therefore been vulnerable to deprioritization and neglect in many Southern countries, especially in the context of the shift in international attention and official development assistance to HIV and AIDS programmes during the 1990s (Cleland *et al.* 2006).

In this paper, I contend that policy space analysis provides a useful framework for understanding why commitment to existing policies often fluctuates over time, and for mapping the room for manoeuvre that advocates of particular policies have for addressing policies that are being neglected. Policy elites can be thought of as operating within a 'policy space', which influences the degree of agency they have for reforming and driving policy implementation, but which can be expanded by the exercise of that agency. These concepts are drawn from Grindle and Thomas (1991), who suggest that the scope of policy space is influenced by the way in which policy elites manage the interactions between (1) national and international contextual factors, (2) the circumstances surrounding the policy process, and (3) the acceptability of the policy's content. Figure 1 represents policy space as a balloon, which can be expanded, constrained or contracted by shifts in these factors and by peoples' actions.

Firstly, contextual factors are the pre-existing circumstances within which policy processes occur. They can act as opportunities and constraints for policy elites' prioritization of a policy issue, and include historical, social, cultural, political, economic and demographic characteristics of a country and situational or focusing events, like epidemics, droughts or media coverage of issues (Kingdon 1984; Grindle and Thomas 1991). Policy-makers are confronted with a multitude of competing issues

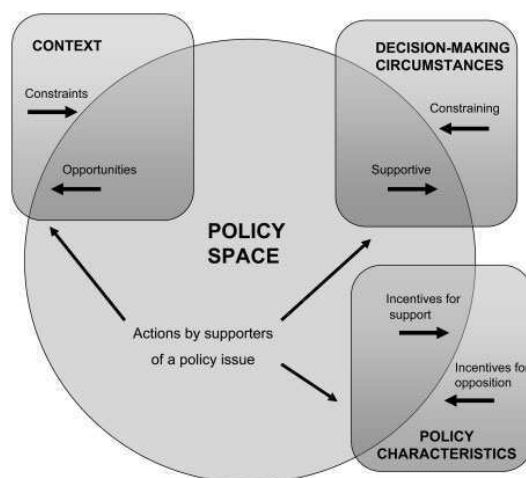


Figure 1 Factors affecting policy space

and have limited resources for dealing with them (Shiffman 2007). External actors and international structural trends have a critical influence on national health policy processes, with increasing diversity and fragmentation of international actors and sources of funding (Walt and Buse 2000; Cerny 2002). These international factors often have contradictory influences, particularly in contexts characterized by national government dependence on external funds, aid conditionalities, shifting funding priorities, and persistence in vertical programming (Walt and Buse 2000; Cerny 2002; Mayhew *et al.* 2005). The background characteristics of policy elites are also important pre-existing factors that shape policy space; for example the values, level of expertise, experience, degree of influence and loyalties of elites influence both their receptiveness to policy change, and their success in championing particular policies.

A second area affecting policy space is that of 'policy circumstances', or the ways in which policy makers' perceptions about a policy issue shape the dynamics of decision making. The extent to which a policy issue is perceived by policy elites to be a matter of crisis or 'politics-as-usual' affects the level at which decisions are taken, the urgency with which decisions are made, and the extent of risk taking (Grindle and Thomas 1991; Walt and Gilson 1994). Policy crises involve strong pressure on policy makers to act, as well as high political stakes, and can lead to radical shifts in the prioritization of issues. When policies are not perceived as urgent, decision making may be dominated by concerns about micropolitical and bureaucratic costs and benefits. Policy circumstances differ from contextual factors because of their dynamic element:

How particular circumstances are perceived by policy elites [...] serves as a bridge between the "embedded orientations" of individuals and societies and the kinds of changes considered by decision makers confronted with specific policy choices. (Thomas and Grindle 1994, p.53)

Lastly, the policy's characteristics are themselves influenced by policy elites' decisions, but also affect the scope policy makers

have for introducing a policy and prioritizing it. The acceptability of a policy is influenced by policy characteristics such as the distribution of the costs and benefits associated with its implementation across policy actors and society, which in turn affects the level of support or opposition to the policy from various stakeholders (Kingdon 1984). Characteristics of a policy that affect its acceptability include its implications for vested interests, the level of public participation it involves, the resources required for implementation and the length of time needed for its impacts to become visible (Grindle and Thomas 1991).

In Grindle and Thomas' model, the various factors interrelate in the following ways. Contextual factors shape the circumstances of decision making by policy elites concerning particular policies at particular times. These decisions in turn shape the characteristics of the policy, and public and bureaucratic incentives to support or oppose it. These incentives in turn shape decisions by policy makers and policy managers about resource allocation, and explain how prioritization and implementation may fluctuate over time. Though the framework was initially developed for analysing processes of agenda setting, decision-making circumstances directly affect policy makers' and managers' decisions about subsequent implementation, for example where shifts in perceptions of the issue among policy elites affect decisions about resource allocation. Importantly, as Figure 1 illustrates, policy makers can widen the policy space they operate within by taking actions to influence the different factors, for example by building consensus or by forming coalitions in support of an issue.

Indeed, analysis of agenda setting across different contexts shows that individual politicians and bureaucrats often play a central role in championing issues and getting them onto the policy agenda, in addition to non-government advocates (Grindle and Thomas 1991; Shiffman 2007). Such analyses also show that the level of success of advocacy initiatives depends on a combination of factors including: clear indicators to show the extent of the problem, the presence of political entrepreneurs to champion the cause, and the organization of attention-generating focusing events; as well as the political acceptability of policies (Shiffman 2007). Successful advocacy may also require the 'framing' of contested or neglected issues in a way that legitimizes them as an important issue for governments to address (Schön and Rein 1991; Joachim 2003), appealing to prevailing social norms (Shiffman 2007) and employing policy narratives, or stories, that simplify issues and persuade others of their importance (Roe 1991; Keeley 2001). This case study has implications for government and non-governmental advocates aiming to sustain commitment to existing policies in shifting national and international contexts, particularly policies relating to contraceptive services and other neglected sexual and reproductive health issues.

Methods

The material for this case study is based on 13 semi-structured interviews and three unstructured discussions carried out during 2006 and 2007 with high-level officials and programme staff from government ministries and agencies, international non-governmental organizations (NGOs), national NGOs, a bilateral donor and an academic with expertise in demography

in Kenya.¹ Interviews were recorded in shorthand during the interview and then typed up by the interviewer immediately afterwards. The notation I1, I2, IX is used in the results section as a code for the various key informants. I also reviewed official and academic publications and grey material on family planning policy in Kenya, reports of relevant meetings, and the theoretical literature on budget and policy processes.

I investigated the factors affecting the policy space for reform using the framework developed by Grindle and Thomas (1991). I also carried out textual analysis (Ulin *et al.* 2005) of interview transcripts to gain insights into the experiences of the different individuals who played key roles in the policy process, and the narratives they used to explain the importance of family planning as a policy issue.

While carrying out the analysis, I compared and triangulated data from different key informant interview transcripts with written resources to assess their validity and to mitigate the impact of biased or partial testimony from key informants. Where discrepancies and information gaps were found, I carried out further investigation through telephone interviews with key informants and grey literature investigations, to resolve inconsistencies and address omissions.

Results

This section begins with an overview of family planning policy in Kenya. The remainder of the section examines each of the factors affecting the policy space for family planning, analysing the ways in which they helped to expand or contract policy space.

Box 1 summarizes Kenya's long history of population and reproductive health programmes. The first Population Policy was introduced in 1967, however government involvement in contraceptive service provision did not begin in earnest until the 1980s (Chimwete and Zulu 2003). During the 1980s and early 1990s, the Kenyan government demonstrated considerable commitment to family planning, through the development of national policies and guidelines, involvement of high-level politicians, the establishment of the National Council for Population and Development (NCPD) in the Office of the Vice President, and support for increased distribution of contraceptives through governmental and non-governmental health facilities, and extensive information, education and communication (IEC) campaigns (Ajayi and Kekovole 1999; Blacker 2006). Service provision expanded impressively during this period, and the contraceptive prevalence rate in Kenya increased from 7 to 27% between 1980 and 1989 (Ajayi and Kekovole 1999).

International factors played a leading role in this original expansion of policy space for family planning, with external actors advocating for and supporting the implementation of the population policy. At this time, donors covered the costs of all government and non-government contraceptives and IEC campaigns. During the second half of the 1990s, however, external funding for services and IEC declined, in the context of a shift in priorities to HIV and AIDS and donor fatigue (Aloo-Obunga 2003; NCPD 2003; I5; I13).

The Kenyan government was slow to respond to the shifting international aid allocations. Combined with poor management of commodity procurement between the Ministry of Health and the Kenya Medical Supplies Agency (KEMSA)² (I13; I4), the unreliable and dwindling international funds were a cause of a

Box 1 The history of family planning policy and programmes in Kenya

1962	Family Planning Association of Kenya (FPAK) established
1967	Government of Kenya's first population policy, but contraceptive services and Information, Education and Communication (IEC) mainly provided by the private sector
1975	The government launched a 5 year Family Planning Programme
1982	The National Council for Population and Development was established in the Office of the Vice President
1984	First National leader's Population Conference in Nairobi
1994	United Nations International Conference on Population and Development (ICPD), Cairo
1996	NCPD published its National Population Advocacy and IEC Strategy for Sustainable Development 1996–2010
1997	National Reproductive Health Strategy published
2000	NCPD published the second Population Policy for Sustainable Development
2003	Kenya Demographic and Health Survey generates deteriorating indicators (published in 2004)
2004	NCPD became a semi-autonomous agency under the Ministry of Planning and Economic Development, the National Coordinating Agency for Population and Development (NCAPD)
2005	The budget for 2005/6 presented to parliament and passed, allocating Kenyan government funds to family planning for the first time
2007	National Reproductive Health Policy published

Sources: Ajayi and Kekovole (1998); Blacker *et al.* (2005); Aloo-Obunga (2000); NCPD (2000).

considerable weakening of government and voluntary sector contraceptive services (I2; I7; I4). In 1996, the NCPD launched a National Population Advocacy and IEC strategy for Sustainable Development 1996–2010, but this strategy floundered when funding from UNFPA was withdrawn in 2000 (I5; I6; The Global Gag Rule Project 2006). Some clinics suffered from commodity stock outs and lack of method choice during the early 2000s, while others closed altogether (I2; I4; I7). The Kenya Service Provision Assessment Survey of 2004 found that in the 5 years preceding the survey, the proportion of health facilities offering any method of family planning declined from 88 to 75% (NCAPD *et al.* 2005).

The 2003 Kenya Demographic and Health Survey (KDHS) results revealed a stall in fertility decline at 4.8 in 1998–2003, and the rate actually rose for women who had not completed primary education (Blacker *et al.* 2005; CBS *et al.* 2005; Westoff and Cross 2006). The 2003 KDHS revealed increases in unmet need for contraception and high contraception discontinuation rates (Blacker *et al.* 2005). These trends caused concern among national and international actors about the implications for the rate of population growth in Kenya.³ In 2004, UN predictions of Kenya's population by mid-2050 were revised from 48 to 70 million, based on these new figures (Cleland *et al.* 2006).

Various societal, economic and demographic factors may have contributed to the worsening fertility and contraceptive use trends, and there are differences of opinion among analysts about the impact of declining donor resource allocations for contraceptives and weakening service delivery (Blacker *et al.* 2005; Bongaarts 2005; Westoff and Cross 2006). But in any case, the new data provided powerful evidence for reproductive health proponents, and catalysed a series of advocacy initiatives with the aim of influencing the government to prioritize contraceptive services and allocate public funding to contraceptive commodities. The advocacy initiatives included meetings with parliamentarians and informal advocacy in government budget meetings. A line item for contraceptive commodities was eventually included in the 2005 national budget, allocating 200 million Kenyan Shillings, or US\$2.62 million.⁴

The new budget line signifies a widening of policy space after its contraction in the 1990s. Advocates had mobilized concern among key decision-makers about the KDHS 2003 results and

as a result of these efforts, government funds were allocated to contraceptives for the first time in Kenya's history. The incorporation of contraceptive programmes into the national budget demonstrates national commitment (Shiffman 2006), and enhances the potential for sustaining public programmes in the face of potential fluctuations in external funding. The government allocation for this line increased to 300 million Kenyan shillings, or US\$4.17 million, in the 2006/7 budget.⁴ However, it should be noted that this is still only around one-third of the cost of Kenya's public sector provision of family planning commodities according to 2000 projections (Ministry of Health 2003), and proponents of family planning continue to seek public funding from increased national allocations and from devolved government funds.

Factors affecting policy space

This section examines how policy elites interacted with each of the three sets of factors in the policy space framework, to assess how each influenced the contraction and expansion of policy space over time, ultimately leading to the inclusion of contraceptive commodities in Kenya's 2005 budget. Table 1 summarizes contextual factors, policy circumstances and policy characteristics, comparing their impact on policy space during the second half of the 1990s with the years since 2000.

(1) Contextual factors

Changes over time in the political, bureaucratic, national and international context had a major impact on the room for manoeuvre open to proponents of family planning within the bureaucracy. Table 1 shows how, during the mid-2000s, there were shifts in all these areas that either increased opportunities for family planning to be prioritized within government, or reduced the contextual constraints against this occurring. The role played by policy actors in working with these shifts and building on them is outlined in the text, below.

Influences on policy elites

Analysts of the national political environment for family planning policy in Kenya contend that commitment to the issue by policy elites tended to be ambivalent during the 1960s and 1970s,

Table 1 Factors affecting policy space for family planning in Kenya

	Mid to late 1990s, Policy space contracting	Early 2000s, Policy space expanding
1. Contextual factors		
Influences on policy elites	↓ Lack of response to negative donor funding trends by high-level politicians ↓ Religious opposition to contraceptives ↑ Government consensus building with religious groups	↑ Religious opposition becoming less vocal
Change of government in 2002	↓ Shortage of government resources allocated to health sector	↑ New government increasing resources to the health sector ↑ Passive support from high-level politicians
Bureaucratic	↓ Conservative budget officials ↓ Intra- and inter-sectoral competition for resources	↑ Mandate and influence of NCAPD ↑ Concern about weak service delivery within Ministry of Health ↓ Conservative budget officials ↓ Intra- and inter-sectoral competition for resources ↑ Introduction of the MTEF
International	↓ Vertical HIV and AIDS funding ↓ Prioritization of HIV and AIDS ↓ Reduced donor funding for contraceptive services and IEC	↑ Financial and technical support for family planning advocacy from international NGOs and donors
Availability of policy evidence		↑ Availability of new evidence of a decline in family planning
2. Policy circumstances	↓ HIV and AIDS became a policy crisis, drawing attention and funding away from family planning	↑ HIV and AIDS policy is making a gradual transition from 'crisis' policy making to 'politics-as-usual'
3. Policy characteristics	↓ Lack of mobilized support from users of contraceptive services	↓ Lack of mobilized support from users of contraceptive services
	↓ Some religious sensitivity about contraceptive services	↑ Decreasing religious sensitivity about contraceptive services
	↓ Vested interests undermining policy implementation	↓ Vested interests undermining policy implementation

↓: Factors constraining or contracting policy space.

↑: Factors expanding policy space.

and that this was strongly influenced by contextual factors such as prevailing cultural and religious attitudes. During this period, there was considerable popular opposition to contraceptives and to population control in Kenyan society, especially outside the narrow class of urban 'modernising elites' (Ajayi and Kekovole 1999; Chimbwete and Zulu 2003). This included opposition to the use of contraceptives from religious groups and from pro-natalist attitudes associated with tribal politics. During this period, some technocrats were convinced by arguments from the international population control lobby about the beneficial impacts of lowering fertility rates for economic development, but key policy elites expressed scepticism about family planning on cultural, religious and pro-natalist grounds (Ajayi and Kekovole 1999; Chimbwete and Zulu 2003). President Jomo Kenyatta is said to have never fully reconciled contraception with his cultural and religious attitudes, and believed that Kenyan society was too opposed to contraceptives for the government to openly promote them or directly provide services. Instead, he introduced the population policy more to impress and build links with the international community and access

international population funding than out of genuine conviction (Chimbwete and Zulu 2003).

During the 1980s, President Daniel Arap Moi appears to have been less troubled than his predecessor by religious and cultural reservations about family planning, which enabled him to take important measures to ensure effective implementation of the population policy. Moi appears to have been more influenced by neo-Malthusian arguments, using them in a number of public statements in support of the issue (Ajayi and Kekovole 1999; Chimbwete and Zulu 2003; Blacker 2006). In addition, concerns about economic stagnation and heightened pressure from donors such as the World Bank also pushed Moi's government into prioritizing family planning (Ajayi and Kekovole 1999; Chimbwete and Zulu 2003). The government-led services and IEC campaigns sparked a backlash from some religious organizations and community leaders, who made public statements of opposition to the policy. However, the government and reproductive health NGOs worked to create a supportive environment for family planning and population policies by sensitizing religious organizations, the public and the media to the issue

(I5; I7; I14; I17). When multi-party elections were reintroduced in the early 1990s, all political parties included population issues in their manifestos (Ajayi and Kekovole 1999), demonstrating the success of these campaigns.

However, Moi's commitment had significant limits, as family planning commodities remained totally funded by donors while he was in power, and his government failed to take action in response to declining resource allocations from donors, allowing implementation and policy evolution to stagnate (NCAPD 2003). This lends weight to the assertion by some key informants from donor agencies and NGOs (I14; I16; I17) that policy elites in Kenya had never fully taken ownership of family planning policy, even during the 1980s.

By the 2000s, pro-natalist attitudes appear to have much less influence on Kenyan politicians than in the past (I2; I6; I8; I14; I15; NCAPD 2006a). The influence of organized religious opposition to contraceptives has also considerably decreased (I5; I6; I3; I4; I15). Efforts by the Kenyan government to build consensus with religious groups during the 1990s appear to have helped to reduce the opposition. The 2000 Population Policy was a milestone in this process, with religious coalitions being actively involved in the drafting of the policy before it was adopted in parliament (I5).

The increasing visibility of HIV and AIDS-related illness and mortality over the past decade or so may also have helped to make opposition less vocal. One key informant argued that HIV and AIDS have led religious groups to reconsider their opposition to family planning, especially the use of condoms:

'... no one has not been affected by HIV/AIDS. Religious groups have decided to lay low and remain silent'. (I5)

Although religious organizations continue to influence the government to exercise caution in their policy making in persistently controversial areas such as abortion, emergency contraception and sexuality education, key informants did not consider general family planning policy to be affected by religious opposition. In addition, high-level politicians in the 2002–07 government appear to have strong personal convictions about family planning. President Mwai Kibaki is known to be convinced by economic arguments for limiting population growth (Ajayi and Kekovole 1998; Chimbwete and Zulu 2003), and the ministers of health and finance during that period were considered to be sympathetic to reproductive health issues (I4; I6; I17).

Change of government in 2002

Moi's government failed to address the declining implementation of family planning policy during the 1990s, and it seems that the change of administration in 2002 may have brought an impetus of change that helped to mobilize action to address this issue. The new government may have helped to expand policy space by bringing politicians who were more supportive of family planning into key positions. The arrival of the new government certainly precipitated two actions that indicate high-level sympathy for the issue. These were the creation of the National Coordinating Agency for Population and Development (NCAPD) through an act of parliament in 2004, with its new advocacy mandate, and the issuing of a Cabinet

Memorandum tabled by NCAPD in the same year, which called for the government to make renewed efforts in family planning. In addition, one senior official in the Ministry of Health and one donor argued that the change of administration allowed increasing government allocations to the health sector and made it more likely that politicians would take public health issues such as reproductive health more seriously (I13; I17).

Bureaucratic culture, capacity and institutional arrangements

Conservatism, lack of transparency and concentration of decision-making power in the budget process were factors constraining the policy space throughout the period examined. These were significant in preventing the government from allocating resources to contraceptives until 2005. One key informant described budget officers in the ministries of health and finance as being opposed to any display of creativity or decisions that are perceived as 'radical' (I6). Budget officials had to be convinced of the need to innovate by introducing government funding for an item that was already funded by donors:

Health indicators such as IMR [infant mortality rates] and MMR [maternal mortality rates] are declining in Kenya. Our strategic plan 2005–2010 shows the need to reverse these trends. FP is important for reducing MMR. One third of IMR is neonatal mortality. Economists understood this. But there was a feeling that partners were already supporting adequately. So why put money to this not drugs or infrastructure? (I4)

However, other bureaucratic factors helped to facilitate the new budget line in 2005. One example is the existence of planning units in each sectoral ministry, which supported the transfer of knowledge, information and skills between the Ministry of Planning and the Ministry of Health. The head of the Planning Unit, who was seconded from the Ministry of Planning, had been involved in the production of the 2003 KDHS, and therefore had a good understanding of population and contraceptive use trends, and a personal stake in the issue (I12). This official was formally responsible for the initial drafting of the Ministry of Health budget. The introduction of the Medium Term Expenditure Framework (MTEF) in 1999 (Ministry of Health 2005) may also have been a supporting factor. Since the MTEF allows for annual increases in resources for existing budget lines, allocations for family planning were much easier to pass in 2006 than in 2005 (I1; I4; I7; I12; I13).

Since its creation as an agency in 2004, the existence of NCAPD has been an important factor expanding the policy space for family planning prioritization in Kenya. One key informant emphasized that the transformation of the National Council for Population and Development into the agency NCAPD led to a considerable improvement in its effectiveness and policy influence. NCAPD is part of the Ministry of Planning, but is semi-autonomous, so has greater operational flexibility than its predecessor (I1; I7). Unlike the Division of Reproductive Health, NCAPD has a mandate to conduct high-level advocacy (I2; I6; I14; NCAPD 2005). In 2003, shortly before NCAPD made its transition to an agency, a new Director was appointed, who was charismatic and influential within government and with donors, enabling him to take advantage

of this mandate to mobilize resources for family planning advocacy, and to sell the issue in high-level meetings (I9; I14).

The experience of poor implementation within the Ministry of Health during the late 1990s and early 2000s was also an important factor creating concern about the issue within the ministry and triggering action to address it. In the Division of Reproductive Health and among NGO service providers, the policy problem was identified because of stock outs of family planning commodities from health facilities, leading to a concern that family planning policy implementation was ineffective and action needed to be taken to improve service delivery. One official in the ministry stated that,

The Ministry of Health had a general feeling that FP implementation was not good enough. (I3)

International influences

Population first made it onto the Kenyan government's agenda because of the influence of external actors, and even at the height of prioritization of the issue during the 1980s and early 1990s, the government always relied on external resources to fund policy implementation (Ajayi and Kerkovole 1998; Chimbwete and Zulu 2003). As with the national government, many international donors shifted their priorities to HIV and AIDS during the 1990s, leading to declining foreign aid allocations for family planning (Aloo-Obunga 2003; NCPD 2003). The strong external pressure that had influenced political elites to prioritize population and reproductive health issues during the 1980s and early 1990s declined. In addition, some key informants described a situation of donor fatigue brought on by frustration with poor planning and lack of ownership for family planning in the Ministry of Health.

Donors got fed up with the lack of planning. DRH used to say, "we have a shortage of pills. UNFPA can give us an emergency drop". UNFPA would do this, but 6 months later they'd come back and ask for another bail out. (I14)

Some key informants stated that donor agencies consider IEC to be expensive and lack conviction in its importance and effectiveness (I6; I2). There appears to have been complacency among donors as well as national actors about fertility transition, and a belief that it would happen naturally without the need for sustained interventions.

Implementation disappeared in the 1990s. There was an expectation that the transition would continue automatically. Resources were moved away. (I1)

Donors no longer wanted to support community-based distribution, questioning its impact. (I2)

Government and donor key informants unsurprisingly differed as to where they put the blame for poor coordination and commodity stockouts, with a USAID official stating that:

[...] there was a major problem when the Germans picked up the bulk of procurement, but there was a 6 month gap between projects which the ministry had not picked up on, so there were almost

commodity stockouts. The ministry did not understand the donor's cycle. (I14)

A senior government official on the other hand, argued,

Donors have no idea of our procurement schedule. You would find lorries arriving at KEMSA without any storage space. (I13)

While external assistance for service delivery and IEC has dropped, international actors have increased their support to 'behind the scenes' advocacy campaigns to reposition family planning. This includes the provision of financial and technical assistance for advocacy on family planning from donors such as USAID, and of technical assistance from international NGOs such as the Futures Group and the African Population and Health Research Center (I2; I14). Since 2000, UNFPA has been funding improvements in the division of responsibility and coordination between the Ministry of Health and NCAPD, which may have helped them to carry out joint advocacy for family planning (I5). In the past few years, some donors have been working with the Ministry to strengthen procurement policy, though it is too early to assess the impacts of these efforts (I6; I14). A key shift in international engagement between the 1980s and recent years is, therefore, that external actors are now trying to create local ownership for family planning by supporting national advocates of the issue, particularly government officials and parliamentarians.

Availability of policy evidence

The availability of new data in 2003 demonstrating that a 'policy problem' existed was a catalyst for alerting policy entrepreneurs to the need for family planning to be reprioritized. Key informants from the NCAPD, Ministry of Health, USAID and NGOs pointed to the importance of the 2003 KDHS data in identifying and persuading others about the importance of the issue.

The plateau [of contraceptive use and fertility rates] was a critical turning point. (I1)

The results showed clearly that unmet need for FP had not changed for over 10 years. Contraceptive prevalence was the same. The TFR was beginning to show an increase. These figures rang a bell. So we did further analysis. Our finding was that there was a shortage of commodities. [...] We needed a broad program of high-level advocacy to lobby government, partners and donors. (I2)

Contrary to the previous quotation, those working on the issue in government had already expressed concern about declining prioritization of family planning and decreasing donor funding before the KDHS funding before the KDHS results were available (Ministry of Health 2000; NCAPD 2003). The publication of this data provided an opportunity and a resource for champions of family planning to use in their advocacy.

(2) Policy circumstances

Since the time of Kenya's first population policy in the 1960s, family planning has consistently been regarded by policy elites as an issue of 'business as usual' rather than a crisis issue.

Government officials repeatedly stated that a difficulty for securing prioritization of family planning in the Ministry of Health is that it is not considered to be an emergency, unlike other health issues such as epidemics (I6; I3; I4). During the 1990s, the policy space for family planning narrowed further, when HIV and AIDS was perceived as a crisis issue (Aloo-Obunga 2003; NCPD 2003).

FP has become routine. It has been overrun by other activities like HIV/AIDS. (I4)

This was exacerbated by a perception that family planning and HIV and AIDS are competing issues that can be traded off against each other. This narrowed the policy space for family planning by diverting resources away and undermining acknowledgement of the interdependence between the two services and the need for integrated policies and programmes. One government official commented that: .

There was the occasional minister who would prioritize HIV over FP. (I2)

During the 1990s, the deprioritization of family planning seems to have been reinforced by complacency among government officials and politicians about increasing contraceptive use rates and declining fertility. There seems to have been a perception that the fertility transition would continue without the need for continuous government intervention, further undermining the sense of importance of family planning as a policy issue.

People did not realise what was happening when the decline in FP funding started. For a long time, FP had been doing very well. It was at the peak of its success when HIV/AIDS became a crisis issue. [The decline in government prioritization of FP] was an involuntary decrease. (I5)

As demonstrated in Table 1, changing perceptions of policy makers during the first half of the 2000s helped to create a more supportive decision-making environment for family planning. This involved both an increase in concern among policy makers about the issue, and an opening up of policy space because of changing attitudes to HIV and AIDS as a policy issue. By 2003, HIV and AIDS was no longer seen as such an urgent crisis, opening the policy space for policy makers to focus more on family planning.

(3) Policy characteristics

As shown in Table 1, the policy content had an important impact on the nature of the policy space for family planning, but did not present a major change during the period examined by this case study. The decreasing religious opposition to family planning during the 1990s may have helped to increase the acceptability of family planning policy among the electorate, thus expanding policy space slightly. There appears to be insufficient knowledge about how far family planning is accepted by individual Kenyans, but generally it is unlikely to meet strong opposition, although there are high levels of myth and suspicion about particular methods in some communities (Feldblum *et al.* 2001; I12; I15; I16). However, a defining feature of family planning policy is the lack of a mobilized constituency

of supporters for the policy among users of contraceptive services, or the Kenyan public in general (I2; I6; I15; I16). The issue of family planning has therefore tended to involve low political stakes for the Kenyan Government, focusing the costs and benefits of the policy in the bureaucratic domain.

In the bureaucracy, there seem to be no significant incentives to oppose family planning programmes among government officials, with the issue being treated as relatively uncontroversial (I2; I6). As with other health services, contraceptives have relatively intense administrative requirements because of the need for continuous administrative resources to be allocated to procurement, storage and distribution of contraceptive commodities, and the technical skills required for effective service delivery. The capacity of the government to distribute contraceptives beyond the district level to the facility level is weak (I17). As with other areas of the health sector, entrenched vested interests associated with procurement of family planning commodities play an influential role in undermining the implementation of family planning services (I14). These interests continue to frustrate efforts to address inefficiencies in procurement and distribution by improving the effectiveness of KEMSA.

Procurement is worth billions [of Kenyan shillings]. KEMSA became independent recently. But the Ministry of Health [still] wants it. How to let go of a cash cow? The previous minister selected a board chairman, but there is still no board. So there are many vested interests. It has become a donor issue. [Donors] keep saying, 'let KEMSA go!'. (I17)

The role of advocacy strategies: expanding policy space during the mid-2000s

The previous section has outlined how shifts in context, policy circumstances and policy characteristics leading up to the mid-2000s widened the policy space for family planning. This section focuses on the ways in which policy actors took advantage of these shifts and widened policy space still further through advocacy initiatives. It also examines strategies that were used effectively by these advocates in order to influence key decision-makers.

From 2003 onwards, advocacy activities led by bureaucrats, with support from political, international and civil society actors, led to increased recognition of the importance of contraceptive services among key policy-makers and ultimately resulted in the introduction of the new budget line for contraceptive commodities in 2005. Certain advocacy strategies appear to have been effective in encouraging increased prioritization of the issue, including combining public and intra-government advocacy, organizing focusing events, and using a variety of policy narratives to 'reframe' family planning.

The advocacy process involved a range of actors, loosely coordinated through family planning and reproductive health committees chaired by the Ministry of Health, with membership including NCAPD, NGOs and donors. The aims were multifaceted. They included 'repositioning' family planning by raising its profile as a government development priority, by making it genuinely multi-sectoral, and enhancing integration with HIV and AIDS and other reproductive health issues such as maternal and child health (I1).

When preliminary results from the KDHS were circulated by the Central Bureau of Statistics (CBS, since renamed the Kenyan National Bureau of Statistics) in January 2004,⁵ the deteriorating trends were immediately noted, and the NCAPD carried out further analysis of the KDHS findings, with support from USAID, and held stakeholders' meetings to discuss how to react (I12). A reproductive health working group, of government officials, NGOs and donors, chaired by the Ministry of Health, identified a specific goal to address donor dependency by ensuring the government allocated national resources to family planning for the first time.

Agenda setting to incorporate family planning in the 2005 budget process involved two advocacy processes. The first was a public process to influence parliamentarians, senior bureaucrats and the wider public, led by NCAPD. The second involved internal government advocacy to influence the budget process within the Ministry of Health and between the Ministry of Health, the Ministry of Planning and the Ministry of Finance.

The public efforts centred on the budget process. In April and July 2005, two advocacy workshops were convened by NCAPD, with support from national and international NGOs and donors (NCAPD 2005, 2006b). Presentations and speeches on the importance of family planning and the deteriorating trends were delivered by NCAPD, the African Inter-Parliamentary Network on Reproductive Health and the Ministry of Health. Advocacy materials and presentations (APHRC 2005; NCAPD 2005) drew both from KDHS data and from evidence on the correlation between higher contraceptive prevalence rates, lower fertility rates, and increased maternal and infant survival published by UNFPA (2003). These workshops targeted ministers, senior administrators and budget officials from the Ministries of Finance, Planning and Health, and parliamentarians (I3; I4; I7). The workshops were reported in the press, and key informants argue that this public profile of the event helped to persuade key officials in the bureaucracy to accept and support the allocation of national resources to family planning (I1; I2; I6; I7; I14).

The exact role played by the parliamentarians is hard to pinpoint. Key informants involved in the advocacy argued that the ultimate aim of targeting MPs was to make them become active in the budget process, advocating for resources to be allocated to contraceptives (I6, I14). However, the parliamentarians' direct impact on the budget is extremely small in Kenya, limited only to simply passing or rejecting the whole budget (Mwenda and Gachochi 2003; Gomez *et al.* 2004; IPAR 2004). Overall, targeting the parliamentarians may have a more long-term effect through strengthening networks of support for reproductive health among politicians and paving the way for future work with parliamentarians (NCAPD 2006b), rather than directly affecting the budget line. However, it is possible that the parliamentary workshops may have catalysed the budget line decision from the Ministry of Health, by putting senior officials in the ministry under scrutiny about their response to the deteriorating KDHS indicators. In this way, the workshops can be regarded as 'focusing events', which raised the profile of the issue, strengthened networks of sympathetic individuals, and mobilized action.

In the parallel, hidden advocacy process, officials within the Division of Reproductive Health (DRH) worked to influence

budget officials in the Ministries of Health and Finance to support public funding of contraceptive commodities (I1). NCAPD provided data and other support to the DRH in this process. A line of advocacy was necessary through government hierarchies, where the Head of the DRH took advantage of routine meetings to persuade Ministry of Health budget officials and senior administrators such as the Director of Medical Services of the importance of adding family planning to the budget (I8; I17). In turn, these senior officials had to convey this message to the Ministry of Finance and during multi-sectoral planning meetings such as MTEF meetings.

[The Division of Reproductive Health (DRH)] needs to be able to push the DMS [Director of Medical Services] who oversees the budget under the PS [Permanent Secretary] to make these decisions. There is a line of command from DRH to DMS to PS to the Ministry of Finance. If Kibaru [Head of the DRH] is not shouting enough to the DMS, the DMS will not be shouting to the PS, and so on. (I8)

The decision-making process to allocate government resources to contraceptive commodities began when bureaucrats in NCAPD, DRH and the Ministry of Health Planning Unit variously identified the need for the budget line (I4; I1; I2; I7). The process encompassed ministerial budget meetings and the Medium Term Expenditure process and culminated in the acceptance of the budget by the Minister of Finance. The Planning Unit in the Ministry of Health started the process officially, tabling arguments to the Ministerial Budget Committee charged with formulating the budget. Officials in the Planning Unit presented key budget decision-makers in the Ministry of Health, including the Director of Medical Services and the Permanent Secretary, with arguments about the need for the new budget line based on shortfalls in family planning funding from donors and the implications of declining KDHS indicators for health and development. In turn, the Ministry of Health Budget Committee inserted the budget line into the ministerial budget and defended it to the cross-sector MTEF Secretariat in the Ministry of Finance (I12; I13).

This intra-government advocacy can be seen as a strategy to create a sense of urgency about family planning as a policy problem, in order to create more favourable decision-making dynamics. The KDHS data played an important role, and government economists were said to be receptive to arguments about the importance of access to contraceptives for improving maternal health and child health indicators (I2; I4; I12; I13; I17). The Public Expenditure Review, carried out by the Planning Unit, provided evidence of the fluctuating resources for family planning, which was presented to the Minister and other senior policy-makers in the Ministry of Health to demonstrate that donor funds were unreliable and inadequate without national allocations (I13).

In addition to the use of statistics, a wide range of policy narratives were employed by different actors in their bid to reframe family planning as an important issue for economic growth, development and health, which should be prioritized in public policy-making. Arguments were made to counter a general perception among policy-makers that sustained fertility transitions occur automatically due to socio-economic change,

without requiring government intervention (I2; I6). One key informant stated that 'without continual family planning IEC, acceptance will decline' (I6). Another key informant argued that argued that,

There is a tendency for poor communities to continually reduce their acceptance of FP [...]. FP is not readily accepted by the poor except if they receive information and community-based distribution. Hence the need for continuous IEC provision. (I2)

Particular individuals used various policy narratives, targeting arguments to particular audiences. Key informants explained how the Head of the Division of Reproductive Health used 'government language' and internal advocacy within the Ministry of Health to make sure the issue did not seem radical or part of an external agenda (I7, I6). Advocates appealed to nationalism (I2; I3):

NCAPD's argument to the government is: "don't allow the life of your citizens to hang on the whims of donors". We must have a Plan B – of government money for family planning. (I2)

The slogan 'Planning our families is Planning for our Nation's Development' was used in advocacy materials distributed at the advocacy workshops (NCAPD 2005). In advocacy initiatives to influence government officials and parliamentarians, proponents of family planning focused on the importance of family planning for economic and social development and poverty reduction, and specifically for achievement of the Millennium Development Goals (APHRC 2005; NCAPD 2005, 2006a,b).

There were also attempts to transform attitudes among policy elites about the beneficiaries of contraception, highlighting the benefits for men, children, low-income families, and the nation at large, countering popular assumptions that contraception is a 'women's issue' (APHRC 2005). Some key informants for this study described the importance of presenting family planning as uncontroversial and in line with national Kenyan aspirations and prevailing gender norms.

With a couple of notable exceptions, reproductive health rights were very rarely used in advocacy materials (APHRC 2005; NCAPD 2005), and remain controversial even among some senior government officials (I17). However, population and sexual and reproductive health narratives were adeptly combined by some key informants, without explicitly referring to rights. One example was the argument that high quality contraceptive services based on a choice of methods are essential for acceptance of contraception by the Kenyan public and for lowering total fertility rates. Shortages of family planning commodities in clinics and poor quality of service delivery were blamed for causing discontinuation of contraceptive use and decreasing acceptance of contraceptive methods (I1, I2, I8).

In the 1990s, there was unmet need for FP. Many women had unintended children. When they went to a facility, they did not find the contraceptive of their choice. They went away, meaning to come back another time, but did not [...] When there are shortfalls in FP commodities, fertility goes up automatically. (I1)

Discussion and conclusion

This paper examines the challenge of sustaining commitment to existing policies in politics-as-usual circumstances, rather than focusing on the agenda-setting phase of policy reform, as is more common in the field of policy analysis. Policy space for the issue of family planning in Kenya contracted during the late 1990s, and subsequently began to expand, due both to changing contextual factors and the ways in which advocates within and outside government worked with these factors.

The case study approach brings certain limitations to this paper. In particular, it limits the potential for developing concrete assertions about causality in the policy process or for generalizing about results. However, the paper does support lessons on policy processes from other contexts, and also provides suggestions for how policy space analysis could be utilized more widely in health policy analysis.

Firstly, the paper demonstrates the potential for the use of policy space analysis to identify the challenges and opportunities for sustaining or increasing commitment to existing policies in politics-as-usual circumstances. This is particularly useful for cases involving 'unplanned drift' of policies in response to trends such as political pressures or opportunities or shifts in funds provided by global initiatives (Buse *et al.* 2005).

Policy space analysis can be used both as an analytical framework and as a tool that proponents of a policy issue can use to map the boundaries of policy space and identify the actions that could be undertaken to expand it. Key advantages of the policy space analysis framework include its explicit focus on the dynamics of decision-making circumstances, the influence of vested interests in shaping policy outcomes, and the agency of policy elites (Walt and Gilson 1994). In this way, policy space is a powerful and under-utilized tool for analysis of the political economy of public health policies.

The case study reveals the important role government officials can play in sensitizing colleagues within and between ministries to neglected SRH issues. In Kenya this was dependent on the existence of highly motivated individuals in both the Ministry of Planning and the Ministry of Health, and the existence of the NCAPD, which had the independence and mandate to carry out advocacy on population-related issues.

This case study provides support for Thomas and Grindle's observation that the 'policy content' of population policies, involving sustained bureaucratic demands, dispersed benefits and low political stakes, is a likely reason why policies relating to contraceptive services tend to evolve slowly and are often poorly implemented (Thomas and Grindle 1994). In Kenya, the advocacy around family planning and the 2005 budget involved attempts to counter this tendency by securing political commitment and government resources for the issue and addressing complacency by feeding new evidence from the 2003 KDHS into policy. The public advocacy events involving parliamentarians and the media organized by NCPAD and other partners could be seen as an attempt to move the issue from the purely bureaucratic arena into the public domain. The case study demonstrates that research examining policy processes would benefit from investigating budget processes in more detail, because of their role in intra-government negotiation and advocacy for planning and prioritizing policy issues.

In accordance with Walt and Buse (2000), Buse *et al.* (2005) and Cerny (2002), UNFPA, USAID, other bilateral donors and international NGOs played a vital role in shaping the domestic policy process, first helping to contract, then to expand the policy space for family planning through international support to local advocacy activities. However, while the original expansion of policy space during the 1980s was to a large degree led by international actors, national government officials and resources have played a greater role during the expansion since 2003, providing some evidence of increased national ownership of the issue.

The case study supports Shiffman's assertion of the importance of both the availability of reliable indicators to demonstrate the policy problem and the organization of focusing events (Shiffman 2007). As predicted by Thomas and Grindle (1994), technical analyses of population problems played a central role in persuading policy elites of the need for reform.

The government officials and politicians who support family planning appear to have been skilled at selecting from the range of policy narratives and tailoring their arguments for different audiences. Advocates' use of arguments to reframe contraceptive services as non-radical and in tune with national development goals and prevailing gender norms can be seen as a useful strategy for increasing recognition of the importance of these services and tackling sources of scepticism about them (Schön and Rein 1991; Joachim 2003). Grindle and Thomas (1991) focus on the implications of policy characteristics for the distribution of costs and benefits to key stakeholders. However, where policy issues that are highly influenced by social and cultural values are concerned, including sexual and reproductive health policies, the ways in which policies are framed to stakeholders may be equally important.

Despite the significant expansion of policy space identified in this case study, very few of the key informants interviewed were of the opinion that contraceptive service delivery and information campaigns have returned to the levels of success experienced during the 1980s. Proponents of family planning in Kenya continue with their efforts to promote family planning as a priority in Kenya and to secure further resources for implementation. However, they may not be able to achieve major improvements in service delivery without successfully tackling the weaknesses in government procurement and distribution of contraceptive commodities.

Endnotes

¹ The key informants were from the Ministry of Health [one official in the ministry's Planning Unit and two officials in the Division of Reproductive Health (I3; I4; I13)], the National Coordinating Agency for Population and Development (NCAPD) (I1; I2; I7), the Kenyan National Bureau of Statistics (I12), the donors USAID and UNFPA (I14; I17), and the NGOs Planned Parenthood Federation of America, Futures Group, Kenyan Association for the Promotion of Adolescent Health (KAPAH), and Marie Stopes International (I5; I6; I8; I15; I16). Additional unstructured discussions were carried out with an international adviser to the Ministry of Health (I10), an NGO representative (I11), and a demographer with expertise on family planning in Kenya (I9).

² The public sector Medical Supplies Coordinating Unit (MSCU) was transformed into a parastatal and renamed KEMSA in 2000.

³ The KDHS 2003 results were published in 2004 but were discussed in meetings during late 2003 within the Ministry of Planning and with other stakeholders.

⁴ This figure is based on the conversion rate between Kenyan Shillings and US Dollars in June 2005.

⁵ Although the specific agenda to use advocacy to 'reposition family planning' began to appear in government documents during 2005, the agenda appears to have its roots among actors in the then NCPD and supporting US agencies from before the KDHS figures emerged. A 2003 document that does not feature KDHS results cites the need for 'renewed high-profile public commitment by high-level leaders to reinvigorate FP in Kenya' (NCPD 2003).

Acknowledgements

The author expresses her appreciation for the financial support (Grant HD4) to this study provided by the UK Department for International Development (DfID) for the Realising Rights Research Programme Consortium. The views expressed are not necessarily those of DfID.

I am grateful to the key informants from the Ministry of Health, Kenya National Bureau of Statistics, National Coordinating Agency for Population and Development, Futures Group, KAPAH, UNFPA, USAID, Marie Stopes International, International Planned Parenthood Federation, and London School of Hygiene and Tropical Medicine for taking the time to be interviewed and providing invaluable insights and information for this study. I would like to thank Frederick Mugisha for his contributions to the study design and methodology, and Gill Walt, Lucy Gilson, Sally Theobald, and Eliya Zulu and other staff at APHRC for their helpful advice and comments on previous drafts of the paper.

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Child survival gains in Tanzania: analysis of data from demographic and health surveys

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Summary

Background A recent national survey in Tanzania reported that mortality in children younger than 5 years dropped by 24% over the 5 years between 2000 and 2004. We aimed to investigate yearly changes to identify what might have contributed to this reduction and to investigate the prospects for meeting the Millennium Development Goal for child survival (MDG 4).

Methods We analysed data from the four demographic and health surveys done in Tanzania since 1990 to generate estimates of mortality in children younger than 5 years for every 1-year period before each survey back to 1990. We estimated trends in mortality between 1990 and 2004 by fitting Lowess regression, and forecasted trends in mortality in 2005 to 2015. We aimed to investigate contextual factors, whether part of Tanzania's health system or not, that could have affected child mortality.

Findings Disaggregated estimates of mortality showed a sharp acceleration in the reduction in mortality in children younger than 5 years in Tanzania between 2000 and 2004. In 1990, the point estimate of mortality was 141.5 (95% CI 141.5–141.5) deaths per 1000 livebirths. This was reduced by 40%, to reach a point estimate of 83.2 (95% CI 70.1–96.3) deaths per 1000 livebirths in 2004. The change in absolute risk was 58.4 (95% CI 32.7–83.8; $p < 0.0001$). Between 1999 and 2004 we noted important improvements in Tanzania's health system, including doubled public expenditure on health; decentralisation and sector-wide basket funding; and increased coverage of key child-survival interventions, such as integrated management of childhood illness, insecticide-treated nets, vitamin A supplementation, immunisation, and exclusive breastfeeding. Other determinants of child survival that are not related to the health system did not change between 1999 and 2004, except for a slow increase in the HIV/AIDS burden.

Interpretation Tanzania could attain MDG 4 if this trend of improved child survival were to be sustained. Investment in health systems and scaling up interventions can produce rapid gains in child survival.

Funding Government of Norway.

Introduction

The Millennium Development Goal (MDG 4) to reduce mortality in children younger than 5 years by two-thirds between 1990 and 2015 has come into focus in recent years as a galvanising force to align global and national efforts towards poverty reduction and better health.^{1–4} Much of the current burden of mortality in children younger than 5 years in low-income countries is preventable if effective coverage of available cost-effective interventions can be achieved.⁵ However, global assessments of the 60 priority countries where most children younger than 5 years die show that very few are on track to reach MDG 4.^{1,6} Many of these countries are in sub-Saharan Africa, where little or no reduction in mortality in children younger than 5 years was evident throughout the 1990s. Since 2000, global health initiatives and resources for health have increased sharply,⁷ which has increased coverage of life-saving child health interventions in several countries.^{8–10} We would therefore expect to see more evidence of progress towards MDG 4 in such settings in the mid-decade assessments.

Since registration systems in sub-Saharan Africa have low coverage, most countries rely on periodic national

birth-history surveys to obtain direct retrospective estimates of child mortality.¹¹ Such national surveys are done every 4–5 years and generally include measures of coverage for priority child-health interventions.¹² The surveys are standardised by national bureaux of statistics such as demographic and health surveys (DHS), which are sponsored by USAID, and multiple indicator cluster surveys, which are sponsored by UNICEF. More than 40 national mortality surveys from the 60 priority countries will be available in 2005–07,¹² one of the first of which is from Tanzania.

In 1990, mortality in children younger than 5 years in Tanzania was 141 per 1000 livebirths; thus, Tanzania's MDG 4 is to reduce this to 47 per 1000 by 2015. In Tanzania, demographic and health surveys were done in 1992, 1996, 1999, and 2005.^{13–16} The first three surveys showed that the rate of child mortality throughout the 1990s was high but static, oscillating between 141 and 147 deaths per 1000 children (table 1). The most recent survey, from late 2004 and early 2005, showed that the probability that a child would die before they reached their fifth birthday fell by 24%, from 146.6 (95% CI 128.4–164.8) deaths per 1000 in 1999 to 112.0 (95% CI

Lancet 2008; 371: 1276–83

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102.6–121.5) deaths per 1000 in 2004 ($p < 0.02$).¹⁵ Similarly, the probability of dying before the first birthday (data not shown) fell by 31% from 99 to 68 deaths per 1000 over the same period. Reductions in mortality were concentrated in postneonatal infants (ie, those older than 28 days and younger than 12 months) and were greater in rural areas. Neither neonatal nor maternal survival increased during this period. The 24% drop in mortality in children younger than 5 years, to 112 deaths per 1000, was calculated from the average mortality across the 5 years before the survey.

Such a decline is unlikely to be due to one factor.¹⁷ But what can account for it? What are the prospects now for Tanzania to reach MDG 4 over the ensuing 10 years? And what can we learn that would help other countries to accelerate progress towards MDG 4? We aimed to calculate the annual rates to examine the pattern of the reduction in mortality and to see if the point estimate for the year 2004 differed from historical values or from the period average. We also investigated Tanzania's health-system investments, including coverage of child-survival interventions between the late 1990s and 2000–04, and examined other factors, not related to the health system, such as national economic growth, poverty reduction, food security, climate shock, fertility, maternal education, and HIV/AIDS, that could plausibly have exerted large, rapid effects on child survival.

Methods

Data sources

To assess trends in mortality since 1990 we used all four Tanzanian demographic and health surveys, from 1992, 1996, 1999, and 2004–05.^{13–16} These were nationally representative cluster sample surveys that covered 8327, 7969, 3615, and 9735 households in 1992, 1996, 1999, and 2005, respectively. The surveys provided direct estimates of child mortality through complete fertility (birth) histories of 32 877 women aged between 15 and 49 years. The surveys also provided detailed information about household demographics; asset ownership; dwelling conditions; health and nutritional status of women and children; coverage of health-care services such as immunisation, insecticide-treated nets, and maternal and child health; and current knowledge and practices related to health. Survey data were obtained by trained personnel, with the verbal informed consent of participants. To assess coverage of child-health interventions, we also used a 2003 survey on service provision in Tanzania, which was a nationally representative facility-based survey of maternal and child health and HIV/AIDS services.¹⁸ All the surveys provided cross-sectional data on intervention coverage in their respective years.

We obtained data for poverty from Tanzanian household budget surveys in 1992 and 2002,¹⁹ which tracked the progress of the government's poverty-monitoring strategy. These surveys sampled 4000 households

	Midpoint of period	Sample size (households)	Mortality (deaths per 1000)
1987–92 ¹³	1990	8327	141.2 (95% CI 128.1–154.3)
1991–96 ¹⁴	1993	7969	136.5 (95% CI 124.8–148.2)
1994–99 ^{*16}	1996	3615	146.6 (95% CI 128.4–164.8)
2000–05 ¹⁵	2003	9735	112.0 (95% CI 102.6–121.5)

Data from four demographic and health surveys in Tanzania since 1990.^{13–16} *The 1999 survey was an interim survey of reproductive and child health, that used a smaller sample size but identical methods for estimation of mortality.

Table 1: Estimates of mortality in children younger than 5 years

in 1991–92, and 22 000 in 2001–02. The sampling of the survey was designed to allow estimates of household variables for the 21 administrative regions of mainland Tanzania. Household and individual indicators included measures of income poverty and performance of priority sectors as defined in a paper on the government's poverty-reduction strategy.^{20,21} Data for trends in gross domestic product (GDP) per person were obtained from the Bank of Tanzania's annual reports,²² the Penn World Tables,²³ and the Tanzania public expenditure review.²⁴

Statistical analysis

We analysed the raw data from all four Tanzania DHS surveys (1992, 1996, 1999, and 2004)^{13–16} to generate several estimates of mortality in children younger than 5 years for every 1-year period before the respective survey back to 1990, by use of direct methods based on complete birth histories. For every child recorded in these birth histories, we computed survival for every month from birth until either their fifth birthday or the date of the survey. We grouped periods at risk and deaths for each calendar year, and constructed a separate life table for each year in the birth histories for which sufficient data were available to show, for a person at each age, the probability that they would die before their next birthday. This generated 35 estimates of mortality over the 15-year period from 1990 to 2004. We estimated trends in mortality from 1990 to 2004 by fitting Lowess regression²⁵ of the natural log of mortality in children younger than 5 years [$\ln(5q_0)$] to time with bandwidths ranging from 0.2 (representing high sensitivity to recent data) to 2.0 (low sensitivity) and forecasted this trend for mortality from 2005 to 2015 with the same range of bandwidths. We calculated confidence intervals for probabilities with Greenwood's formula.²⁶

We obtained fiscal-year data on total health spending, both on-budget and off-budget, from the public-expenditure reviews of the Tanzanian Ministry of Finance and Ministry of Health and Social Welfare.²⁴ Spending data included all domestic government health spending (including the government's contribution to the national health insurance fund) and all aid spending on health from official documents. We did not include private out-of-pocket expenditure. We adjusted total government health expenditure for each year with consumer price-index deflators on the 1998/99 base year to provide the total government health expenditures per person per year. Thus,

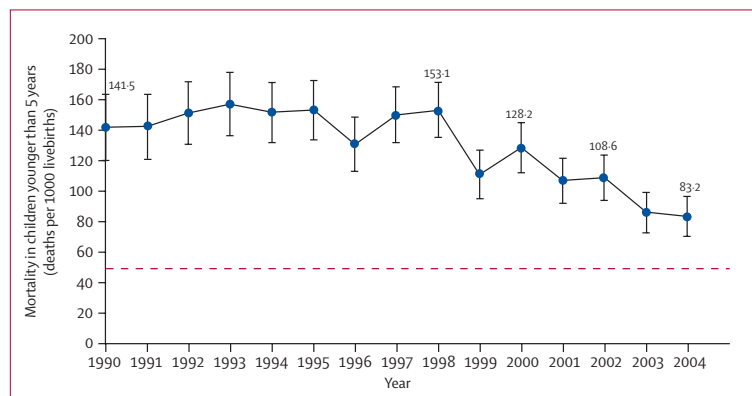


Figure 1: Annual mortality in children younger than 5 years from 1990 to 2005

Data are from an analysis of the 2004–05 national demographic and health surveys in Tanzania.²⁵ Dotted line shows Tanzania's MDG-4 target of 47 deaths per 1000 livebirths by 2015. Vertical lines show 95% CIs for survival probabilities.

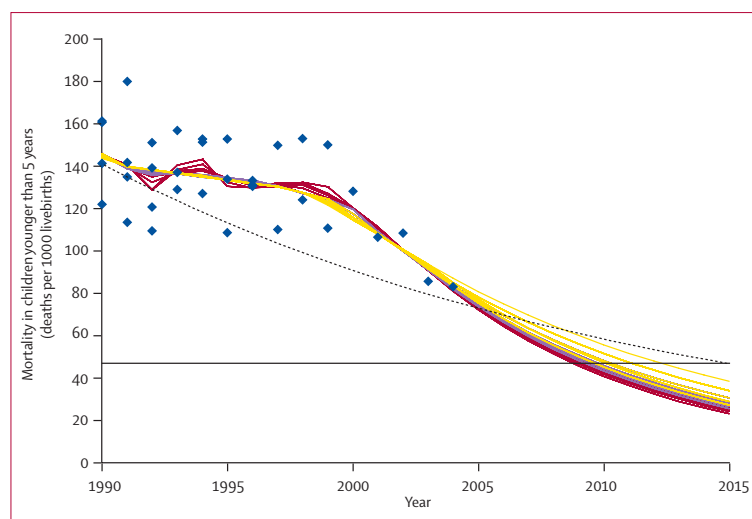


Figure 2: Estimates of annual mortality in children younger than 5 years

Data are from reanalysis of four national demographic and health surveys in Tanzania, which included the birth histories of 32 877 women aged 15–49 years in 1992, 1996, 1999, and 2004–05.^{13–16} The MDG-4 target in 2015 is shown by the horizontal line. The dotted line shows the rate of reduction needed to reach this target. Lowess regression forecasts of possible future trends are shown by coloured lines, with red giving most weight and yellow giving least weight to recent data trends.

monetary amounts are represented in the international dollar, a hypothetical unit of currency with the purchasing power that the US dollar had in the USA at a specific time. We obtained total health expenditure including private out-of-pocket spending from WHO statistics.²⁷

We searched for information on all contextual factors that might have affected trends in child survival, differentiating factors related to health systems from those that were not.²⁸ Factors related to health systems included the comparative provision, use, or coverage of key child-survival interventions in 1999 and 2004; relevant policy changes regarding management, decentralisation, and services; and trends in public expenditure on health.

Factors not related to health systems included fertility, GDP per person, and rates of poverty. We also examined any major shocks, such as measles or meningitis epidemics, famine, or increased food insecurity, that might have affected mortality differently in the 1990s and after 2000.

Role of the funding source

The corresponding author had full access to all the data in the study and had final responsibility for the decision to submit for publication.

Results

Our results for disaggregated annual mortality (figure 1) show that the rate of reduction accelerated between 2000 and 2004. In 2004–05, the reduction in mortality between 1990 and 1999 was 1.4% per year whereas for 2000 to 2005, this trend accelerated to 10.8% per year (from regression trend analysis). The point estimate of mortality in children younger than 5 years in 2004 was 83.2 (95% CI 70.1–96.3) per 1000, which was 40% lower than typical values seen in the 1990s corresponding to a change of 58.3 per 1000 in absolute risk (95% CI 32.7–83.9). This raises the question: is MDG 4 more achievable than was previously appreciated? Figure 2 shows the family of smoothed regressions of the combined disaggregated mortality data from all four demographic and health surveys with extrapolation to 2015 under different weightings for the recent past. All these weighting projections suggest that MDG 4 is within reach in Tanzania by 2015.

We compared the status of selected health-system factors across the major functions of governance, financing, resource allocation, and service delivery for 1999 and 2005. Health systems improved substantially on the basis of most of the indicators that we investigated. With respect to governance, financing, and resources, Tanzania adopted a sector-wide approach (SWAp) for medium-term and long-term planning, in which a coherent policy and expenditure programme, under government leadership, was jointly funded by pooled government and donor partners. A so-called basket fund, jointly funded by partners, was created to provide an additional US\$0.50 per person to districts as recurrent financing support. This approach was implemented in 2000–01 and constituted a major change in the health system that decentralised substantial financial resources for the first time. Moreover, between 1999 and 2004, we noted a 2.3-fold increase in total government health expenditure, from US\$4.70 to \$11.70 per person. Total health expenditure, including private expenditure, increased from US\$23 to \$29 per person,²⁷ indicating that most of the growth in health spending was due to increases in government expenditure.

On the policy front, many health reforms planned during the 1990s started to be implemented during

the 2000s, including the sector-wide approach basket funding; new guidelines, methods, and informatics for district planning and management; and new policies (eg, substitution of more effective first-line anti-malarial drugs). Under its poverty-reduction strategy, Tanzania's Ministry of Health and Social Welfare increased the priority of cost-effective interventions which supported national decisions and commitments to scale up and strengthen several key child-survival interventions such as Integrated Management of Childhood Illness (IMCI), vitamin A supplementation, immunisation, and insecticide-treated nets. We did not record major gains in numbers of health professionals or physical infrastructure for health during this period.

For service delivery, the coverage of interventions relevant to child survival improved between the 1999 and 2004–05 surveys (figure 3). The most noticeable changes were vitamin A supplementation (up from 14% in 1999 to 85% in 2005), IMCI (up from 19% to 73% of districts), households with mosquito nets (up from 21% to 46%), children sleeping under insecticide-treated nets (up from 10% to 29%), iron supplementation in pregnancy (up from 44% to 61%), oral rehydration therapy for children (up from 57% to 70%), and exclusive breastfeeding for those younger than 2 months of age (up from 58% to 70%) and younger than 6 months (up from 32% to 41%). Coverage of other interventions did not change significantly, since it was already high in 1999 (figure 3). Coverage of prevention of mother-to-child transmission of HIV (PMTCT) and antiretroviral therapy as of 2005 remained very low, and therefore unlikely to have contributed to a reduction in mortality in children younger than 5 years. As a risk factor for child mortality, rates of underweight and stunted children improved from 29% and 44% in 1999, to 22% and 38% in 2005, respectively.

Of all the factors not related to Tanzania's health system that could possibly have affected child survival (table 2), the only change was a worsening of the manifestations of the HIV epidemic. Over the 5 years of our study, Tanzania's national wealth (in GDP per person) increased by 93 international dollars: from \$819 to \$912 per person between 1999 and 2004²³ (or US\$256 to \$303). The proportion of households living below the poverty line was 36% in 2001–02 and 39% in 1991–92 ($p=0.29$). Poverty in urban areas, excluding Dar es Salaam, decreased from 29% to 26% during this period ($p=0.60$), whereas that in rural areas dropped from 41% to 39% ($p=0.52$).²⁹ The educational attainment of adults improved only marginally between 1999 and 2004, with greater gains for women than for men (table 3).^{14,15} Similarly, literacy rates did not change; about two-thirds of the women were reported to be literate throughout this period. Population-based statistics on access to safe water in Tanzania were sparse; those that were available indicated no change between 2000 and 2002 in the proportion of households for which the main supply of

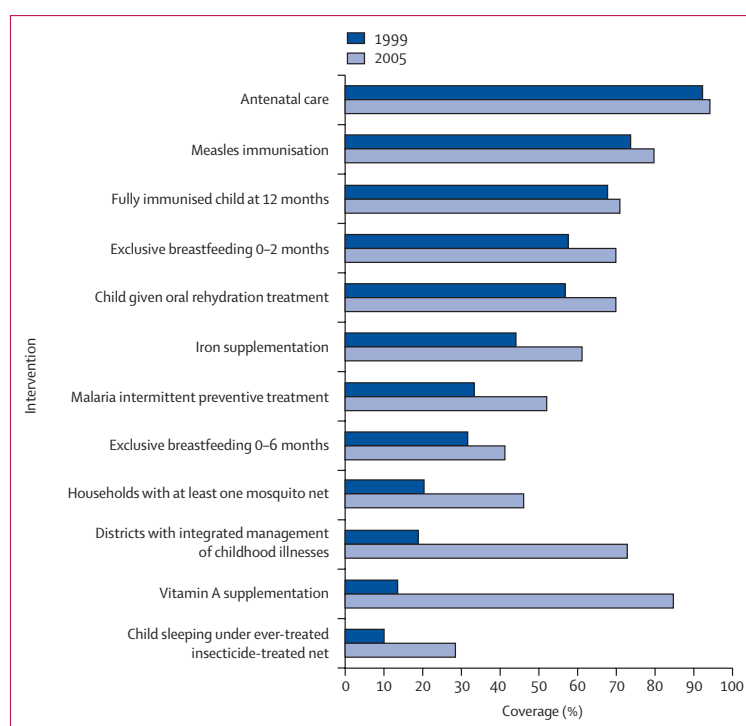


Figure 3: Comparison of access to key child survival interventions between 1999 and 2005
Data are from national demographic and health surveys in Tanzania.

water was a protected source.²⁹ The total fertility rate did not change over this period, but the average age at first birth was 19.0 years in 2000, and 19.4 years in 2002; the rate of adolescent childbearing diminished (from 26.1% to 24.6%); and median birth intervals did not change (33.3 and 33.4 months, respectively). Tanzania had a low rate of food-energy deficiency (43.9%) in 2000.³⁰

The estimated prevalence of HIV in adults aged 15–49 years was 8%, according to the demographic and health survey in 1999,¹⁶ whereas the first national community-based survey of HIV prevalence in 2003–04 established the rate to be 7% in adults aged 15–49 years.¹⁸ Urban areas had higher rates of HIV than did rural areas. In 2004, only 3–9% of health facilities ran programmes for prevention of mother-to-child-transmission of HIV; most of these were district and faith-based hospitals and a few health centres. By 2006, only 13% of health facilities offered at least one of the four components of the PMTCT programme.³¹

When we analysed the differentials between coverage of health interventions between 1999 and 2004 using a modelling system,³² we extrapolated a 33% reduction of mortality in children younger than 5 years, from 129 to 86 deaths per 1000 livebirths. These effects would mainly be attributable to reduction of postneonatal mortality in children younger than 5 years.

	1999	2004-05
Gross domestic product per person	US\$256	US\$303
Number living in poverty (food)	21.6%	18.7%
Number living in poverty (basic needs)	38.6%	35.7%
Food security	No change	
Climate shock	No change	
Total fertility rate (children for every mother)	5.6 (5.0-6.1)	5.7 (5.4-5.9)
Low birthweight	133/3206 (3.8%)	344/8551 (3.7%)
Age at first birth (years)	19.2 (17.4-21.6)	19.4 (17.7-21.8)
Birth spacing (months)	33.3 (28.0-41.0)	33.4 (28.0-42.4)
Meningitis epidemics	None	None
Measles epidemics	None	None
HIV/AIDS epidemics	Increasing mortality	

Data are number (%), rate (95% CI), or median (IQR), unless otherwise specified.

Table 2: Comparison of non-health system changes between 1999 and 2005 that might be expected to affect child survival

	Completed primary education		Completed secondary education		Years of schooling	
	1999	2004-05	1999	2004-05	1999	2004-05
Women	46%	49%	5%	9%	6.1	6.2
Men	51%	52%	7%	11%	6.2	6.3

Data are from demographic and health surveys in Tanzania in 1999 and 2005.^{15,16}

Table 3: Educational attainment of men and women aged 15-49 years

Discussion

In Tanzania, the most recent demographic and health survey in 2005 showed a 24% improvement in child survival, with mortality rates in children younger than 5 years down from 147 deaths per 1000 for 1994-99 to 112 deaths per 1000 for 2000-04 ($p < 0.02$).^{15,33} In national birth-history surveys, these 5-year averages conceal the pattern and degree of change in yearly rates. Since this 5-year change substantially exceeded 15%, the minimum regarded by Korenromp and colleagues³⁴ as indicative of a true reduction, we decided to calculate the yearly rates to examine the pattern of the reduction and to see if the point estimate for the year 2004 differed from historical values or from period average.

Our analysis of the annual rates shows a pattern of continuous reduction in mortality reaching 83.2 (95% CI 70.1-96.3) deaths per 1000 in 2004. Within the 2004-05 survey data, five of the six lowest values over the 15 years were recorded in the last 5 years,¹⁵ indicating that mortality in this group fell by 40% between 1990 and 2004. Based on Tanzania's 2002 population of 34.4 million, this finding suggests that 280 000 children's lives were saved between 1999 and 2005 that would otherwise have been lost had the prevailing rate of the 1990s continued.

Our analyses of data from all four demographic and health surveys, analysed by year of reference, thus

suggest that Tanzania is on the trajectory necessary to achieve MDG 4 by 2015, for a range of different weightings of past performance in the distant or near past, back to 1990. Our results differ from those of an analysis of all available data from direct and indirect estimates of mortality disaggregated into 2-year intervals, including data before 1990, which concluded that Tanzania would not be able to achieve this goal.⁶ However, the data from before 1990 can have little bearing on the ability to achieve a goal for which the starting point is 1990, especially since the purpose of the MDG was to elicit changes in trends. To assume that the trend before 1990 continued would imply that setting the goal was futile. In this specific instance, performance was poor before 1990, and inclusion of earlier data biases the conclusion towards a slower improvement. Furthermore, all extrapolations must, of necessity, assume a degree of continuity in the underlying processes, and so tend to over-smooth if a trend accelerates, as it seems to have done in Tanzania in about 2000. Since aggregation of the data into longer time-units tends to increase the degree of this smoothing, we disaggregated the data into shorter time units.

The large reduction in mortality evident since 2000 immediately raises questions about the quality of surveys and data and about comparability over time. Additional quality control was provided for the 2004-05 demographic and health survey and its data precisely because fewer child deaths were recorded than were expected.¹⁵ Under-reporting bias could also have occurred, for example if maternal mortality increased because of HIV/AIDS or other factors. The cross-sectional demographic and health surveys did not gather information about children whose mothers died. However, the demographic surveillance systems in Tanzania, which track entire populations longitudinally, also reported reductions in mortality in children younger than 5 years, which substantiates the data from the demographic and health surveys.³⁵ Furthermore, demographic and health surveys in 1999 and 2005 did not detect any major increases in maternal mortality between these two periods, although such changes would be difficult to detect in sample sizes used in the demographic and health surveys. With respect to deaths of mothers due to HIV/AIDS, reduced mortality in children younger than 5 years is probably not an artifact caused by the under-reported deaths, since the estimated magnitude of this effect in a rural Tanzanian population with an HIV prevalence of 4.3% would underestimate deaths in children younger than 5 years by only 2.3%.³⁶

If we assume that our finding of a reduction in mortality for children younger than 5 years is real, what can explain this apparent acceleration of survival in Tanzania after a decade of high but static mortality rates in the 1990s? And can this improvement be sustained? We examined differences in the health system in Tanzania between 1999 and 2004 and in external factors that could reasonably be expected to have contributed to large survival gains over

this short period. Between 1999 and 2004, Tanzania more than doubled its public expenditure on health; such increased expenditure has been strongly correlated with increased survival in children younger than 5 years in developing countries, especially in poor people.³⁷ Increased public expenditure on health could also be especially powerful in decentralised health systems when such resources are targeted towards essential cost-effective interventions.³⁸ Tanzania implemented such governance shifts towards greater decentralisation in 2000, by introducing sector-wide capitation grants that gave districts substantial financial resources. This was perhaps one of the most important distinctions in Tanzania's health system between the 1990s and the 2000s, since it opened opportunities for local problem solving and provided resources for districts to selectively increase resources for key interventions, as has been shown in pilot studies since 1996.³⁸

Decentralisation allowed the introduction and scale-up of new interventions such as the integrated management of childhood illness, which facilitated adoption of new treatment policies for malaria that replaced failing first-line treatments with more effective case management for the largest single cause of death for children. The IMCI programme also assisted promotion of the use of insecticide-treated nets for malaria prevention. Sentinel districts had piloted the introduction of IMCI from 1997, with full provision, increased use, and effective coverage by 1999–2000.³⁹ Impact studies showed that, after a 2-year follow-up, IMCI was associated with 13% lower child mortality in pilot districts that had health-system strengthening than in other districts.⁴⁰ Other pilot studies in Tanzania showed the high local effectiveness of insecticide-treated nets for reduction of mortality in children of this age.⁴¹

Tanzania started nationwide scale-up of insecticide-treated nets in 1999 and of IMCI in 2000, and changed its drug policy for malaria in 2001. Since malaria mortality in Tanzania is concentrated in postneonatal infants younger than 5 years,⁴² the survival gains recorded in the 2004–05 demographic and health survey were highest for postneonatal infants, suggesting that malaria-specific mortality reduction has made progress. Moreover, several sentinel sites in Tanzania, which monitor cause-specific mortality by use of continuous longitudinal demographic surveillance systems, also reported reductions in mortality in children younger than 5 years before the findings of the 2004–05 demographic and health surveys, and detected declines in malaria and acute febrile illness deaths in children younger than 5 years.^{34,43} These findings add plausibility to the hypothesis that the collective effect of a multifaceted approach to malaria contributed to child-survival gains during this period.⁴⁴ Coverage of other child-survival interventions, such as vitamin A supplementation,⁴⁵ exclusive breastfeeding, oral rehydration therapy and iron supplementation for children, increased. For other

interventions, such as antenatal care and immunisation, coverage was already high, and did not change.

Modelling showed that a 33% reduction of mortality in children younger than 5 years could be expected between 1999 and 2004, from 129 to 86 deaths per 1000 livebirths. These effects would mainly be in reduction of postneonatal mortality in children younger than 5 years. The predicted failure to affect neonatal (and maternal) mortality draws attention to problems with the continuum of care necessary to achieve MDGs. The general scarcity of data and analyses continues to limit programme efforts and monitoring of progress.

Among factors not related to the health system, gains in wealth would be expected to exert a major effect on survival in children younger than 5 years. Tanzania has enjoyed many decades of political stability and, in recent years, steady economic growth. Nevertheless, GDP per person has increased by only 93 international dollars (US\$47) over the 5 years between 1999 and 2004. An increase of this size corresponds to an expected decrease in mortality in children younger than 5 years of 2·2%, on the basis of a regression of GDP (in international dollars) per person and mortality in children younger than 5 years for 45 sub-Saharan countries (data reanalysed from WHO statistics).²⁷ Although important, this growth in national wealth would be unlikely to account for much of our finding of a 40% reduction in mortality, especially since the proportion of the population living below the absolute poverty line and food poverty line in the 1990s had improved only slightly in 2002. Although gains have been made in the education of Tanzania's current cohort of schoolchildren, child-health outcomes are affected by the educational status of parents, which had improved only marginally by 2004. Early child-bearing and short birth-spacing both raise the risk of child mortality, and the total fertility rate, average age at first birth, adolescent childbearing, and median birth intervals remained similar in the two periods. Hence changes in fertility probably did not contribute to our findings of a large improvement in child survival.

We did not find evidence of any major epidemics (for example, of measles or meningitis) that might have occurred in the late 1990s but not in the early 2000s. Conversely, adult and child mortality due to HIV/AIDS continued to increase slowly,⁴⁶ and therefore differentials in HIV/AIDS interventions might have affected overall mortality, since 25% of children who are born to HIV-positive mothers are infected. The PMTCT programme is a proven cost-effective combination of strategies and interventions that can be tailored to specific local conditions. These interventions and strategies, including voluntary and confidential counselling and testing, provision of antiretroviral drugs to HIV-positive pregnant women, planning of safe delivery procedures, and counselling about appropriate infant-feeding options, can reduce mother-to-child transmission by 50%. However, in Tanzania access to HIV/AIDS interventions

such as voluntary counselling and testing, PMTCT, and antiretrovirals was not yet sufficient as of 2004 to have affected child survival on a national scale. Epidemic patterns, including HIV/AIDS and its response, can therefore be excluded as an explanation for the reduction in child mortality, and could even have worked against this trend.

Nutrition can be determined by health systems (eg, micronutrient supplementation and other health sector interventions) and by other factors (eg, food insecurity, poverty, climate shocks, and natural disasters). We did not identify evidence of major events outside the health system that could have contributed to changes in nutritional status in Tanzania during the study period. However, the nutritional status of children did improve slightly, possibly because of better access to various general health interventions (eg, IMCI, insecticide-treated nets, and vitamin A supplementation), and slight gains in wealth. Improved nutritional status is likely to have contributed to the reduced risk of mortality in children younger than 5 years.

If we assume that the trend is real, and is due to a strengthening health system and increased access to key child-survival interventions, can this trend be continued? It should be noted that the most recent demographic and health survey, in 2004–05, preceded the potential effect of increased funding to Tanzania from the Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria. Although the first grants were announced in late 2002, the actual programmes that they supported did not begin until late 2004, and the benefits would not have been detectable in the last demographic and health survey but can be expected to assist the downward trend into the future. For children, these funds will boost access to insecticide-treated nets through a national voucher scheme, which is designed to provide the nets to all pregnant women and their newborn babies, which started in late 2004. Scaling up the PMTCT programme and antiretroviral therapy started in 2005; programmes for zinc supplementation and oral rehydration therapy started in 2007; and access to improved antimalarial treatment through artemisinin combination therapy in 2007.

Since neonatal mortality remains constant and forms an increasing share of the mortality in children younger than 5 years, it could emerge as a barrier to continued reductions in mortality and attainment of MDG 4. Renewed efforts are being planned to address neonatal and maternal mortality in Tanzania. These efforts will coincide with a doubling in the sector-wide district basket fund for the Tanzanian health system to US\$1·00 per person per year. Such continued efforts at scaling up will need concomitant investments in strengthening of health systems, including management of human resources, procurement and supply chain management, health information management, and constant attention to enhancing quality of care.

We were unable to estimate the relative contributions of different factors in the health system to reduction of child mortality since 2000. However, the collective weight of so many positive changes in the health system, in the absence of other explanations, is compelling. Rather, we could ask why we would not expect to see gains in survival.⁵ Broad, multifaceted progress in stewardship, public expenditure on health, decentralised financing, resource allocation, and better coverage of essential child-survival services can work synergistically to effect important progress towards MDG 4 in low-income countries such as Tanzania. Increased health resources combined with strengthening of decentralised health systems to ensure that life-saving interventions reach those in need is a key child-survival strategy.

Contributors

HM and DDS led the conceptualisation of the paper with contributions from all authors and wrote the first draft. PS compiled statistical data, and HM, TS, and DDS did statistical analyses. JS, TJ, CM, GU, TB, and CV contributed to the interpretation and writing of this manuscript. All authors have seen and approved the final version.

Conflict of interest statement

We declare that we have no conflict of interest.

Acknowledgments

We thank the Government of Norway for encouragement and financial assistance.

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The emergence of community health worker programmes in the late apartheid era in South Africa: An historical analysis

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ARTICLE INFO

Article history:

Available online 23 June 2010

Keywords:

Community health workers
Community health worker (CHW) policy
South Africa
Oral history
Apartheid
Task-shifting
Community participation

ABSTRACT

There is re-emerging interest in community health workers (CHWs) as part of wider policies regarding task-shifting within human resources for health. This paper examines the history of CHW programmes established in South Africa in the later apartheid years (1970s–1994) – a time of innovative initiatives. After 1994, the new democratic government embraced primary healthcare (PHC), however CHW initiatives were not included in their health plan and most of these programmes subsequently collapsed. Since then a wide array of disease-focused CHW projects have emerged, particularly within HIV care.

Thirteen oral history interviews and eight witness seminars were conducted in South Africa in April 2008 with founders and CHWs from these earlier programmes. These data were triangulated with written primary sources and analysed using thematic content analysis. The study suggests that 1970s–1990s CHW programmes were seen as innovative, responsive, comprehensive and empowering for staff and communities, a focus which respondents felt was lost within current programmes. The growth of these earlier projects was underpinned by the struggle against apartheid. Respondents felt that the more technical focus of current CHW programmes under-utilise a valuable human resource which previously had a much wider social and health impact. These prior experiences and lessons learned could usefully inform policy-making frameworks for CHWs in South Africa today.

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Introduction

Community health workers (CHWs) are increasingly advocated as a potential solution to overcoming current shortfalls in human resources for health in different settings (Chopra, Munro, Lavis, Vist, & Bennett, 2008; Lewin et al., 2010; WHO, 2008). CHW is an umbrella term used for a heterogeneous group of lay health workers. Their remit can range from implementing biomedical interventions to acting as community agents of social change (Lewin et al., 2010; Werner & Bower, 1982). This paper defines CHWs as people chosen within a community to perform functions related to healthcare delivery, who have no formal professional training or degree. CHWs initially gained global support at the 1978 Alma Ata conference on primary healthcare. They were seen as a key element of the strategy to achieve WHO's goal, set in 1975, of 'Health for All by the year 2000'. Many CHW programmes were established in the 1970s in low- and middle-income countries (Walt & Gilson, 1990). However,

interest waned in the late 1980s and 1990s for several reasons: structural adjustment programmes; government failure in countries where large programmes were operational; and changes in ideology (Frankel, 1992; Walt & Gilson, 1990; WHO, 1986).

South Africa has a rich history of CHW projects that burgeoned during the repressive regime of apartheid (Table 1 juxtaposes key historical and project events). Under this racially and politically divided regime, healthcare was intentionally inequitably distributed (WHO, 1983). Among the first CHWs were malaria assistants trained in the late 1920s by G.A. Park Ross, a senior health officer in Natal and Zululand (MacKinnon, 2001). In the 1940s, despite an early Smuts government advocating racial segregation, supporters of social medicine initiated the 'health centre' movement. Chief among the politicians involved was Henry Gluckman, the then Minister of Health, who had been influenced by the United Kingdom's Beveridge Report (1942). The ambitious 1942 National Health Service Commission and 1945 Gluckman Report set out to provide "unified healthcare to all sections of the people of South Africa". They addressed both the social and biomedical causes of disease, responding in part to concerns regarding the effects of poor health on black migrant labourers' and miners' productivity

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Table 1
Timeline of CHW projects and historical landmarks in South Africa.

Date	Event
1913	Natives Land Act (7.3% of South African land dedicated for Africans' habitation)
1930s	Park Ross: Malaria assistants
1940s	Revival of African nationalism. African National Congress (ANC) rebuilt
1940	Pholela Health Unit founded by the Karks (Kwazulu)
1942–1944	National Health Services Commission
1945	Gluckman Report: intersectoral recommendations for comprehensive health service. Only health centres and IFCH established.
1948	Nationalist Party comes to power
1951	Bantu Authorities Act: forcible relocation of blacks to 'homelands'
1951	Valley Trust established
1958	Karks' exodus
1960	Sharpsville massacre; ANC and Pan African Congress (PAC) banned.
1970	Chalumna/Newlands project started
1976	Soweto uprising: sparks nationwide uprisings
1976	Elim Care Groups started
1977	Steve Biko (leader of Black Consciousness Movement) tortured/dies in detention
1977	Public Health Act: dual/segregated healthcare
1979	Health Care Trust–VHW project started
1980	Valley Trust establishes CHW programme; SACL clinic
1982	National Medical and Dental Association founded to address human rights
1985–1986	3 states of emergency: detentions/repression/assassinations
1986	SACL clinic taken over by army
1986	Mamre Community Health Project and Rural Foundation Health Project started
1987	National Progressive Primary Health Care Network founded
1989	Relaxing of emergency laws
1990	ANC/PAC unbanned; progressive release of imprisoned leaders (including Mandela)
1991	Mamre/Zibonele projects start CHW programmes
1992–1994	Preliminary ANC health plan; national CHW workshops/conferences
1992	HCT– Brown's Farm and Agincourt started (CHWs until mid-1990s)
1994	First democratic elections (Mandela elected); final health plan
1994–2003	Social/health policies promoting development and intersectoral collaboration (e.g. 1994; Reconstruction and Development Programme); Many late-apartheid CHW programmes close
2004	Community Health Policy Framework

(Phillips, 1993). However, the government only adopted the recommendation to establish health centres (Jeeves, 2000, 2005; Marks, 1997). Modelled on the rural health centre in Pholela (near Durban) initiated by Sidney and Emily Kark – a progressive and politically well connected medical couple – these centres were staffed by community nurses and assistants who treated and surveyed health problems (Kark, 1951; Tollman, 1994). Only 40 of the suggested 400 centres were eventually built to serve black communities. This service became racialised and gained a reputation for being a “second class service” (Marks, 1997).

As the Afrikaner National Party strengthened from 1948, the government withdrew its support from these centres. Many centres closed and a number of their founders, including the Karks, went into exile (Marks, 1997). From the 1960s to 1980s, when the bantustans ('homelands') became 'independent', the responsibility for the forcibly relocated black population's health care was given

to the 'homeland' governments (van Rensburg & Harrison, 1995). Most of these governments were under-resourced and corrupt and thus neglected health service funding.

Another phase of CHW projects began in the 1970s and continued into the 1990s, established mostly by individuals or small civic or religious organisations (Tollman & Pick, 2002). There was a growing conviction from the late 1980s that apartheid would soon end, particularly after African nationalist organisations were unbanned and their leaders released (Baldwin-Ragavan, Gruchy, & London, 1999). This encouraged progressive thinkers and academics to develop community initiatives and formulate advice which they hoped would inform a new government's health policies (Price, 1993).

In 1994, South Africa welcomed its first democratic government. Though the government adopted the district health system (DHS) as the cornerstone of their national health plan, CHWs were not included. Subsequently, many CHW projects collapsed as international donors withdrew their earlier support, or redirected their funds through government departments. In recent years, an uncoordinated array of CHW programmes has re-emerged, mainly within healthcare for people living with HIV/AIDS (Friedman, 2005).

The early history of the 1930s and 1940s CHW projects has been analysed elsewhere (Jeeves, 2000, 2005; Marks, 1997; Tollman, 1994). However the late apartheid period (post-1970s) lacks historical analysis. This study aims to explore the factors affecting these late apartheid projects' evolution. This historical analysis intends to contribute to current debates on the appropriateness, effectiveness and sustainability of CHW initiatives within South Africa and to similar global debates.

Methods

Our approach used oral history interviews (in-depth, open-ended interviews seeking people's reconstruction and interpretation of events) with founders, coordinators and health workers of CHW initiatives active during the study period. This approach was chosen as people working within CHW projects at this time were busy 'doing' rather than 'documenting'. This technique recognises individual experience, often missing from standard social histories, and gathers unrecorded information (Perks, 1992).

To select interviewees, four contacts known to one of the authors (SL) helped identify further participants through snowballing. Participants were chosen from urban and rural projects where documentation was available. Of 54 potential interviewees, 39 were selected on the basis of representativeness of professional background, involvement in CHW programmes, and availability. Tragically, one key participant, Ivan Toms, died unexpectedly before his interview. A total of 38 participants were therefore interviewed from 10 projects (Table 2). One author (NvG) visited five provinces (Western Cape, Eastern Cape, Kwazulu-Natal, Mpumalanga and Limpopo) in South Africa in April 2008 to conduct 10 oral history interviews. An additional two interviews were conducted by phone, and one in London. Eight witness seminars (focus groups with two to seven participants from the same project) were also conducted, partly out of convenience but also because groups may encourage recollection of events. This research's principal limitations are that snowballing may not have reached saturation and the chosen CHW initiatives may not have included the full range of contemporaneous programmes.

Most interviews were conducted in English; four required an interpreter (Zulu and Shangaan) and professional translation. Interviews explored how respondents became involved in CHW programmes, their experiences and their views on CHW

Table 2
Details of projects.

Project	Comments	CHW characteristics	Current Status	Interviewees			
				CHW	C	D/N	F
(PERI-URBAN INITIATIVES)							
South African Christian Leadership Assembly Health Project	CHW programme in several peri-urban townships in Cape Town Coloured community, 3 components: research, CHW project, student teaching (academic) Peri-urban township in Cape Town	Paid; generic and specialist (rehabilitation)	Running	1	3	2	1
Mamre Community Health Project		Paid; specialist (youth, chronic illnesses, hypertension)	Closed	1	1		1
Health Care Trust – Brown's Farm Project		Paid; generic	Closed				1
Zibonele	Peri-urban township in Cape Town (academic)	Paid; specialist(women, children)	Closed		1		1
RURAL INITIATIVES							
The Elm Care Group Project	Originally focussed on trachoma, then expanded to general health (Northern-Province) In the former Ciskei (Eastern Cape) Focus on nutrition, immunisation, TB Xalanga district in the former Transkei (Eastern Cape) CHW project: part of Valley Trust – a large influential organisation, Kwazulu-Natal. Focus on health and ecology.	Most volunteers; generic: (care-group volunteers, motivators, CHWs) Stipend; generic Volunteers; generic Volunteers then paid; generic	Running Closed Closed Running	8	1	1	
Chalumna and NewlandsVillage Health Worker Project							1
Health Care Trust – Village Health Worker Project							1
The Valley Trust Community Care Project							1
The Rural Foundation Health Programme	Nationwide CHW programme for farm workers (started in Transvaal)	Paid by farmers; generic	CHW programme closed	2	4		1
National Progressive Primary Health Care Network	Umbrella organisation for progressive community health projects. Set up a CHW National Training Centre.		Closed		1	1	
Agincourt	Community health project with a focus on surveillance in Gazankulu (academic)	Paid research assistants	Running				1

C, coordinator; CHW, community health worker; D, doctor; N, nurse; F, founder.

programmes' development. The interview guide was adapted to incorporate emerging themes.

Primary and secondary historical sources were obtained from libraries (UK and South Africa), government databases, the South African National Archives in Cape Town and from bibliographies. Grey literature held by interviewees (conference papers, reports, minutes, theses, photographs) was reviewed. The interviews were manually transcribed, coded and analysed by one author (NvG) using thematic content analysis. The other authors read selected transcripts and commented on emerging themes.

The analysis involved an inductive process to identify emerging themes. Constant comparison ensured that the themes reflected the original data. Oral sources were cross-examined with written material. This methodological triangulation allowed the identification of critical perspectives and emerging themes (Green & Thorogood, 2004).

Because some respondents requested anonymity, participants have been kept anonymous. Their quotes are coded according to participants' professional background (C: coordinator; CHW: community health worker; D: doctor; N: nurse; F: founder). This research was approved by the ethics committees of the London School of Hygiene and Tropical Medicine and the University of Cape Town.

Results

How CHW programmes started

The driving force for non-governmental organisations' (NGO) or rural health initiatives was often the desire of individuals to address the health of the under-served black majority. Most leaders of these initiatives were white doctors or nurses as oppression and poverty made it difficult for blacks to establish such infrastructures. Ithuseng health centre project set up by Mamphela Ramphele was one exception to this (Ramalepe, 1992). Involvement was sometimes fuelled by religious conviction (CHW12, C3) or by guilt about their privileged position compared to racially-oppressed black counterparts (C9).

Founders of many programmes explained that these projects arose during a time of growing discontent with apartheid, expressed through uprisings and demonstrations. The promise that the 1977 Public Health Act would expand healthcare for the black population remained unfulfilled (De Beer, 1984; Digby, 2006). The health and social problems experienced by the black majority worsened, as documented in the *Second Carnegie Inquiry into Poverty and Development in South Africa* (1984), to which some project founders contributed (Wilson & Ramphele, 1989).

During this period, CHW projects often started as single interventions to address what was seen as the greatest need (Table 2). The Elim Care Groups, spear-headed by the Swiss ophthalmologist Erika Sutter, responded to trachoma (an eye infection causing blindness). The Newlands and Chalumna projects, led by Trudy Thomas, a paediatrician, set up a nutrition scheme to respond to kwashiorkor (protein-energy malnutrition). The success of these single interventions led them later to address wider health issues in their communities.

Health projects, such as the Empilisweni SACLA (South African Christian Leadership Association) in an informal settlement outside Cape Town, and Health Care Trust's (HCT) rural health initiative in Cala in the Transkei (now Eastern Cape) were motivated partly by community requests:

"We weren't looking for long term projects. We were approached to do these so I think it was something that we had as part of our values. We weren't just 'go and plonk ourselves' in communities. It had to be something that we were approached by." (F7)

The motive for helping the black population was not always altruistic. There was also fear of a spill-over of 'black diseases' to the white community. This provided an incentive for a study on health and urbanisation to assess the impact of black urban migration on white city dwellers. Prevention strategies to 'sanitise' the most disadvantaged are globally recognised in history across public health reform (Pelling, Berridge, Harrison, & Weindling, 2001). This study ultimately led to the creation of the Centre for Epidemiological Research in Southern Africa (CERSA), which included progressive thinkers concerned with documenting and addressing the ill health of the underprivileged (F5).

The Karks' Community Oriented Primary Care (COPC) model, developed in South Africa, contributed to shaping the 1977 Alma-Ata declaration and subsequent global community health movements. It also influenced later projects in South Africa. The Karks' visits to Johannesburg and Durban in the 1980s and 1990s contributed to academics reviving surveillance/research-based projects based on the COPC approach. Mamre (in the Western Cape) and the Agincourt site (in Gazankulu, now Limpopo Province) of the University of Witwatersrand Health Systems Development Unit, developed and utilised participatory research approaches to create an important body of evidence on community health needs (Katzenellenbogen, Hoffman, & Miller, 1990; Tollman, 1999).

Leaders of non-academic civic projects drew less influence from the Karks' model. Though South Africa did not attend the Alma Ata conference due to international sanctions, project founders embraced these principles as they reflected and justified their efforts. One founder explained why:

"Immediately...I was taken up with the idea. In fact Alma-Ata was in 1978, so ideas about primary healthcare were floating around at that time and were starting to get formalised. What was clear to me was that [our project] had been practising PHC for nearly two decades before that. Because if you looked at what the principles of Alma-Ata were, things like community involvement, community development, appropriate health technologies, using a basic approach, even... basic equity. I mean there were things of course that weren't being done, but some of those principles were being implemented and I felt very much at home. And for the next decade we really tried to make it a living example of primary healthcare in action." (F2)

Some respondents, particularly from repressive regime areas like the Ciskei, felt that their projects started in isolation and had few external influences as political sanctions hindered communication and access to information from outside of South Africa:

"I was the only one. Mine was the only community health department. There weren't any others in this province. There was no such thing as community health work...you know. I was just the clinic doctor and then the sense of a community health service grew." (F8)

In the late 1980s, conditions became more favourable to information exchange. Health activism grew alongside anti-apartheid activism. A network of local community health organisations formed the Progressive Primary Health Care Network (PPHCN). Supported by the National Medical and Dental Association and the (Kaiser-Foundation, 1988), it strengthened project cross-fertilisation and collaboration to formulate a future primary healthcare strategy (NPPHCN, 1986).

The political nature of CHW projects

Most respondents felt that healthcare provision was inseparable from democracy, reflecting De Beer's (1984) description of apartheid as the most important 'disease' affecting South Africa. Some

respondents' conviction that politics and health are connected explained their involvement in political activism. This put them at significant risk of detention without trial (D1, F3, F6), receiving threats (C11) or being harassed (CHW1), but did not hinder their commitment to work.

Other respondents were not politically active or found it too dangerous. They masked their desire for political change under the banner of healthcare provision while simultaneously challenging the status quo by empowering CHWs to become agents of social change. The Valley Trust, HCT and SACLA, for example, successfully introduced democratic community structures and elections within their projects. As one of the founders said:

"I felt we needed to bring in the social aspects, where we needed to bring in elements of community involvement. Dangerous stuff at that time, because working with black communities was on the fringe of social revolution, but luckily primary healthcare permitted that ideology." (F2)

Most of the respondents who were active politically worked in areas where major political and social injustices had been carried out. The government's systematic attempt in the 1980s to crack down on 'illegal' squatter areas through encouraging community riots led to a local SACLA clinic closing in 1986. Individuals working within projects that had some approval from their 'homeland' governments, such as Agincourt/Manguzi in Gazankulu and Valley Trust in former KwaZulu, were less likely to be heavily involved in political activism. A project coordinator felt that their work was part of the struggle for democracy.

"During apartheid our main struggle was for freedom. Once that was achieved our remit was over." (C10)

This statement, which was reflected by many respondents, raises the question whether the same level of commitment of health workers to communities can be reproduced in a more democratic political climate in which human rights are less threatened.

Innovative and experimental leadership, supervision and training

Respondents saw the presence of a charismatic idealistic leader, who had a firm development approach, as key to six projects' success (Valley Trust, SACLA, HCT, Elim, Chalumna/Newlands and Rural Foundation). Ivan Toms, who helped establish the Empilisweni SACLA clinic, was seen as an example of such a leader and as crucial to the project's success. In addition to actively defending the clinic and community during the mid 1980s' riots, respondents described how he enlisted and trained lay people to work as CHWs or management staff, and empowered community members and staff to later adopt full managerial and clinical responsibility (C2, CHW1).

Respondents from all projects admitted to being experimental. Supervision, training and management of staff and CHWs were often done on an ad-hoc basis, as outlined by a SACLA doctor:

"Those first CHWs were a huge experiment. We were just flying by the seat of our pants, we didn't know what we were doing. We equipped them with basic medications and dressings and so on. And they were fantastic, so they were with the project for many, many years." (C3)

Project leaders were health professionals or academics with little experience in management – they were "trying things and seeing if they worked" (C10). Management difficulties sometimes developed, such as when SACLA and Rural Foundation became larger and more complex (C3, F10). One Elim report (*Annual report, 1980*) outlined difficulties of project expansion such as staff shortages and inadequate delegation. These caused management

overload and demotivation of staff. Some projects, however, successfully involved communities. Brown's Farm health-clinic lay managerial committees, and Elim and Rural Foundation coordinators were good mediators for enhancing community participation and dissipating personal and political disputes. However, community participation was never comprehensive – rather, it was restricted to certain tasks within projects. With the exceptions of SACLA and Elim, projects were established and run exclusively by people from outside the communities served.

Experienced programme clinicians and leaders developed and undertook hands-on supervision and ongoing training of CHWs and coordinators. Most CHWs described their supervision as informative and non-threatening:

"On the farm [the supervisor] walk with me and the house-visit. And she look at us. And when something not right she don't say: 'He he he, no'. She go with us in the clinic. In the container, we sit down, and she say: 'Do you remember, what did you learn?'" (CHW3)

Appropriateness and adaptability

Adapting the project's goals to community needs was important. Selina Maphorogo, the first CHW motivator (and later director) of the Elim Care Groups, re-shaped the project by adopting culturally-sensitive methods for delivering community health messages. These methods were reported as effective and sustained through the project's history (Maphorogo, Sutter, & Jenkins, 2003).

Projects in their early stages, or which were geographically and ideologically isolated, were innovative in their use of appropriate technology and training approaches. Many succeeded despite sanctions in accessing international literature and low technology resources. They adapted key CHW training guides including the Chinese *Barefoot doctors manual* (Hunan-Zhong, 1977), Werner's books *Where there is no doctor* (1977) and *Helping health workers learn* (1982) as well as WHO guidelines (1992). The Rural Foundation and Elim also used UNICEF tools such as Road-to-Health charts. In the late 1980s, networks wanted to create a feasible training model for the post-apartheid era. Emerging training centres (such as the PPHCN learning centre) were modelled, in part, on the Institute of Family and Community Health (IFCH) (1945–1961) which trained the 1940s' health centres.

In the late 1980s, these projects also adapted to a changing disease burden in South Africa, moving away from child survival towards chronic diseases and HIV (Bradshaw et al., 1999). SACLA, Mamre and HSDU trained CHWs who specialised in rehabilitation, chronic disease and HIV. This also coincided with the move to a more selective PHC approach, influenced by international criticisms that the comprehensive PHC approach provided few concrete recommendations (Cueto, 2004).

There was an interesting paradox, which several key informants recognised. These CHW projects, they suggested, experienced a 'golden' era under the constraints of apartheid and lack of political freedoms. Projects were free to respond innovatively to needs. Funders – whether international donors (for most projects) or 'homeland' governments (as for Valley Trust) – had minimal requirements. Project leaders felt their impact was greatest on community health and development during apartheid. In contrast, they criticised current funding for being constrictive and conditional, and thus hindering creativity and local adaptation. However these divergent views may result from a tendency to romanticise the achievements possible in times of struggle and to resist, as many did globally, the emerging funding bureaucracy of the 1990s.

Links with communities

In the late apartheid era, some local authorities felt threatened by the growing influence of projects (Toms, 1987). Also communities sometimes found it difficult to accept CHW programmes. With individuals expressing jealousy regarding CHWs' status (C6, F10, CHW-workshop, 1982). In addition, local expectations were hard to meet. For example, within the HCT-Cala project, villagers "did not get involved unless remuneration for services or products was guaranteed" (Alperstein & Bunyonyo, 1998). Participation fluctuated and depended on social and power relationships, and satisfactory incentivising, as described in the wider literature (Frankel, 1992).

Despite these challenges, rural and peri-urban projects reported some success in retaining CHWs in voluntary or partially paid work and in community ownership of projects:

"So we started January 1987... and we had patients that followed us from Old Crossroads. Because we moved to New Crossroads, that community welcomed us. So we had patients who followed us, the chronic patients saying that 'we can't do without you.'" (C2)

With the shift to employment within the public health system following the democratic elections, many CHWs felt that their accountability to the community had changed. They were no longer flexible community-based workers, but located in health clinics full-time. A few missed community work intensely (CHW3, CHW6). However many CHWs now resented unpaid requests from fellow villagers:

"They used to come to my house asking for help after even after working hours. I used to help them but now I am unable, I tell that I am tired as I have started working at 06h00 in the morning until 16h00 in the afternoon." (CHW7)

Coordinators (C11, C6) and founders (F2, F8) also commented on changes in CHWs' attitudes since 1994:

"There's a very serious materialist dependency. I hate it but I have to face up that it has happened... It's not that I am saying it was idealistic, the community health workers were at least as enthusiastic as I. ...I can't talk about the CHWs now in those glowing terms. The government now has this huge thing, they've got this small business programme – the pay roll. And the village health worker..., if the pay doesn't come out, they 'toy-toy', they don't go to work" (F8)

There is likely to be an element of romanticising the past in describing volunteers as only committed during the apartheid era. However, introducing a stipend would expectedly reduce a volunteer's willingness to work unpaid. The CHWs interviewed, who had worked in both the old and new systems, rejected volunteering. This is supported by contemporaneous literature (Binedell, 1990; HCT, 1982, pp. 45–50) and by recent findings in the Free State province (Schneider, Hlophe, & van Rensburg, 2008).

CHWs within the health system

Whether CHWs can adequately bridge the gap between the formal health service and the community has long been debated internationally (Walt & Gilson, 1990). CHWs in Mamre and Elim reported that knowledge of their communities allowed them to successfully bridge the gap between researchers and communities. For example, they explained the purpose of community surveys in culturally-sensitive ways. But because some CHWs, for example in Elim, officially reported to the nurse-in-charge at the hospital, they did not bridge the gap with health services but were instead viewed as the lowest level of the health service hierarchy.

Many dedicated nurses (including five coordinators and three founders interviewed) played a significant role in supporting and training CHWs within NGO projects (Clarke, 1991; Mamre, 1992). Some CHW literature advocates nurses as ideally placed to support CHWs (Buch, Evian, Maswanganyi, Maluleke, & Waugh, 1984; Roscher, 1990). However some CHW respondents were disparaging of clinical supervision by hospital nurses, one commenting that it was only by "the will of God" that nothing disastrous happened during childbirth (CHW7). One founder suggested why nurses' supervision was poor:

"[The nurse facilitators] wouldn't have that kind of vision or experience of working with communities in a democratic way, so they would tend to be bureaucratic and play things by the book. They could supervise but it was much more mechanical. And that I found that was not helpful in developing the analytic skills of the CHWs." (F2)

CHWs were not necessarily welcomed by formal health system staff. Although the South African Nursing Council – the main regulatory body for the profession – supported CHWs in principle (Marks, 1994), in practice nurses on the ground were reportedly intimidating and rude to them (C8). One doctor interviewed explains:

"The attitude of the nurses is very, very problematic, they're also so hierarchical now. My thesis is that nurses are fighting a feminist battle in their work place, black nurses in particular, because they have been so oppressed and the present health system oppresses them too, but there's a bit of a perverse feminism acting there." (F8)

This quote illustrates that nurses have, in both the late apartheid and post-apartheid eras, enforced hierarchies within healthcare with CHWs in health centres often becoming nursing subordinates (Schneider et al., 2008). These limitations of nursing care in South Africa have been discussed extensively elsewhere (Marks, 1994; Stein, Lewin, & Fairall, 2007; Wood & Jewkes, 2006), with Marks (1994) noting that nurses may feel their role is threatened within primary healthcare, particularly in light of potentially professionalising CHWs.

The end of an era: the closure of CHW programmes in the 1990s

Respondents noted that the early 1990s were a time of transition out of the bleak system of apartheid (F9) towards a more idealistic vision of the future (F8). Progressive community health leaders were active in formulating health policy which informed the ANC's forthcoming national health plan (NPPHCN, 1992a, 1992b). Sidney Kark also held many meetings with health officials and academics to promote the Community Oriented Primary Care decentralised approach with strong community involvement (Kark, 1981).

Respondents were surprised that the new 1994 government had dropped support for CHW projects (A national health plan for South Africa, 1994), as the 1992 draft of the ANC health plan had favoured CHW coverage (Slabber, 1992). Despite decentralisation being a key element of the new health plan (van Rensburg, 2004) the incoming minister of health, Nkosasana Zuma, believed that CHWs would provide second rate care (F2). Rather, a professionalised team of doctors and nurses was visualised. In addition, health service leadership was preoccupied with structural transformation of the health sector (Tollman & Pick, 2002). Respondents felt the 1994 health plan was poorly informed with regards to CHWs:

"[It was] highly ambitious, had little connection to and had not consulted contemporary projects on what they were actually doing and achieving." (F9)

Interviewees understood why international funders had redirected their support to the new democratic government. However they were frustrated that established community-based initiatives folded because of the government's idealistic vision of a professional-driven DHS which, in their view, failed to incorporate adequately existing South African experiences. Some projects survived with meagre charitable contributions (Elim, SACLA). A few, such as the Valley Trust, continued to receive government support and helped to develop a provincial health plan.

The government's decision in the mid-1990s to provide free primary healthcare was a further blow to organisations such as the Rural Foundation which had relied partly on community contributions. This decision changed community expectations of projects.

The HIV epidemic also negatively impacted several small vertical projects. Respondents suggested providing care to people living with AIDS in the pre-antiretroviral drugs era had diverted funds away from CHW projects. In the late 1990s, when PPHCN struggled for funds, a budget ten times its global budget was allocated to it to run the national AIDS programme (F2). The AIDS epidemic also shifted CHWs towards being single-purpose workers – a phenomenon also noted in Britain (Berridge, 1996). A comparison of past and present CHW programmes is shown in Table 3. Respondents saw these changes as having shattered the ideal of community-oriented and comprehensive primary care (Oppenheimer & Bayer, 2007).

Has more recent community health policy been informed by the past?

The Community Oriented Primary Care approach informed the development of the DHS in the late 1990s. However, it has been noted that its community focus and epidemiological surveillance have not been implemented widely, mainly because of a poor management capacity and accountability to communities (Moosa, 2006; Tollman & Pick, 2002).

More recently, South Africa established a CHW Framework (2004) to guide the development of a national CHW programme. This aimed to establish cohesion between old and new CHW community-based organisations and to address the growing crisis of health worker shortage. Interviewees felt “this policy [had] come too late” (C10, F3) as this Framework had only drawn upon the newer single-purpose fragmented projects not upon apartheid era comprehensive community health initiatives. One interviewee, one of the few to be consulted prior to the finalisation of this policy, was disappointed:

“The policy had ignored the recommendations we had made based on the spirit and the experience of the CHW projects [in the 1970–1990s]” (C10)

This statement equates to what Lund (1993) called a policy paradox in describing the 1992 national CHW policy draft. The policy, she argues, attempts “to give the category of CHW a place, but whilst so doing, has failed to recognise diversity, needs and flexibility, thus invalidating its initial aim.”

Others suggested that implementation of the CHW Framework remains rigid and gives insufficient focus to rural areas (Friedman, 2005). The Framework has also been criticised for its vague and conflicting statements about remuneration and responsibility for CHWs (Schneider et al., 2008). Respondents felt that community health leaders' recommendations for appropriate incentives (C10) were distorted into meagre stipends. Keeping CHWs as volunteers may have serious implications for their motivation, retention and the quality of care they provide (F2).

The 2004 CHW framework suggests that the “government would provide grants to NGOs who would employ CHWs” (DoH, 2004). Three respondents identified partnership with civic organisations as positive but that the framework abdicates government financial responsibility and diminishes NGOs to stipend distributors (Schneider et al., 2008). In addition, the policy was seen to put insufficient emphasis on supervision, with directors deploring the fact that so few current budgets included adequate funds for supervision (F2). Quality of supervision, they suggested, is poor and is performed by inexperienced and overburdened staff.

Discussion

This research contributes to filling a gap in the history of South African CHW programmes in the late apartheid period. These projects had similarities to the earlier community health initiatives of the 1940s. For example, as a consequence of the socio-political context, primarily outsiders, many of whom were white, middle-class professionals, started these projects. However, early and late apartheid projects evolved in different contexts. Due to a more liberal political leadership, the 1940s projects received government support as potential models for universal health care. In contrast, the late-apartheid projects studied were initiated within an era of heightened repression and segregation; were intertwined with the contemporaneous wider social aims of democracy and social justice, and did not generally receive backing from the state. Unfortunately, many late-apartheid programmes were poor at documenting the process and impact of their work, in part because of the repressive conditions. Projects of both apartheid periods, which were influenced by Community Oriented Primary Care, were much better at this, given the epidemiological focus of this model.

Our respondents argued that the strong socio-political motivations of the late apartheid period projects were mostly not carried through into the post-apartheid period. The current struggle to redress the economic, health and racial inequalities is not, it could

Table 3
Comparison of past and current CHW programmes in South Africa.

Characteristics	1970–1990s programmes ^b	Current programmes
Supervision and training	Experimental but applied; done by experienced and inspiring people	Supervisors are of lower grades and less motivated/committed. Variable training quality ^a
Funding	International donors. More flexibility of allocation given to project by funders	Government-channelled funding, or charitable funds ^a
Remuneration	Variable, some CHWs well paid, many volunteers	Rigid spending allowance, often determined by funders ^b Discontent with voluntary contributions ^b , low government stipend ^a
Scope	Started with a vertical issue, then extended to integrate larger health issues. PPHCN network established to coordinate projects.	Most are single-disease focused (e.g. HIV, TB) community-based organisations ^a
Relationship with community	Project more dependent on community and linked to activism. Community more participatory.	Different expectations since democracy (less dependence, more individualistic attitude) ^b
Relationship with health sector	Filling a large gap that health service was not providing. Mixed acceptance by health sector.	Poor coordination among projects/health sector, leading to competition and duplication of work ^a

^a Based on (Friedman, 2005).

^b Based on interviewees responses/contemporaneous literature.

be argued, fuelled by the same fervour for action, partly because the country is now a stable democracy (Friedman, 2002). In addition, the changing burden of disease (HIV, TB, chronic diseases) means that a national CHW programme would now have to incorporate significantly different needs (Oppenheimer & Bayer, 2007). However, a number of contemporary social movements, such as that to improve access to treatment for people living with HIV/AIDS, may have benefited from the leadership and experience of activists from the earlier projects (Ballard, Habib, Valodia, & Zuern, 2005).

Though these small-scale programmes were a product of their times, they have important lessons for current CHW programmes and policy within South Africa and potentially globally. It is suggested that the now predominant, single-purpose CHWs' focus on clinical conditions fails to address the social determinants of health (Friedman, 2005). Reinvigorating the political nature of community healthcare by addressing social, economic and environmental issues, may have a greater impact in tackling ill health of the most disadvantaged.

Although interviewees claimed that dissatisfaction among CHWs with volunteering was minimal during apartheid, this may, in part, be a romanticisation of the past. In reality, many late apartheid programmes had very limited funding and repressive conditions often allowed few opportunities for local people other than voluntary involvement. Within their current work, CHW respondents indicated dissatisfaction with volunteering. Social changes in South Africa have created better local opportunities for people to contribute to health and seeking employment. Poorly- or un-remunerated involvement is perhaps no longer possible, and might be seen as exploitative (Lehmann, Friedman, & Sanders, 2004).

The current debate about the potential professionalisation of CHWs makes the ideal of 'bridging a gap' between the community and the health system more remote. For many younger workers, a CHW position is a stepping stone to a nursing career, not a long-term commitment to this cadre (Schneider et al., 2008). CHWs interviewed reported the community contact and trust experienced during the 1970s and 1980s as crucial to their work, although the degree of community participation was perhaps not as extensive and empowering as respondents claimed. Within the current model, CHWs risk becoming over-medicalised and no longer embedded in communities. Professionalisation may also blur the differences between nurses and CHWs, thereby contributing to power struggles between these two cadres. Furthermore, funding bodies' centralised control on the remit and extent of these projects may curtail projects' adequate community responsiveness.

Un-surprisingly, interviewees highlighted that good leadership and supervision, even though not always achieved, were essential to the success of programmes. Furthermore, community involvement and adequate financial capacity were seen as crucial for sustainability. Indeed, the ethos and funding flexibility of earlier programmes were seen to have led to community acceptance, CHW job satisfaction and health gain. Many problematic managerial issues then are also now further complicated by changes in the burden of disease and in user and provider expectations of health services. Many ongoing CHW programmes would probably benefit from stronger professional management and better integration within the district primary health system.

The issues identified in this historical analysis of CHW programmes are still recognised as important today but often remain poorly addressed, particularly in larger scale initiatives (Lehmann et al., 2004; Walt & Gilson, 1990). Given the renewed growth of CHW programmes within South Africa and globally, lessons learned from past programmes should play a stronger role in informing current policies.

Acknowledgements

This research was funded as part of a studentship awarded by the Wellcome Trust to the Centre for History in Public Health as part of its Enhancement Award. We wish to thank the academic staff at the University of Cape Town who helped facilitate this research, in particular Leslie London and Margaret Hoffman. Our deepest gratitude goes to all participants whom we interviewed and consulted for this study.

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6. Cross-national analysis

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Health policy and system developments are often country-wide in scope, as in a national policy change or nation-wide implementation of a new health system intervention. Therefore, analysing these experiences to understand the impacts of particular changes or interventions and the pathways of change (i.e. how these impacts are achieved) must be undertaken at country level. However, the transferability of health policy and systems lessons from one country to another is commonly questioned because the long and complex causal pathways underlying their effects allow contextual features to influence their effects in many ways (Mills, 2012). As a result, various analysts have called for studies that identify plausible rather than causal links between health policy and systems interventions and their impacts, and for direct examination of the contextual factors under which particular interventions achieve their impacts (Janovsky & Cassels, 1995; McPake & Mills, 2000; Victora, Habicht & Bryce, 2004).

Cross-national analysis may, therefore, be helpful in not only understanding the forces driving health policy and systems interventions but also influencing their impacts. Such comparative analysis should allow critical contextual features to be identified and their influence over interventions and subsequent impacts to be considered. Recent advances in impact evaluation and, particularly, ideas around theory-based evaluation offer valuable approaches for use in such analyses (see Part 4: 'Advances in impact evaluation'). At the same time, cross-national studies can be seen as, in effect, country-level case studies, with comparative analysis then allowing general conclusions about particular interventions and influences over their effects to be teased out through the approach of analytic generalization (see Part 1: Section 7,

and Part 4: 'The case study approach'). However, given the scale, complexity and cost of conducting any form of cross-national HPSR work, there remain relatively few such studies. The criteria for assessing study quality and rigour must clearly be appropriate to the particular overarching research approach adopted (fixed, flexible or mixed-method: see Part 2: Step 3).

A different role for cross-national analysis is in the assessment of various dimensions of health system performance drawing on standardized data and classification systems. Stimulated by the publication of the World Health Organization's World Health Report of 2000 on health systems' performance, the work using National Health Accounts is one example of such analysis. Cross-national health and health systems analysis is now also the subject of wider debate and development, although the development of appropriate databases and rigorous analytic tools remains in its infancy.

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Overview of selected papers

The papers in this section illustrate the types of questions and approaches that can be analysed in cross-national HPSR.

- Bryce et al. (2005) report a seminal intervention evaluation that drew on a plausibility approach to assessing impact and examined the implementation of one health policy and system intervention (the integrated management of child illness programme) in different national contexts. The aim was to understand what contextual factors were of most influence over the intervention's impacts. Countries were selected for inclusion because they had implemented the Integrated Management of Childhood Illness (IMCI) strategy.
- Gilson et al. (2001) report a study that, using policy analysis theory to guide it, adopted a comparative case study analytical approach to gain insight into how to support implementation of a financing policy (the Bamako Initiative) in any setting. Countries were selected for inclusion because they had implemented some form of the Bamako Initiative in Africa.
- Lee et al. (1998) report an eight-country study that, using policy analysis theory, adopted a comparative case study analytical approach to draw out general conclusions about how to strengthen the implementation of family planning programmes. Countries were selected on the basis of available data and to allow comparison and contrast of experience between strong and weak national family planning programmes in four pairs of contrasting national socio-economic contexts.
- O'Donnell et al. (2007) report a study that uses comparable, quantitative data from household surveys to conduct statistical analyses of the incidence of public health expenditure in 11 Asian countries and provinces. They concluded that pro-poor health care requires limiting the use of user fees, or protecting the poor from them, and building a wide network of health facilities.

References for selected papers

Bryce J et al. (2005). Programmatic pathways to child survival: results of a multi-country evaluation of Integrated Management of Childhood Illness. *Health Policy and Planning*, 20 (supplement 1):i5–i17.

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[http://dx.doi.org/10.1016/S0168-8510\(01\)00153-1](http://dx.doi.org/10.1016/S0168-8510(01)00153-1)

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Programmatic pathways to child survival: results of a multi-country evaluation of Integrated Management of Childhood Illness

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Objective: To summarize the expectations held by World Health Organization programme personnel about how the introduction of the Integrated Management of Childhood Illness (IMCI) strategy would lead to improvements in child health and nutrition, to compare these expectations with what was learned from the Multi-Country Evaluation of IMCI Effectiveness, Cost and Impact (MCE-IMCI), and to discuss the implications of these findings for child survival policies and programmes.

Design: The MCE-IMCI study designs were based on an impact model developed in 1999–2000 to define how IMCI would be implemented at country level and below, and the outcomes and impact it would have on child health and survival. MCE-IMCI studies included: feasibility assessments documenting IMCI implementation in 12 countries (1999–2001); in-depth studies using compatible designs in Bangladesh, Brazil, Peru, Tanzania and Uganda; and cross-site analyses addressing the effectiveness of specific subsets of IMCI activities.

Results: The IMCI strategy was successfully introduced in the great majority of countries with moderate to high levels of child mortality in the period from 1996 to 2001. Seven years of country-based evaluation, however, indicates that some of the basic expectations underlying the development of IMCI were not met. Four of the five countries (the exception is Tanzania) had difficulties in expanding the strategy at national level while maintaining adequate intervention quality. Technical guidelines on delivering interventions at family and community levels were slow to appear, and in their absence countries stalled in their efforts to increase population coverage with essential interventions related to careseeking, nutrition, and correct care of the sick child at home. The full weight of health system limitations on IMCI implementation was not appreciated at the outset, and only now is it clear that solutions to larger problems in political commitment, human resources, financing, integrated or at least coordinated programme management, and effective decentralization are essential underpinnings of successful efforts to reduce child mortality.

Conclusions: This analysis highlights the need for a shift if child survival efforts are to be successful. Delivery systems that rely solely on government health facilities must be expanded to include the full range of potential channels in a setting and strong community-based approaches. The focus on process within child health programmes must change to include greater accountability for intervention coverage at population level. Global strategies that expect countries to make massive adaptations must be complemented by country-level implementation guidelines that begin with local epidemiology and rely on tools developed for specific epidemiological profiles.

Key words: child survival, IMCI, public health programme evaluation, child health

Introduction

The Integrated Management of Childhood Illness (IMCI) strategy

Integrated Management of Childhood Illness (IMCI) is a strategy for reducing mortality among children under the age of 5 years (Tulloch 1999). UNICEF, the World

Health Organization (WHO) and their technical partners developed the strategy in a stepwise fashion, seeking to address limitations identified through experience with disease-specific child health programmes, and especially those addressing diarrhoeal disease and acute respiratory infections (Claeson and Waldman 2000). Elements of the strategy were developed in a rough sequence

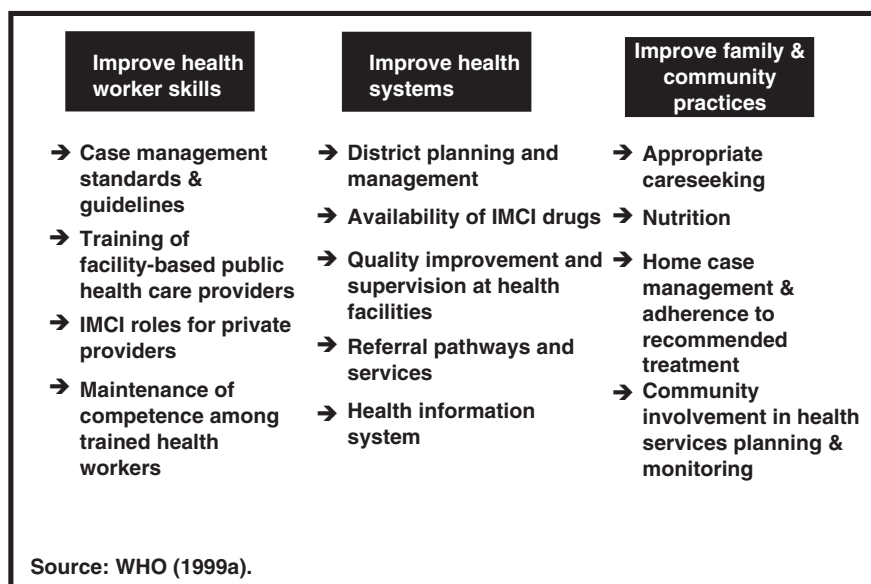


Figure 1. The three components of IMCI as presented by WHO in 1998

from: (1) evidence-based guidelines for health workers serving high-mortality populations that defined clinical case management actions to respond to common infectious diseases in childhood and the delivery of key prevention services including immunization and nutrition interventions; (2) health worker training in the guidelines based on paedological principles of supervised practice in clinical settings and follow-up of trainees to assist with the establishment of new practices; (3) attention to needed health system supports for child health and development, based on the recognition that health workers are not isolated, but work in systems that, if not strengthened, would limit their abilities to perform good work; and (4) strengthening of family practices needed to prevent disease, to stimulate appropriate utilization of health services, and to improve home care for sick children. Figure 1 presents the components of the IMCI strategy and the interventions WHO and UNICEF initially proposed for inclusion within each component (WHO 1999a).

The IMCI case management guidelines for the integrated management of sick children in a first-level health facility were designed to address the major causes of child mortality in countries with infant mortality rates of 40 per 1000 live births or greater (Gove 1997; WHO 1998a). Undernutrition, an underlying cause contributing to over 50% of deaths in children between the ages of 1 month and 5 years (Pelletier et al. 1995; Caulfield et al. 2004), was also a major target. Interventions in the generic IMCI guidelines therefore included the provision of antibiotics for pneumonia and dysentery, antimalarials for fever in settings where malaria was endemic, oral rehydration therapy for the prevention and treatment of dehydration due to diarrhoea, and the use of Vitamin A

as a treatment for measles (Gove 1997). Undernutrition was addressed by having health workers counsel caretakers about appropriate feeding, including breastfeeding. The guidelines were adapted in each country (WHO 1998b), resulting in a set of tasks to be performed by the health worker(s) including a full assessment and classification of the child's condition leading to a determination of treatment, and counselling of the caretaker on administration of medicines, appropriate home care, and the conditions under which the child should be brought back to the facility. The guidelines also recommend the use of the illness episode as an opportunity for the delivery of preventive interventions, including vaccines and nutritional counselling.

The generic IMCI training course was developed based on these guidelines, and emphasized supervised clinical practice (Gove 1997). In addition, the IMCI training approach recommends that each participant receive a follow-up visit from their trainer within 4 to 6 weeks after the initial training in order to help them implement their new skills (WHO 1999a).

IMCI programme developers incorporated the need for specific health system supports into the strategy itself (see Figure 1), an important step forward from the disease-oriented programmes of the past. The expectation was that introducing IMCI would contribute to these needed health systems changes, strengthening existing systems for supervision, drug supply and health information.

The vision for the strategy also included the need to deliver interventions at the community level aimed at improving family practices – such as appropriate

careseeking and home management of illnesses – that would act synergistically with improving health worker skills at the facility level. WHO and UNICEF defined a set of 12 key family and community practices and commissioned a synthesis of evidence supporting their importance relative to child health and survival (Hill et al. 2004).

Implementation of the IMCI strategy

IMCI was first introduced at country level in 1996 by Tanzania and Uganda. In the 9 years since then, over 100 additional countries across all geographic regions have adopted the strategy and gained significant experience in its implementation (WHO 2005a).

The global planning guidelines for use by countries in implementing IMCI recommended three stages (WHO 1999b). In the *introductory phase*, countries conducted orientation meetings, trained key decision makers in IMCI, defined a management structure for preparing for IMCI, planning and early implementation, and built government commitment to move forward with the IMCI strategy. In the *early implementation phase*, countries gained experience while implementing IMCI in limited geographic areas. They developed their national strategy and plan, adapted the IMCI guidelines to their national context, developed management and training capacity in a limited number of districts, and started implementing and monitoring IMCI. The end of this phase was marked by a review meeting with the objective of synthesizing early implementation experience and planning for expansion. In the *expansion phase*, countries increased both the range of IMCI interventions and IMCI coverage. An important challenge emphasized in planning for the expansion phase was maintaining quality while expanding coverage.

The Multi-Country Evaluation of IMCI Effectiveness, Cost and Impact (MCE-IMCI)

The MCE-IMCI includes studies of the effectiveness, cost, and impact of the IMCI strategy in Bangladesh, Brazil, Peru, Tanzania and Uganda (Bryce et al. 2004). In-depth studies assessing the feasibility of conducting a large-scale impact evaluation like the MCE-IMCI were conducted in seven additional countries. Planning for the MCE-IMCI began in 1997, just as the first countries were adapting the IMCI strategy and moving into the early implementation phase. The evaluation objectives were to assess the behavioural, nutritional and mortality impact of IMCI, as well as to document the effect of IMCI interventions on health worker performance, health systems and family behaviour. The MCE-IMCI was planned as one part of a larger research agenda that included efficacy evaluations of the individual interventions within IMCI, as well as qualitative and operations research. Details about the development, design and implementation of the MCE-IMCI are available elsewhere (Bryce et al. 2004). A key focus of the MCE-IMCI was the implementation of the IMCI strategy in the hands of

governments, and the results therefore have relevance to efforts to improve the delivery and utilization of a broad range of public health interventions (Bryce et al. 2003; Victora et al. 2004).

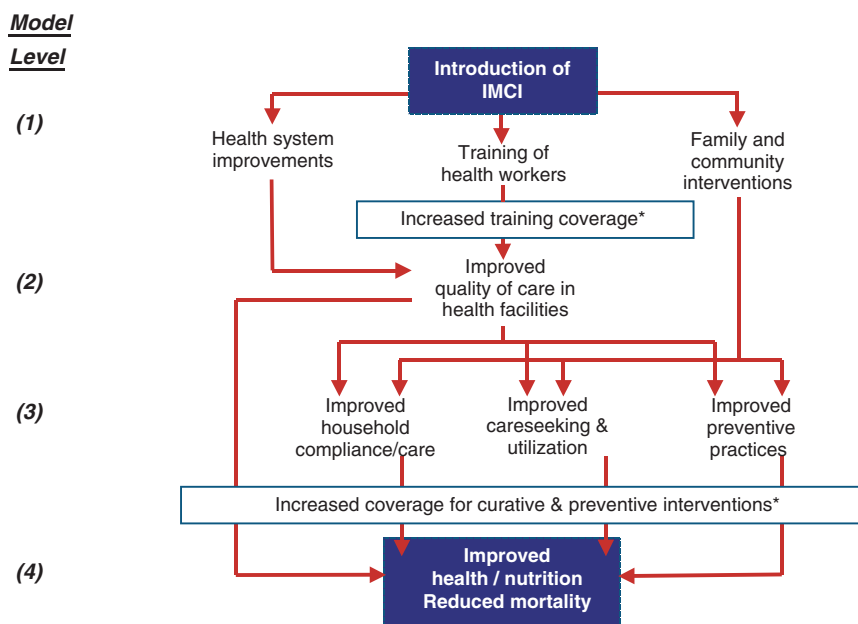
The IMCI impact model

The MCE-IMCI Technical Advisory Group was created in 1998, and included experienced researchers and evaluators in the fields of child survival, economics and health policy. Advisors worked closely with IMCI developers from WHO and UNICEF to develop an impact model for IMCI. This model was needed as a basis for defining the specific types and magnitude of changes expected from the introduction of IMCI, for choosing indicators and for calculating sample sizes. Parts of this model were then computerized using an approach that was similar to that of Becker and Black (1996) and used to estimate the magnitude of mortality reduction that could be expected from introducing IMCI in different settings.

Figure 2 presents a greatly simplified version of the model; the full model is available for review at [<http://www.who.int/imci-mce/>]. Each of the arrows in Figure 2 reflects an expectation among WHO programme staff in the late 1990s about the pathways through which the introduction of IMCI at country level would lead to improvements in child survival and nutrition. Important exceptions are the boxes on coverage, which were added only in 2004 based on the MCE-IMCI findings.

The temporal dimension of the model moves from level 1 to level 4. The first level defines the planning steps and inputs needed to initiate IMCI-related activities. The second level outlines how these activities were expected to lead to implementation of the IMCI interventions. The third and fourth levels specify the pathways through which these IMCI interventions were expected to lead to intermediate behavioural outcomes and to impact on health status, respectively.

The objective of this paper is to compare the findings of the MCE-IMCI relative to the programme expectations reflected in the IMCI impact model. We review five of the most important programme expectations from the impact model and describe the extent to which each was realized in IMCI implementation among countries participating in the MCE-IMCI. These expectations are: (1) The generic IMCI guidelines could and should be adapted and implemented in developing countries with an infant mortality of more than 40/1000 live births (WHO 1998a); (2) IMCI case management training would lead to improved quality of care at first-level health facilities; (3) The introduction and implementation of IMCI would contribute to strengthening health system supports; (4) Families would respond to improved quality of care in government health facilities, leading to increases in utilization and reductions in child mortality; and (5) All three components of the IMCI strategy could be implemented in a coordinated fashion at country level within a time frame of 3 to 5 years. In our conclusions we



*added later as a result of MCE-IMCI findings.

Figure 2. A simplified version of the IMCI impact model developed in 1999–2000

summarize what has been learned from the MCE-IMCI about effective child survival programmes and highlight implications for other public health initiatives.

Methods

Design

The MCE-IMCI consisted of a series of independent studies with compatible designs, each tailored to the stage and characteristics of IMCI implementation in the participating country (Bryce et al. 2004). The set of site-specific studies included prospective, retrospective and mixed designs. They reflected a continuum from efficacy to effectiveness, with variable degrees of influence from the evaluation team on programme implementation. Each study addressed the need to document the plausibility of an effect of IMCI on intermediate steps defined in the impact model. All studies measured an identical set of indicators and, with few exceptions, used identical data collection tools. Observation-based surveys were used to assess the quality of child health care provided in health facilities. Cost data were collected at the household, health facility, district and national levels. Household surveys assessed preventive practices and family responses to illness. All tools were adapted to respond to local characteristics and questions, and in some sites the variables necessary to assess equity were added.

Data sources

The MCE-IMCI includes three different types of studies, each of which provides important findings relative to the impact model:

- (1) **The 12-country assessment of IMCI implementation.** The country selection process for the MCE-IMCI included visits by teams of MCE-IMCI Advisors and WHO staff to countries selected by WHO as representing the best examples of IMCI implementation at that time. All countries in each of the six WHO regions were evaluated against a set of criteria that included the probability that the government would be successful in implementing all three components of the IMCI strategy over the subsequent 5 years. Further information on eligibility criteria are presented elsewhere (Bryce et al. 2004). Based on this review, in each region one or two countries judged most likely to meet the criteria were selected for assessment visits. The assessment protocol included in-depth reviews of country-level plans and progress in child health activities, including but not limited to IMCI. More than one assessment visit was made to several countries in which small studies were commissioned to evaluate the potential for successful IMCI implementation. Although the countries visited had been implementing IMCI for varying periods of time, the search was restricted to those likely to implement IMCI fully, in large geographical areas, within the 2 years after the

assessment visit, allowing an impact evaluation period of 2 to 3 years within the time frame of the MCE-IMCI. Bangladesh was included as a site even though IMCI implementation had not yet begun, to serve as an efficacy study in which the investigators could collaborate with the Government in implementing the strategy under relatively ideal conditions. Findings from the 12-country assessment provide important information on the validity of those parts of the IMCI impact model related to planning and implementing activities across the three model components (WHO 1999b); some of their implications have been reviewed and discussed elsewhere (Victora et al., in press).

- (2) ***In-depth studies in five sites.*** Based on the findings of the 12 country assessments described above, Bangladesh, Brazil, Peru, Tanzania and Uganda were selected as in-depth study sites. In Peru, IMCI had already been taken to scale and implemented nationwide, so the evaluation used a fully retrospective design and relied heavily on routine data sources. IMCI implementation was in the expansion phase in Brazil, Tanzania and Uganda, and each design represented a mixture of retrospective and prospective elements. In Bangladesh, as explained above, a fully prospective design was possible because IMCI implementation had not yet begun at national level. In both Bangladesh and Tanzania, MCE-IMCI investigators are participating actively in the Government's plans for IMCI implementation. Table 1 presents a summary of characteristics and MCE-IMCI data collection activities in the five in-depth sites. Full descriptions of the methods and results for each study site are available at [<http://www.who.int/imci-mce/>].
- (3) ***Cross-site analyses.*** The use of standard indicators and analysis plans permitted comparisons across the five MCE-IMCI study sites. Topics addressed to date include the effect of IMCI in improving care quality in first-level health facilities (Gouws et al. 2004), health system barriers to scaling-up (Victora et al. 2004), and the importance of context-specific delivery mechanisms (Bryce et al. 2003), as well as methodological issues (Bryce et al. 2004; Bryce and Victora 2005; Gouws et al. 2005).

In addition, other documentation and research efforts related to IMCI were reviewed carefully and the findings were taken into account in interpreting MCE-IMCI results.

Analytic approaches

The analytic approach used in the MCE-IMCI varied among countries. As shown in Table 1, all evaluations entailed a comparison, either between areas with and without IMCI (Bangladesh, Brazil and Tanzania) or among areas with variable degrees of implementation (Peru and Uganda). Details of the analytical approaches are available in the country-specific publications from Bangladesh (Arifeen et al. 2005), Brazil (Amaral et al.

Table 1. Characteristics of in-depth study sites in the Multi-Country Evaluation of IMCI, 2000

	Bangladesh	Brazil	Peru	Tanzania	Uganda
Demographic*					
Total population (1000)	124 774	165 851	24 797	32 102	20 554
Baseline under-5 mortality	96	70	58	160-180	141
GNP per capita (2000 US\$)	360	4790	2610	210	330
Total adult literacy rate	38	83	88	69	62
MCE-IMCI					
Design	Randomized trial of 10 health facilities with IMCI and 10 without IMCI	Comparison of 32 IMCI and 64 non-IMCI municipalities	Comparison of 25 departments with different levels of IMCI implementation	Pre-post comparison of 2 IMCI and 2 non-IMCI districts	Comparison of 10 districts with different levels of IMCI implementation
Mortality assessment	Demographic surveillance + survey	Surveys	Vital statistics	Demographic surveillance	Surveys
Household coverage surveys	2000 (baseline); 2007 (planned)	None	None	1999 (baseline) 2004	2000 (baseline) 2001 & 2002 in catchment areas of 10 study districts
Health facility assessments	2000 (baseline)	2002 (midway)	1999 (pilot study in selected departments)	2000 (midway)	Ongoing rolling sample
Cost assessments	Included in survey tools	Included in survey tools	Not included	Included in survey tools	Included in survey tools
Randomization	Yes (2001)	None	None	None	None
Type of inference	Probability	Plausibility	Plausibility	Plausibility	Plausibility
Malaria	None	None	Variable	Yes	Yes

*Source of demographic estimates: UNICEF (2000).

2004), Peru (Huicho et al. 2005), Tanzania (Armstrong Schellenberg et al. 2004a) and Uganda (Pariyo et al. 2005).

Results

Expectation 1: The generic IMCI guidelines could and should be adapted and implemented in developing countries where infant mortality is higher than 40 per 1000 live births

Although the original target for the IMCI case management guidelines was countries with infant mortality rates of at least 40 per 1000 (WHO 1998a), other countries or specific geographic areas within countries found the concept of integration attractive and moved to adapt and adopt them as well. For example, the Pan American Health Organization ‘...urges all countries to incorporate IMCI as a basic standard for child care’ (PAHO, undated). There was an expectation in the early years of IMCI introduction that the generic guidelines could and would be adapted by any country or area to reflect their specific epidemiological profile and health system characteristics. WHO therefore worked in the late 1990s to develop guidelines for the country adaptation process, including evidence for intervention choices, models for how to incorporate additional diseases and conditions into the training materials, and how to conduct local studies to identify terminology and local foods (WHO 1998b). Cadres of ‘IMCI adaptation consultants’ were trained at regional and global levels.

The resource-intensive efforts at country level required to adapt the generic IMCI guidelines were necessary because the specific pneumonia-diarrhoea-malaria profile underlying the generic IMCI algorithm represents countries that accounted for only about 35% of under-five deaths in 2000 (Black et al. 2003). The remaining 65% of deaths occurred in epidemiological contexts without endemic malaria, dominated by neonatal disorders or in a few countries with generalized epidemics of HIV/AIDS. The widespread uptake of the IMCI concept resulted in overextension of the guidelines to settings with disease profiles that varied widely from those for which they were developed.

The IMCI strategy as defined in 1996 applied only to children from the ages of 1 week to 5 years (Gove 1997), and did not include interventions addressing deaths in the early neonatal period. The cause structure of infant deaths was not well understood at that time, and few interventions had been fully developed and evaluated for efficacy.

The eventual expectation that a set of generic algorithms based on the global distribution of causes of death, combined with support for adaptation at country level, would be an efficient way to improve case management in all countries proved over-ambitious. With benefit of hindsight, greater technical efficiency might have been gained if lower mortality countries had been encouraged to develop, or wait for, epidemiologically driven algorithms more consistent with their cause-of-death profiles

for children under 5 years of age, and the incorporation of interventions designed to reduce deaths from causes in the neonatal period.

Another part of the expectation was that IMCI could and should be implemented fully regardless of the strength of the health service system. Again this was an implicit expectation, but was supported by the fact that virtually every developing country was approached by WHO to introduce IMCI. IMCI implementation guidelines suggested that countries with weak health systems should begin slowly with IMCI implementation, and build toward stronger health system strength and integrated programmes simultaneously and synergistically (Lambrechts et al. 1999; WHO 1999b).

Expectation 2: IMCI case management training would lead to improved quality of care at first-level health facilities

One part of this assumption, that IMCI case management training would improve health worker performance and thus contribute to improved care quality, has been repeatedly borne out through MCE-IMCI findings (Amaral et al. 2004; Armstrong Schellenberg et al. 2004b; El Arifeen et al. 2004; Gouws et al. 2004). In all settings where case management training was implemented at minimum standards of quality, and where sufficient coverage of trained workers was able to be maintained at health facility level, the quality of care improved. Ill children managed by health workers trained in IMCI receive a more thorough assessment than children cared for by workers without IMCI training, and are more likely to receive correct treatment. Caretakers are more likely to receive key messages about how to continue care at home and when to return to the facility.

Expectation 3: The introduction and implementation of IMCI would contribute to strengthening health system supports

Early experiences with IMCI implementation suggested that the inter-programme working groups at national level that were recommended as a mechanism to plan for IMCI, and specific planning steps such as the review and updating of child health policies and essential drug lists, would lead to activities designed to improve health system supports for child health activities (WHO 1999b). In most countries this assumption, at this level, was borne out. The introduction of IMCI led to the rationalization of child health policies and the updating of essential drug lists in most countries in Africa, for example (Lambrechts et al. 1999; WHO 2000).

In three of the 12 countries assessed, IMCI benefited from activities designed to strengthen the health system. In Tanzania, the Tanzania Essential Health Intervention Project (TEHIP) introduced basic management tools at district level (De Savigny et al. 2004) which permitted an effective use of decentralized health resources and resulted in the adoption of IMCI. Other districts with the same resources but without the TEHIP tools did not adopt



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Health Policy 58 (2001) 37–67

HEALTH policy

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Strategies for promoting equity: experience with community financing in three African countries[☆]

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Received 9 June 2000; accepted 28 March 2001

Abstract

Although the need for a pro-poor health reform agenda in low and middle income countries is increasingly clear, implementing such policy change is always difficult. This paper seeks to contribute to thinking about how to take forward such an agenda by reflection on the community financing activities of the UNICEF/WHO Bamako Initiative. It presents findings from a three-country study, undertaken in Benin, Kenya and Zambia in 1994/95, which was initiated in order to better understand the nature of the equity impact of community financing activities as well as the factors underlying this impact. The sustained relative affordability gains achieved in Benin emphasise the importance of ensuring that financing change is used as a policy lever for strengthening health service management in support of quality of care improvements. All countries, however, failed in protecting the most poor from the burden of payment, benefiting this group preferentially and ensuring that their views were heard in decision-making. Tackling these problems requires, amongst other things, an appropriate balance between central and local-level decision-making as well as the creation of local decision-making structures which have representation from civil society

[☆] This paper is in memory of one of the co-authors, Hezron Oranga.

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groups that can voice the needs of the most poor. Leadership, strategy and tactics are also always important in securing any kind of equity gain—such as establishing equity goals to drive implementation. In the experiences examined, the dominance of the goal of financial sustainability contributed to their equity failures. Further research is required to understand what equity goals communities themselves would prefer to guide financing policy. © 2001 Elsevier Science Ireland Ltd. All rights reserved.

Keywords: User fees; Community financing; Affordability; Participation; Equity; Policy analysis; Implementation; Evaluation; Benin; Kenya; Zambia; Africa

1. Introduction

The need for a pro-poor health reform agenda in low and middle income countries has become increasingly evident in the face of inequities in access and payment for care [1] and disrespectful treatment of patients [2]. The World Health Organisation (WHO) has, therefore, combined fairness in financial contributions and responsiveness to the legitimate expectations of the population with improving the level and distribution of health as the criteria it is promoting for assessing health system performance [3]. Implementing pro-poor health reform is, however, always difficult as it has to confront the challenges associated with any politically controversial policy change [4–6].

This paper seeks to contribute to thinking about pro-poor reform by reflection on an earlier phase of health policy change, the UNICEF/WHO Bamako Initiative (BI). Building on previous experiences of community financing, local-level co-operative action associated with material or financial support for health care activities [7], the BI sought to accelerate and strengthen the implementation of primary health care, with the goal of achieving universal accessibility to these services. Its three main strategies were: decentralised decision-making including the involvement of community members in managing primary health care activities; user-financing of health services under community control; and the provision of essential drugs within the framework of a national drugs policy [8,9]. From its inception the BI was caught up in a wider debate about the potential equity impact of any form of user financing, given its potential to undermine the access to health care of lower socio-economic groups [10–14].

The investigation reported here was initiated in the mid-1990s to add to the available empirical evidence about the equity impacts of community financing and BI activities. They investigated both the perceived and demonstrated impacts on equity of such activities, as well as the mechanisms and processes through which these impacts were obtained. The studies' focus on understanding how and why any perceived and demonstrated changes in equity came about, or what obstacles there were to securing such impact, is unusual in the health care financing literature. However, such investigation is important both in better understanding the nature of the equity impacts and in generating policy-relevant findings. Experience suggests that understanding the factors influencing the pattern and nature of public policy change is essential in determining how to better achieve policy goals in the future

[15–20]. Policy-makers and managers seeking to learn lessons from existing experiences are, therefore ‘...demanding information on what is being done elsewhere, what works, what does not work, why, whether it can be imported, adapted, and how’ ([21] p. 18).

The study was undertaken in Benin, Zambia and Kenya in 1995–96 [22–25]. The Benin BI programme adopted the ‘classical’ BI approach [26] as its main health reform strategy, seeking to improve the quality of care available at existing primary care facilities, staffed by trained primary care health workers, and to develop the financial sustainability of services offered within them. The package of interventions included the introduction of charges to fund improved drug supplies and support the provision of immunisation services, the formation of local committees, combining community representatives and health staff, to participate in decision-making about drug control, revenue collection and revenue use and clinical training and enhanced supervision. The Kenyan BI programme, in contrast, was implemented in parallel to other changes within the health system, and sought rather to extend primary care coverage beyond the existing facility network by establishing new community pharmacies in areas otherwise not served by government health facilities. The pharmacies were staffed by community members who received a short period of basic training to allow them to offer simple curative and preventive care. They were also associated with a wider network of community health workers (CHWs) based in the villages served by the pharmacy who had health education and preventive care roles. The pharmacies stocked and sold both a limited range of drugs and bed nets, for use in protecting against malaria transmission, and were managed by community committees established with the support of the local leaders. Finally, the pharmacies were also intended to be the focus for the wider community development action, particularly income generating activities, needed to combat ill health and poverty. The very different experience of the third country, Zambia, involved, in 1994/5, an almost exclusive focus on decentralisation to district management teams and boards as the main reform strategy for improving the efficiency and equity of the health care system. The introduction of user fees in the early 1990s was, therefore, only of secondary importance in its overall reform programme. Zambia was, nonetheless, included in this study because its different experiences were expected to provide interesting comparisons with the other countries’ activities.

The full evaluation of the equity impacts of these community financing activities is presented in a sister paper [27]. It was rooted in consideration of three equity principles: payment on the basis of ability to pay; equal opportunity of use for equal need; and effective representation of all community interests in decision-making [22,28]. Whilst the first two principles are commonly associated with distributive justice concerns, that is the distribution of the outcomes of decision-making, the third reflects a concern for procedural justice—the respectful treatment of all groups in decision-making [29–31]. The equity successes of the Benin and Kenyan BI programmes resulted from the relative affordability gains associated with reducing the cost of accessing care by, respectively, improving existing services and bringing new services closer to people’s homes. In Kenya, however, these gains were

undermined by two factors. First, the limited range of services provided through the BI programme meant that people still had to access more distant services for many health problems. And, second, the provision of even this basic set of services was not sustained over time (as evidenced by the drug supply problems experienced in pharmacies towards the end of the study period). Yet in these relative affordability gains went hand in hand with absolute affordability problems, as the most poor received little protection from, and struggled to cope with, the burden of fee payment. Absolute affordability problems were, moreover, evident in both countries as neither established effective exemption mechanisms and so the poorest groups were unfairly burdened with paying for care. These problems were seen most clearly in Zambia where the introduction of user fees without concurrent quality improvements or effective exemption practices led to declining utilisation levels, as large proportions of the population experienced reduced access to health care (although these levels may have stabilised over time [32]). Finally, the voice and needs of the poorest within communities were largely ignored within decision-making practices in each country, a failing in terms of the third equity principle used in the study.

This paper seeks specifically to identify the factors that explain this pattern of equity impacts within and across countries, and to draw policy-relevant conclusions from this analysis. Section 2, first, describes the framework used in the analysis. Attention is then given to the three key sets of factors identified as shaping the country experiences: the leadership given to policy development and implementation (Section 3); the contribution of policy design in sustaining relative affordability gains (Section 4); and the interacting problems of policy design and process that failed the poorest within communities (Section 5). Finally, policy relevant conclusions are outlined (Section 6).

2. The analytical framework

Cross-country analysis of experience in developing and implementing health policies is recognised as important in informing broad questions of policy direction as well as implementation strategies [21,33,34]. The analytical framework used both within each country study and in reflecting on the three different experiences is summarised in Fig. 1.

In stage 1 the impact of the community financing schemes on equity was assessed against the study's three guiding principles of equity using available utilisation data, investigations of the experiences of different population groups, especially the poorest, in accessing care and in decision-making, and assessment of the design of the schemes of focus (details presented in [27]).

In stage 2 (the focus of this paper) the factors influencing the equity impacts of the community financing activities in each country, and across countries, was investigated by combining a grounded approach to data analysis with the application of a broad lens through which to filter experience. This lens built on the policy analysis approach of Walt and Gilson [20] and highlighted four broad groups of factors as having potential influence over impacts:

1. contextual factors: the socio-economic context of implementation, the previous condition and financing patterns of the health system, socio-cultural traditions and practices of decision-making;
2. the design of each scheme: its objectives, the nature and level of fees, practices regarding the retention and use of revenue, the existence and nature of an exemption scheme, the structures and practices of community involvement in decision-making;

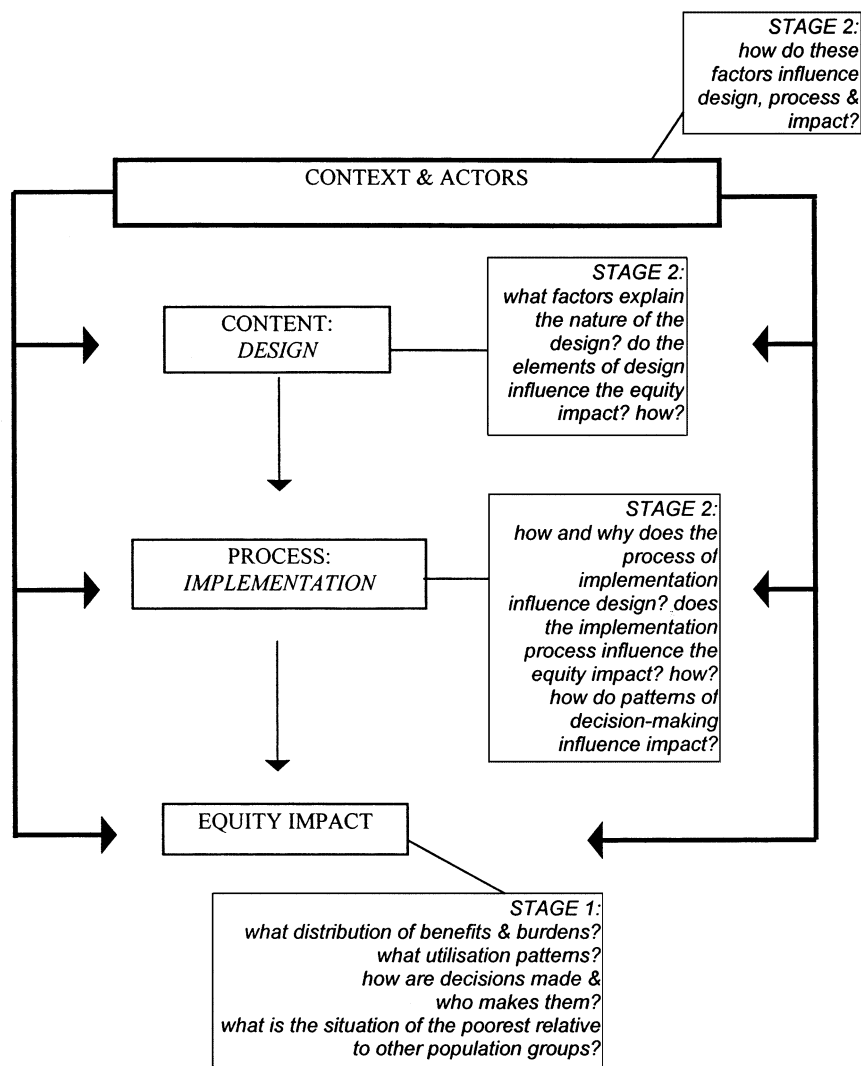


Fig. 1. Analytical framework of the study.

3. the particular processes used in initiating and implementing the schemes: the speed and manner of implementation, and the relative inputs of technicians, service providers and community members in design and implementation;
4. the actors affecting decision-making at all levels of the system (groups within communities, community leaders, service providers, health managers and external donors): their interests, concerns and roles in the activities.

The methods used to gather the data used in this analysis are outlined in Table 1 (see also [22,27]). Document reviews and semi-structured interviews with key informants (policy-makers, programme managers, donor agency representatives) in each country allowed initial analysis of the policy environment and aspects of the process of policy development and implementation. More detailed data on implementation practices were drawn from the two rounds of community inquiry conducted within study sites, that is the commune, within which the primary care facility is located, in Benin; villages served by a BI pharmacy/CHW network in Kenya and districts in Zambia. The first round of these inquiries involved a rapid appraisal of purposively selected sites, in which information about the history and performance of the site was gathered by record review and semi-structured interviews with health workers/managers and a small number of community representatives. In the second round of site visits a wider range of structured interview and qualitative data collection approaches were used in a purposively selected sub-set of the initial sample of sites (see Table 1). Community respondents' (including the poorest in Benin and Kenya) views about their experiences of the services and decision-making processes were identified.

As only a limited number of sites were investigated in each country it is clearly important to be careful in generalising from the study findings. However, investigating the complexity of implementation experience is at least equally as important in informing future policy development as identifying common patterns across a large number of sites. An understanding of how and why equity has been promoted or undermined can, moreover, be better generated by small-scale, intensive case study evaluations than by large-scale, extensive assessments [35]. Qualitative methods are particularly relevant within such an approach: 'Quantitative methods can identify 'how' individuals behave in certain circumstances, while qualitative methods... are better equipped to answer the diagnostic question of 'why' ([36], p. 445).

3. The importance of leadership in effective policy design and implementation

The overall success of the Benin BI activities, evident in the restoration of services in previously ineffective rural facilities, contrasted with the poorly sustained BI pharmacies in Kenya and the equity losses consequent on reduced utilisation in Zambia. What explains these different experiences?

The first explanation lies in the three countries' differing processes of policy development and implementation. Although actors played critical roles in each case, in Benin they demonstrated an ability to shape and mould the interactions between themselves and the other three sets of factors influencing policy change

Table 1
Summary of methods used by phase of study and country

	Benin	Kenya	Zambia
Policy review	Document reviews and key informant interviews (in Zambia, key members of the research team had also been involved in financing debates)		
Rapid appraisal	One commune randomly selected from each of 18 purposively selected sous-prefectures ^a , to provide a sample representative of each of the country's six departments and to cover all of the 'partner' institutions involved in supporting the primary care network (international bilateral & multilateral organisations, and NGOs ^b); semi-structured interviews with four purposively sampled health professionals and six randomly selected members of the community per site commune visit lasted 2–3 days	Two districts purposively selected because among first to develop BI schemes (so longer experience) and areas of most poor health status; 12 sites purposively selected ^c ; six from each district located in different agro-ecological potential zones (reflective of socio-economic status), ten government-sponsored sites of different ages (five from each district) and two NGO sites (one from each district); conducted three focus group discussions with village/pharmacy committee, CHWs and TBAs (traditional birth attendants), using interview guide; semi-structured interviews with chairman, treasurer and pharmacist in each site; collected available health service statistics and revenue data; site visit lasted 1–2 days	Eight districts purposively selected, each from a different province (of which there are nine); districts included fairly even balance of rural and urban areas, areas of different socio-economic status; in one district services run by mission; in six districts, visits included collection of available data on utilisation patterns, and semi-structured interviews with district managers, local government managers and health care providers; for remaining two districts, data on utilisation and staff perceptions collected from parallel study; in each district looked specifically at experiences of hospital located in it and sample of two to four health centres or clinics; 34 facilities of focus; ten hospitals (all levels; three church run); nine urban clinics (eight council run); 14 rural health centres (two mission run); district visits lasted 2 days

Table 1 (Continued)

	Benin	Kenya	Zambia
Detailed case studies	Seven sites purposively selected from initial 18, five 'typical' (i.e. said they were implementing national BI principles) and two atypical (i.e. said they were not implementing national BI principles), on grounds of ease of access to information, quality of information collected, focus on needs of poor; self-administered questionnaires completed by three purposively selected health workers; conducted interviews with ten poor households, 20 randomly selected service users, and undertook four focus group discussions (members of the commune committee ^d , women, young people and village notables)	Seven sites purposively selected from initial 12, including sites from both districts and the two NGO sites, on grounds of level of function and ease of access to information; two household surveys across all sites: (a) random sample of 30 households per site (210 in total) (b) 87 'poorest' households; Participatory rapid appraisal techniques applied including wealth ranking, social mapping, transects in community where pharmacy located in four sites; first round of focus group discussions with community representatives in all sites and second round in government sites only with village health committees ^e ; collection of additional health service statistics and other data	Four sites purposively selected from initial eight districts; semi-structured interviews and focus group discussions with health service users and other community members

^a From a total of 67 rural sous-prefectures (districts).

^b NGO, non-governmental organisation.

^c From a total of 52 in the two districts of focus; there were 237 sites across the country in 1994.

^d The Comité de Gestion de Commune (COGEC).

^e This round of focus group discussions was specifically undertaken to review site experiences following the withdrawal of UNICEF support for the BI programme.

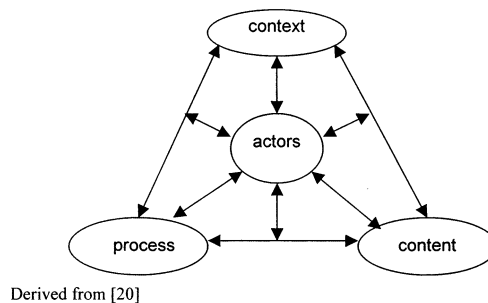


Fig. 2. The mutually reinforcing interactions of BI programme implementation in Benin.

and, in particular, to create mutually reinforcing interactions in support of, and through, implementation (Fig. 2). In Kenya and Zambia, however, leading actors failed to build such interactions and so either did not or could not take action to offset obstacles and opposition.

3.1. Leadership and vision in Benin

The design of the Benin BI programme was rooted in a context characterised by poor economic performance and a deteriorating health system. The government budget allocation for health fell by more than half between 1987 and 1990, leaving total government health expenditure per capita at just under US\$2 [37]. Rural health centres frequently lacked drugs and other supplies and health staff were poorly motivated. Patients using their services had to purchase drugs from distant private pharmacies and few, if any, preventive or other services were provided to the surrounding population.

The Benin BI programme sought, therefore, to build demonstrable improvements in the quality of curative primary care and in the coverage of immunisation services. It built both on the country's diverse range of community financing experiences and on a government decision to allow a district management board, composed of representatives of all sectors, to generate funds locally and decide on their use, rather than returning them to the central government. The WHO/UNICEF Bamako declaration of 1987 then acted as a catalyst for the development of a coherent framework within which to extend a similar financing approach to all government health facilities. The first steps were to establish the legal framework for the activities and to strengthen drug procurement and supply.

Equally important was the early government action to forge 'alliances' [38] with international agencies and non-governmental organisations (NGOs) in support of BI activities. The Benin UNICEF country office (BCO) was, for example, a key external partner for the Ministry of Health and supported the first steps in management training for community committee members through its expanded programme of immunisation (EPI). Subsequent support for BI activities was provided through the World Bank's project for the development of health services

(1990), whilst bilateral donors and NGOs supporting financing activities in different parts of the country funded drugs, equipment, renovation, training, supervision, and the development of tools such as clinical pathways for diagnosis. Although government sought to promote some degree of coherence between these external partners' activities, it also provided an environment in which they were encouraged to experiment and to feed back new design and management ideas into the BI programme. The relatively gradual growth in the numbers of BI-supported health centres (increasing from 44 in 1988 to 250 in 1992 [39]) also enabled lessons from experience to be fed back into the programme.

In addition, both the programme's design and the manner of its implementation generated wider support for it. The commitment and enthusiasm of local-level health workers was, for example, partly promoted through the provision of direct benefits (such as a financial incentive for each fully immunised child) as well as through overall service improvements. These improvements in turn promoted community support of the programme, as did their direct involvement in decision-making; and with local-level ownership and enthusiasm came the continued support of government and external donors.

Overall, therefore, a virtuous cycle of policy change was founded on an alliance between a range of actors. They either shared the common vision underlying the scheme design or were persuaded of its relevance through successful implementation. At a technical level, Knippenberg et al. [40] identify three strategies as particularly important to the development of the Benin BI activities: analysis of best practices, applying lessons learnt from earlier national and international experiences; translation of best practices into a coherent set of operational strategies and management systems through experimentation; adaptation of the strategies through a bottom-up approach involving community participation, peer support, networking and regular monitoring. But, finally, the leadership of the Ministry of Health was critical in sustaining the implementation process over time as 'sustainability depends on the internal capacity to manage the process of change' ([38] p. 24).

3.2. *Actor failure in Kenya*

The development of the Kenyan BI programme was, like that of Benin, rooted in the earlier community financing experiments of NGOs whilst the harambee tradition, a form of community financing for local development activities, provided evidence on the potential role of community-based charges [41]. Again as in Benin, Kenya initially extended its BI activities through a fairly gradual increase in numbers of BI-supported pharmacies, to try and ensure that the increase in sites could be adequately supported. Policy guidelines were also developed to support this expansion, and were allowed to evolve as new lessons and approaches were developed. The initial successes of the programme only bred further support for the programme, as parliamentarians saw advantages for their own constituents at an early stage and began pressing for the faster development and spread of the approach. The number of BI pharmacies, thus, rose from one in 1989, to three in 1990, to 84 in 1992 and to 237 (including NGO-supported sites) in 1994.

However, the Kenyan BI programme, unlike its Benin counterpart, was not adequately rooted in the context of its development. The programme sought specifically to extend primary health care coverage to previously under-served areas on the flawed understanding that the most critical factor undermining the effectiveness of the Kenyan primary care network in the late 1980s was poor coverage [42]. Yet by the late 1980s this network suffered as much from quality weaknesses as from poor coverage [41,43], due to the biased allocation of health system resources towards urban areas and growing balance of payment problems [44]. Weaknesses in the drug supply and distribution system thus bedevilled the existing primary care network and, ultimately, the BI pharmacies. At the same time, the programme failed to build on wider international experience with CHW programmes [45] and so suffered similar problems—such as communities' poor perceptions of the low level of care offered by CHWs, CHW attrition and a failure to provide support to CHWs through the broader health system.

The Kenyan Ministry of Health, like its counterpart in Benin, played an important role in the programme's initiation. Its delegation attended the 1987 WHO/UNICEF Bamako conference and officials working with the Ministry of Health's national primary health care unit were subsequently involved in shaping BI activities, including developing training programmes and supervision manuals. However, the Kenyan UNICEF Country Office (KCO), to which a key member of the Ministry of Health Bamako delegation moved shortly after 1987, remained the stronger partner. Together with a few bilateral agencies, the KCO funded all the costs associated with pharmacy-based activities, even including the non-salary costs of the officials working within the national primary health care unit, as well as being the sole distributor of drugs and bed nets to pharmacies. The significant dependence of BI activities on UNICEF support explains why they were severely disrupted by the suspension of this support in 1995/96 during a period of reorganisation within the UNICEF.

It also suggests that, in practice, the UNICEF KCO drove the development of the BI programme. Thus, it was the KCO officials who were primarily responsible for the frequent introduction of new ideas, such as changes to the service package, into the BI programme. It was also the KCO that refused to consider basing drug procurement systems on the existing national Essential Drugs Programme (EDP) and instead sought to establish an alternative distribution approach using NGOs. However, as these innovations were generally based on 'what might be good to do' rather than resulting from reflection on experience or the changing context, they were often flawed. The decision to ignore the EDP, for example, partly reflected the economic and management difficulties faced by this programme but supporting NGO distributors was equally problematic and did not survive the withdrawal of UNICEF's financial support. This failure to establish sustainable drug supplies was a critical weakness of the BI programme.

At the same time, Minister of Health policy-makers were responsible for isolating the BI programme from the wider developments that could have supported it by following the common pattern of establishing parallel management structures based on donor funding directed at specific purposes [46]. Run from the central primary

health care unit as a vertical programme and only weakly tied to the existing health facility network, there were few links between BI pharmacies and nearby primary care facilities. These facilities simply had no funds for, and no interest in, the activity. At a national level the programme was never given government recurrent budget support and was kept separate from the management of the broader cost-sharing programme that developed over the 1990s. As the first level primary care facility remained free, the failure to link up the two systems of charging not only created the potential for perverse incentives over utilisation patterns [47] but also prevented BI activities from being strengthened through the cost-sharing programme.

Ultimately, therefore, its two central actors, the UNICEF KCO and the Ministry of Health undermined the Kenyan BI programme. The design of the programme, its evolution over time and the support it received were simply not adequate to allow effective implementation. The imaginative approaches developed within it remained experiments that were not sustained in the face of changing circumstances.

3.3. *The contradictions of implementation strategies in Zambia*

The Zambian experience was clearly very different from that of the other two countries because financing reforms took second place to decentralisation, and so were both given less consideration by policy-makers and also subjected to other policy changes. Initiated after the election of the first democratic government in 1991, the decentralisation programme was intended to address the critical weaknesses of the health system by strengthening management and quality.

By 1995, the time of this study, the reforms had primarily focused on the appointment of district health management teams (DHMTs), as well as training and systems development to strengthen their capacity to manage the budgets allocated to them. Despite the importance of community participation in decision-making, less consideration had been given to the appointment and support of district health boards (to be a governance structure working with management teams), area boards (to act as a link between the population and district boards) or neighbourhood health committees (to act as a forum for community-based decision-making, with representation on health facility management committees). Few of these bodies were functioning in the districts visited in this study. Following the guidance of the 1992 National Health Policy and Strategies document [48] fees had been introduced in some facilities, but the extent and level of fees varied considerably between districts as did revenue retention and use practices.

A major review of the nature and consequences of the Zambian reform implementation strategy undertaken in 1996 identified the strong leadership and pragmatism of the reformers as being fundamental to the achievements in district development that had by then been secured [49]. Yet at the same time, it suggested that the incremental nature of the strategy and delays in tackling ‘difficult-to-win’ problems, such as the development of a national drug policy, resulted in a piecemeal package of reforms and generated uncertainty that undermined imple-

mentation (Section 4). In particular it suggested that there had been an ‘apparent ambivalence... to the whole issue of financing, which contrasts sharply with the clarity and sureness of touch which has characterised many other aspects of the reform process’ ([49], pp. 23–24). Comparison of the Benin and Zambia experiences emphasises this point. Whilst an incremental process was adopted in both countries, in Benin this was rooted in a clearly specified policy design as well as implementation and monitoring procedures that allowed experience to be reviewed and fed back into policy development. In contrast, the purpose and design of financing reform in Zambia was unclear and the general lack of monitoring precluded lessons being learnt from the process of reform [49,50]. Tackling such problems requires stronger leadership and vision in the development of financing policy change.

4. Strengthening management through fee introduction: the contribution of policy design to equity gains

The second explanation for the differing equity impacts of the three countries’ BI activities lies in seven key differences in the design of the financing activities investigated in the three countries (Table 2).

1. The Benin BI programme was rooted in an enabling legal and policy framework. New legislation permitted the sale of drugs within health facilities, the retention of revenue by the collecting facilities and decision-making on revenue use by community management committees. The overall policy framework complemented legal change and guided the coherent development of BI activities in different areas of the country—for example, specifying practice concerning fee levels and revenue use (point 2) and the tasks and functions of community decision-making committees (point 6).

Although similar actions were taken in Kenya and Zambia, they did not provide such clear guidance for implementation in either country. A policy framework [51] was only established in Kenya after 5 years of experience, whilst its adaptation over time simply generated uncertainty around key aspects of practice. Not surprisingly there was considerable variation across Kenyan sites in fee-setting practices and levels (point 2), the implementation of income generating activities and the extent of community consultation (Section 5). Zambian fee-related practices also varied between districts (point 2), largely because, as the health managers and providers interviewed in this study indicated, the various circulars and verbal official announcements supposed to guide implementation were commonly perceived as confusing.

2. In Benin fee levels for curative care (in the form of a drug rather than a consultation fee), antenatal care and deliveries were established by national managers and community committees were not allowed to adjust them. The prices were based on the cost of drugs used for complete treatment with a mark-up, varying by 20–300% between treatment types. This mark-up generated sufficient revenue to cross-subsidise immunisation outreach activities (which were free of charge) and curative care for children, and to cover the costs of drug supplies and staff

Table 2
Key elements of policy design

Design element	Benin	Kenya	Zambia
1. Legal and policy framework	A clear framework promoted coherent development across country	No legal framework; guidelines developed late and remained flexible, generating uncertainty	Inadequate legal framework and confusing guidance
2. Fee design and fee setting practices	Nationally set fee levels ensured adequate revenue generated to allow expected cross-subsidisation of other activities	Weak national guidelines adapted by VHCs ^a on basis of broad assessment of local circumstances	No national guidance and so DHMTs ^b made own decisions on unclear grounds
3. Funding sources supporting service provision	Government and donor support provided to primary care facilities to complement local revenue generation	Total reliance on donor funding despite local revenue generation	Significant reliance on donor funds within health system as a whole, and so at district level
4. Strengthening drug availability	Deliberate parallel action taken to improve drug availability	No action to improve drug supply; few drugs available in basic package of care offered in pharmacies	No action to improve drug supply
5. Strengthening clinical skills	In-service training and supervision deliberately strengthened	Little action	Little action
6. Supporting local management structures	Community committees given clear guidelines, specific training and regular supervision	VHC guidelines applied flexibly in practice and key roles undermined	DHMTs trained but given weak guidance on roles
7. Strengthening information systems	Clinic information system strengthened and used in monitoring activities	Steps to develop community-based information system weak and not sustained	Focus only on district financial information system

^a VHC, village health committee.

^b DHMT, district health management team.

incentives. In practice, the revenue generated through community contributions covered, on average, nearly 30% of total recurrent costs of the primary care facility [52].

Fee design and fee-setting practice were quite different in Kenya and Zambia. The rule of thumb established by central managers to guide drug and bed net fee levels in Kenya (two to three times the purchase price) was not based on careful analysis of revenue needs, and village health committees (VHCs) were anyway allowed to adapt national guidelines on the basis of local circumstances. Price levels varied, on average, by 400% across drug items between the BI sites assessed. The lack of a guiding policy framework in Zambia was similarly reflected in the considerable variability in health centre price levels between districts: rising from 200–300% for outpatient fees between rural health centres to 400–500% in outpatient fees between urban health centres. The revenues generated were barely adequate to re-supply drugs and nets in Kenya and made negligible contributions to total operating costs in Zambia.

3. Within the Benin BI programme's funding package government and donor support complemented the revenue generated by fees [52]. Government contributions, representing about one half of total facility recurrent costs, fully covered the costs of salaries and partially covered the costs of supervision, whilst donor contributions, representing less than one-quarter of total facility recurrent costs, supported the cost of transport, training, cold chain requirements and building renovation and maintenance. At the same time, some steps had been taken by the mid-1990s to reduce reliance on donor funding. For example, external funding for fuel for immunisation outreach services was being gradually withdrawn as health facilities began to cover these costs fully from their own revenue surpluses [40].

In contrast, the Kenyan BI programme's almost total reliance on external funding led to the severe disruption of its activities when the UNICEF KCO withdrew its support in 1995/96. Whilst the Zambian health system's reliance on donor funding [53] made it similarly vulnerable to changing donor priorities, donors were broadly in support of the reform programme at the time of this study.

4. The Benin BI programme's efforts to tackle low quality within primary care facilities was supported by improving drug availability through parallel action to promote essential drug lists and use international tendering procedures.

In direct contrast, no steps had been taken by the time of this study to develop an effective drug procurement and supply system in support of BI pharmacies in Kenya or the wider health system in Zambia. The weaknesses of the Zambian system meant that fees were introduced without any concomitant improvement in drug availability at health facilities. As a drug, rather than consultation, fee was levied, patients complained that they effectively had to pay twice, once for consultation in the public facility and a second time in purchasing drugs from other sources [54]. Perhaps not surprisingly, the initial evidence suggested that utilisation levels fell considerably after fees were introduced—for example, by 40–100% in selected clinics in Lusaka Urban District [22,55]. In Kenya, focus group discussions with VHCs held after UNICEF had stopped supplying drugs and nets to pharmacies indicated that pharmacies were then experiencing major problems in drug

availability and had turned to local, private sources, despite concerns about the quality of their supplies. In practice, therefore, the access gains achieved by locating pharmacies in previously under-served areas were undermined by the failure to develop a secure, local, drug procurement system. In addition, as the benefit package offered through the programme included only first aid care, and little access to referral services, community members still had to use other sources of care for some, particularly more serious, conditions, with the consequent cost implications. In the household surveys undertaken within this study, the limited range of drugs was the most frequently identified community criticism of the BI activities.

5. Within the Benin BI programme, various actions were taken to strengthen the clinical skills of primary care staff. They were given in-service training to promote rational prescribing of drugs, the use of clinical pathways (such as flowcharts) in diagnosis and risk screening in the provision of care to pregnant women. Efforts were made to strengthen supervision practices, including the development of a tool to help facility staff and supervisors monitor coverage and identify and address the obstacles to improved coverage. Fee revenue was also partly channelled into supporting regular supervision, through a flat-rate levy of 2500CFA on all health centres paid to the local Direction Departementale de la Santé (i.e. regional health office). As a result, nearly all (99%) of the health staff interviewed in this study indicated that their health centre received financial, material and technical support from higher levels (although another study identified weaknesses in supervision practices [40]).

In contrast, clinical skills' development was weak in both Kenya and Zambia. Indeed, at the time of this study, the Zambian health reforms explicitly focussed on the development of management rather than clinical skills. In Kenya, data collected from household surveys in case study sites indicated that the limited skills of CHWs was the second most frequently identified community criticism of the BI pharmacies. Subsequent in-service training rarely followed the short-period of initial training given to CHWs, and little supervision was provided. Pharmacy staff at only one out of the 12 sites visited in this study indicated that they had received support from the neighbouring health facility whilst national supervision was, again, ultimately undermined by the lack of secure funding for BI activities.

6. Local management structures were developed in Benin by clearly defining the tasks and functions of community committees, and providing relevant training for their members. The Comité de Gestion de Commune (COGEC) was given responsibility for managing drugs (receiving drugs, stock control, being informed on drug orders made by staff), managing funds (banking money and keeping one of the two keys to the facility safe), employing and paying local workers such as drug dispensers, and deciding on how to use money. Clear guidelines, training and supervision also promoted common practices across communes: thus, 74% of the health workers interviewed in this study indicated that revenue use in their facility followed policy guidance.

Although guidelines were established to guide the establishment and functioning of VHCs in Kenya [51], the establishment, size, composition and activities of the committees varied considerably between sites. Their revenue management function

was anyway undermined by UNICEF's continued provision of financial support and drug and bed net supply. Rather than being used to support BI activities the revenue generated by fees largely remained in bank accounts, earning interest but losing value, and sometimes being misused. In Zambia although community committees had not been established at the time of this study, district management teams had been strengthened using an on-the-job training approach, rooted in plan development and performance monitoring. However, as already noted, the guidance district managers received on fee-related issues was often confusing. At the time of this study no attempts had been made to develop the management skills of health facility staff or community committees.

7. The management information system was strengthened in Benin by linking it to local decision-making concerning health care provision, resource management, supervision of quality of care and monitoring coverage, drug use and cost recovery [38]. Steps were taken to involve both health staff and community members in simplifying the system, so increasing their understanding of the information available. This also promoted transparency at a local level.

Similar efforts to strengthen the Zambian district financial information system, through a process involving district management staff, were not, however, extended to other relevant management information or to the health facility and community level. A local-level information system developed to record basic community statistics (such as births, deaths, pit latrines constructed etc.) within the Kenyan BI sites, the 'chalk and board' system, was simply not sustained after the withdrawal of UNICEF support.

Overall, this cross-country comparison of design issues emphasises that the Benin BI's promotion of relative affordability gains was not simply a function of levying fees. Rather, as Knippenberg et al. ([40], p. 42) comment, 'while the cost sharing mechanism initially seemed revolutionary at the national and international levels, the linkage with strengthened clinic management, staff quality and morale, drug supply and relations with the community as a whole were visibly more important factors in revitalising' the health centres. The management change associated with fee introduction was, ultimately, the key to improving the service quality and coverage of primary care facilities in Benin, whilst management weaknesses undermined the Kenyan and Zambian financing activities.

5. Failing the poorest: the interacting problems of policy design and process

Despite its other successes, the Benin BI programme shared a common equity problem with the financing activities examined in Kenya and Zambia: all three failed to protect and benefit preferentially the poorest within communities.

A critical factor underlying this equity problem was the failure to establish the protection of the poorest as a clear goal of the activities. The Benin BI programme sought, rather, to improve quality of care, and the Kenyan programme, to support both improved access to drugs at community level and health-promoting community development actions. Whilst the Zambian reforms sought broadly to improve

equitable access to cost-effective health care, fees were introduced with the specific goals of creating community ownership of the health system and raising revenue. Given these goals, the subsequent design and implementation of the relevant financing activities in all countries simply failed to recognise and tackle the specific needs of the poorest. For example, neither Benin nor Kenya took action to offset differences in revenue generating capacities between communities of 200% annually (Benin) and 900% monthly (Kenya). Although not fully investigated, there were signs that more wealthy communities generated higher levels of revenue, and benefited from greater service improvements, than less wealthy communities [27,38].

Zambian action to implement a resource re-allocation mechanism between districts may, however, provide lessons for other countries on this issue [55].

The three design problems promoting intra-community inequities are highlighted in Table 3, together with the key factors explaining them. However, for each issue and in each country there were important features of context that influenced practice concerning the poorest, and that cannot easily be off-set by actions within the health sector alone. The health needs of the poorest and their ability to contribute to local decision-making clearly require much broader action if the socio-economic and socio-political roots of these problems are to be effectively addressed.

5.1. Ignoring financial barriers

A critical gap in the design of all the schemes of focus was the lack of an effective means to protect the poorest from the burden of payment. Zambia was the only country in which guidance on who to exempt was established by the central Ministry of Health. In Benin and Kenya the decision of whether or not to protect the poorest groups from payment, and how, was left to the local-level management committee on the grounds that it could best make case-by-case exemption judgements. Yet in all countries the weak guidance on who to exempt and how to provide for the poorest groups' needs was commonly identified by interviewees in these studies as a reason why exemptions or reduced prices were usually not offered.

Exemption practice in all countries was, however, primarily undermined by the conflict between financial sustainability and protection of the poor. Even in Zambia, where revenue generation was not an explicit goal of the fee system, providers interviewed in this study complained that if the exemptions of policy were applied fully it would prevent revenue generation. In Benin the need to recover costs in order to maintain the quality of services was the most important reason given by service users for why protection was not offered to the poorest, and was also one of the reasons given by health staff. 'More and more, social assistance and the desire to help the sick who are targeted by the health services is undermined by profit' (focus group discussion, young people). The pre-eminence of financial sustainability was almost inevitable given the programme's insistence on generating revenue to promote service improvements. The training and supervision offered to primary care workers and community members stressed their responsibility to raise

Table 3
Explaining intra-community equity losses across countries

Equity losses	Explanatory factors	
	Context/actors	Design/actors
No protection for poorest	Benefiting majority poor is the established and accepted equity goal; communities may not wish to implement protection for poorest (prices affordable, danger of leakage to non-poor); weak management capacity	Primary goal of financial sustainability; unclear or no guidance on who to exempt; vague or weak exemption mechanism; no other mechanism to tackle financial barriers; poor have no voice (see below)
Limited benefit strategies	Community demand/preference for curative care; low cash incomes limits revenue generation possible; weak management capacity	Limited health promotion benefit packages; curative care dominance; limited curative care package (Kenya); target group primarily defined in disease terms (at risk); limited inter-sectoral collaboration; poor have no voice (see below)
Not listening to the poorest	Characteristics of poorest; socio-cultural realities of local communities	'Community participation' seen as strategy of implementation not objective in its own right; formal guidance that promoted exclusion of poorest; no mechanisms to promote inclusion of poorest
		Top-down and inconsistent implementation process undermines authority of local actors to offer protection; limited training and supervision to develop relevant management capacity
		Top-down and inconsistent implementation process undermines authority of local actors to widen benefit package; training and supervision to develop relevant management capacity; limited consultation within community
		Socio-cultural realities dominate practice of implementation; implementation through local structures promotes exclusion of poorest; top-down implementation undermines local ownership and decision-making by local structures

revenue and so both groups expressed a concern about the need to avoid making a loss and to ‘balance the books’. ‘We do not see any sense of equity in the decisions taken about the health centre. Perhaps the health workers and the COGEC members have not been sensitised to this issue’ (focus group discussion, village leaders). Similar practices in Kenya may also have influenced decision-making despite external support for the provision of drug and bed net supplies.

Given the dominance of financial sustainability, it is perhaps not surprising that little consideration was generally given to other possible strategies for addressing the financial barriers faced by the poorest. Yet in three Kenyan sites, VHCs had been encouraged by the DHMT to consider imaginative ways of addressing the issue, such as an approved list of those entitled to exemptions and a special bank account to cover the costs of care for the poorest. Some NGOs in Kenya and Benin had also developed broader protection strategies. In one Kenyan site, a community solidarity fund (which was set up and funded separately from the health care fee system) was used to pay for the health care provided to the indigent. And in Benin, the poor were protected through mechanisms such as reduced prices and a pharmacy providing free drugs to the poor.

The failure to develop such innovative protection strategies in most communities may itself reflect the limited authority given to local decision-makers within the BI programmes. In both Benin and Kenya the composition and tasks of community committees were determined within fairly limited parameters by higher levels. In Benin, for example, they were neither allowed to determine price levels nor given much freedom in terms of revenue use. There was, in effect, limited management flexibility to respond to the financial needs of the poor, as highlighted in discussions with COGEC members.

“...the COGEC has regulations to respect, which considerably limit its field of action. Drugs must be disbursed at a small cost, we have no authority to distribute them freely and the stocks must be replaced.”

“...the COGEC is ruled by regulations which deprive it of its autonomy.”

Although Zambian providers were given authority to offer specified exemptions, the guidelines were implemented differentially between districts because of a failure effectively to communicate them either to health staff or the community at large. Indeed, guidance on exemptions was only provided after fees had been introduced and been negatively received by the population. Thus, staff at one rural health centre indicated that no official communication had been received about exempting under fives or the elderly and so ‘being just a rumour [they] did not exempt the two from paying’. Many others complained that policy was changed often and that the changes only came as verbal pronouncements. In 1994 the Deputy Minister of Health had even announced that nothing should be considered official until written notification had been received from the permanent secretary, given the number of verbal pronouncements being made from the central level.

Ultimately, the voice and views of the poorest were often simply not heard or considered in decision-making on price structures and levels. In Benin, for example, price levels were largely thought to be acceptable by the general population. Yet whilst only 1% of the community-level key informants felt that prices should be related to socio-economic status, 62% of those interviewed from the poorest group said they would like to obtain exemptions and 87% said current price structures deterred some people from accessing services.

5.2. Inadequate development of pro-poor benefit strategies

The importance of benefit strategies to equity gains is shown, for example, in the contrast between the relative affordability gains of fees with quality improvements in Benin and in the decline of utilisation rates that appeared to be associated with the introduction of fees without quality improvements in Zambia. The contrasting experiences of Benin and Kenya also suggest that the nature of benefit strategies influence the extent to which the poorest preferentially benefit from health care. The broader health promotion and development strategies pursued in Kenya had the potential to generate equity gains by cross-subsidising the spread of benefits within communities beyond the group of health care users. Although the cross-subsidisation of immunisation services in Benin did generate some similar gains for the health vulnerable groups of mothers and children, the dominant focus on curative care channelled most benefits only to those using these services. Yet financial barriers continued to constrain access to these benefits by at least some of the poorest [38,56].

The potential benefits of the broader Kenyan benefit strategy were, moreover undermined by the limited development of such activities. In practice, only four sites initiated income-generating activities (IGA) and of these, only one site supported activities through an IGA that spread benefits widely within the community (the construction of a road and a school). In other sites the IGAs generated benefits for only a limited group, sometimes as incentives to CHWs. Even relative affordability gains were constrained in Kenya by the limited package of care provided, as it required continued use of more expensive and more distant health providers especially for more serious, and potentially expensive, conditions. These weaknesses of the Kenyan BI programme reflected four main factors:

1. The programme adopted a curative care 'entry point' in initiating its activities, with the intention of building broader primary health care activities over time. However, the pharmacies came to be seen by the community almost solely as places that sold drugs and bed nets, perhaps reinforcing a general preference for curative services and undermining the intended role of the BI programme in health promotion.
2. It is always difficult to raise revenue at primary care level: price setting has to balance the potential impact on demand with the generation of funds [12]. In practice, the revenue generated within BI sites was barely adequate to re-supply drugs and bed nets and no site visited in this study had generated enough revenue to give CHWs incentives for providing preventive services, or broader development activities.

3. To offer broader benefit strategies it is necessary that local management committees are trained in a wider range of skills and better supported, than in more narrowly focused approaches. Yet the skills and training needed to support the diverse range of IGAs initiated were simply not available within the BI programme, and would have required inter-sectoral collaboration.
4. Community members expressed strong concern that decision-making around IGAs, in particular, was in the hands of the VHC and/or CHWs rather than the whole community in four out of the ten government-supported BI sites visited in this study.

“We find ourselves at a crossroads now because there is nothing we can ask the VHC about this project because we were not part and parcel of its inception.”

“We cannot comment on the IGAs because even at present none of us knows the number of bags of maize which were brought to be sold.”

IGAs may, therefore, have become simply a way of generating benefits for a small elite rather than promoting health and development activities of benefit to the wider community.

5.3. *Not listening to the voice of the poorest*

The failure to hear the voice of the poorest reflected a broader problem: there were signs in all three countries that the community at large, let alone the poorest, did not feel involved in decision-making. In some Kenyan BI sites, activities were initiated by a specific group or person (such as pre-selected CHWs or the chief) and this influenced the wider community's perception of who 'owned' the BI pharmacy. Even when elections were undertaken without the overt influence of the local administration, the chief's real influence would be understood by the community and he, or an assistant chief, might be present at the baraza (chief's assembly). The very fact that the baraza was seen as a key instrument in initiating BI activities underlined the potential for the chiefs to manipulate the activities to their own ends. In one case, a chief took control of the dairy cattle owned by the BI for 'safe keeping' and then declared the animal his, in spite of opposition from community members. In contrast, there were other instances when the district BI co-ordinator (a DHMT member) directly involved himself in local decision-making concerning the appointment of office bearers and price levels. Whilst perhaps undertaken to promote 'good practice', this may also have undermined local ownership. Not surprisingly, community members often thought that 'the project' belonged to the VHC, the BI co-ordinator, the Minister of Health or UNICEF. Similarly in Zambia, although cost sharing was introduced ostensibly with the aim of promoting partnership, few community members felt they could participate in decision-making or influence practice. One analysis of the Zambian experience expressed concern that decision-making had been taken over by some health staff and so had discouraged the community [49].

As noted, in all three countries key aspects of implementation remained effectively controlled by higher levels and so precluded opportunities to listen to the poorest. All community-based key informants interviewed in Benin, therefore, stated that the health authorities set prices. In Kenya, the revenue generated largely remained stored in bank accounts whilst community bodies awaited instructions on when and how to use them. Only when UNICEF deliveries of bed nets and drugs failed to arrive did communities begin to think they could use the revenue they had collected. In Zambia, although decisions concerning price levels, exemptions and revenue generation were being taken at district level, there were also signs that the district sometimes blocked decision-making by lower levels on these issues. Thus, in six out of eight districts visited in this study, facilities were required to bank fee revenue at the district level—leading to some confusion about how the revenues could be used and who could decide on their use. The lack of clear guidance only exacerbated the issue: guidelines requiring that a proportion of revenue be retained for use by individual facilities were drafted and verbally communicated to district managers, but never signed and given official status.

The policy guidance implemented through these top-down practices sometimes directly excluded the poorest. Thus, in Kenya, VHC members and CHWs had to be literate and the selection of both groups had to occur through the baraza. Yet 78% of the poorest households surveyed in case study sites had not attended a baraza in the previous year, compared to 43% of those surveyed in the initial survey.

“The vulnerable members do not get an opportunity to be a CHW or join a VHC because... that selection is one only for the fittest members in society.”

“The poor do not take part in the decisions regarding exemptions because they do not take part in meetings.”

Clearly, however, the diverse range of personal and material factors that characterised the poorest in all countries [27] are likely themselves to have had a marginalising effect on their role in the community. The extreme poverty from which the poorest suffer inevitably places an enormous burden of survival on them and may simply prevent them from engaging in any voluntary activity. Women may be most excluded from decision-making because of deep-rooted beliefs about the traditional roles of men and women and so, despite policy guidance, the VHC chairperson was a man in all Kenyan BI sites visited.

Perhaps the tendency towards top-down implementation approaches was inevitable in all countries. The problems were defined as technical in nature, the technicians played a dominant role in generating solutions, the traditional decision-making practices of most communities and public sectors were hierarchical and external, international agencies played a strong role in supporting these activities. Certainly, despite stated intentions, an appropriate balance between central level control and local decision-making seems never to have been achieved. Some decisions, such as who to exempt, were left to the community in apparent reflection

of the international view that this was the most effective way of identifying and addressing some community needs. However, this approach ignores the clear pressures to focus on other priorities at the expense of the poorest, as well as the socio-cultural and political realities of communities. In addition, the practice of implementing change in all three countries gave only limited roles to these local decision-making structures and consistently excluded both direct and indirect consideration of the voice of the poorest. Only in sites supported by NGOs, where special mechanisms had been established to address the needs of the poorest and the parent organisation had taken responsibility for providing funding, were these mechanisms implemented effectively. Overall, therefore, the community decision-making bodies created to strengthen accountability by giving a 'voice' to the community often did not appear to serve the interests of the poorest.

6. Conclusions and recommendations: meeting the needs of the poor and the poorest

6.1. Strategy is always important

The three-country studies all illustrate the critical importance of leadership and strategy to the effective implementation of policy change. Managing such change requires both political skills, to develop and mobilise support, and technical skills, to inform and guide the reform process [57–59]. The careful design of reforms can aid implementation by reducing the potential for confusion or conflict by stating clear goals, outlining simple technical features and establishing clear implementation steps. Within a clear guiding framework, incremental approaches then allow capacity for implementation to be developed, give implementors the flexibility to learn from experience and enable support for change to be developed.

The continual adaptation of reforms in pursuit of goals is also only possible if there are sound procedures for monitoring and evaluating experience [57,58,60]. For pro-poor policies it is particularly important to monitor the impact of policy on the poorest. Dis-aggregated data are essential for this task. For example, it must be possible to identify and compare the utilisation of different population groups as well as to track changes in utilisation over time. This study has also highlighted the usefulness of looking at various aspects of equity, and the interaction between them, as well as the need to understand why and how change is brought about—not only what change is achieved.

6.2. Sustaining the potential equity gains of community financing schemes

The country experiences reviewed here also suggest that the key factor in sustaining the potential relative affordability gains of community financing activities is to use the introduction of fees as a policy lever for strengthening management. The key, interacting steps required to ensure these gains include:

- establishing a clear design that includes local retention of most revenue and cross-subsidisation of a limited range of preventive services;
- developing a legal and policy framework enabling implementation;
- ensuring that parallel action is taken to support implementation-in particular, reforms to improve drug availability and to support decentralised decision-making;
- providing clear and detailed guidance on pricing practice and revenue use;
- providing management and clinical training and supervision for health facility staff, possibly supported by a financial contribution from each facility;
- encouraging health facility staff to monitor local health facility performance;
- involving local community structures in decision-making with appropriate guidance and support;
- generating in-country support for change through incentives and sustained improvements;
- maintaining government financial support for at least the salaries of staff and using donor funds as flexibly as possible to support the overall approach;
- adopting a gradual but progressive implementation process.

6.3. *Seeking to meet the needs of the poorest*

However, the experience of all three countries highlights the difficulty of establishing effective exemption mechanisms to protect the poorest from payment, especially within systems seeking to promote financial sustainability.

An alternative approach, proposed by respondents in both Benin and Kenya, is to establish a separate ‘community solidarity fund’ which can fund the use of care by the poorest, alleviating the tension between financial sustainability and concern for their needs:

“To better care for the impoverished and vulnerable, the political authorities must count the indigent. The state must, moreover, give the health centre a special drug supply to care for the impoverished and vulnerable who don’t have support.” (Benin focus group discussion, young people)

A first step would be to develop mechanisms for determining who should be given support. Drawing on the 1992 Zambian experience of drought relief procedures, Booth et al. ([54]; see also [61]) suggest that local, democratically elected committees could be strengthened by NGOs in assessing each household within the catchment area of health centres and determining which should be exempted. The approach has some similarities to that of the Thai low income card scheme which brings local leaders and health workers together to determine on the basis of a nationally-determined income threshold who within a community should be allocated a card entitling them to free care. Over 15 years of implementation experience has shown that such an approach can be implemented relatively effectively [62]. de Kadt and Tasca [63], similarly, propose a geographic targeting approach based on

identifying vulnerable groups by living conditions, rather than income, through a process that uses both available technical information, such as health statistics, and the knowledge of the local population. They suggest that health interventions, and inter-sectoral action, should then be directed to these target populations in response to their worse access to care or experience of a particular health problem.

Although there are no easy options in meeting the needs of the poorest, the experiences examined here suggest that the following actions are always important to consider:

- maintaining government and donor support within an overall financial plan for the health sector, so that the full burden of financing, and especially the burden of financing necessary support, is not left to communities;
- the creation of local decision-making structures which try to take into consideration the needs of the poorest by specifically seeking representation from civil society groups such as churches and NGOs, women and others, and by procedures which allow broader views to be heard (e.g. community-wide meetings, specific attempts to hear the needs of the poorest);
- developing broad approaches to targeting which involve local people working within central guidelines, and which are managed and funded separately from the local revenue generation mechanism;
- developing benefit packages broader than curative care to ensure the wide dispersion of benefits within the community (recognising the particular importance of strong local-level administrative capacity);
- a package of training and supervision which strengthens local management practices and emphasises the importance of addressing the needs of the poorest;
- a monitoring approach, perhaps building on a targeting mechanism, which allows changes in the situation of the poorest to be identified and fed back into health service planning and local decision-making;
- an appropriate balance between local and central decision-making.

The last issue is possibly one of the most critical and is also emphasised by wider decentralisation experience [64]. Rather than simply leaving protection of the poorest to communities, governments need to provide financial assistance, guidance and appropriate support to communities in this task and in promoting inter-community equity. By themselves community financing schemes can do little for the poorest, instead much broader action, backed by political support, is required.

6.4. *The continuing debate*

Ultimately, however, the nature of the equity goal established to guide any health programme's development will influence the equity gains it actually promotes. Whose views and values should underlie the selection of this goal? Some argue that the concern for the poorest groups is imposed on African cultures by external agents [65]. Carrin, thus, ([66], p. 186) suggests that:

“...equity does not normally seem to be perceived as a priority at the outset of a community financing scheme. One of the reasons is that feelings of interfamily

solidarity may be rather weak so that the population may resist the implementation of certain equity rules in a financing scheme... Greater equity should be kept as a long-run goal. Schemes are invited to monitor equity and to move gradually towards this goal.'

However, during focus group discussions undertaken in these studies community members expressed concern for the poorest as well as the broad community, and recognised the difficulties faced by the poorest in accessing fee-paying care:

"Equity requires equality of rights for all at the health centre with, nonetheless, some priority for the worst sufferers and the children." (Benin)

"The poor should be chosen as leaders of the project as well so that they can speak on behalf of other poor colleagues about their requirements." (Kenya)

"Equity in health care means that everyone, whether they are rich or poor and whatever ethnic group they come from should have access to health care when they need it... Equity is not possible because every intervention has its own price and those who have no money dare not even come to the health centre." (Benin).

Although an inadequate analysis, these community voices may be suggesting that strategies to promote equity must achieve gains for the majority poor and the minority poorest. Further research on understanding how communities perceive equity and how to achieve it would be an important foundation for future policy development.

Acknowledgements

This three-country study was undertaken by an international research team involving: the Institut Regionale de Santé Publique and the Ministère de la Santé in Benin; the African Medical and Research Foundation and the Ministry of Health in Kenya; the University of Zambia and the Ministry of Health in Zambia; the Swiss Tropical Institute; and the London School of Hygiene and Tropical Medicine, UK. The authors are particularly grateful to the community members and health sector officials who were interviewed during the course of the studies and to the following members of the country research teams: Benin: Professors M.P. Diallo, T. Zohoun, Dr A. Alassane, C. Assegnisso, A. Attalou, Dr L. Kessou, M. Parais; Kenya: W. Liambila, I.O. Okulla, S. Ong'ayo; Zambia: Drs J. Milimo; S. Bennett. The study was financially supported by UNICEF's central Bamako Initiative Operations Research Unit, and received operational support from UNICEF country offices. Additional financial support for the Kenya study was provided by the Tropical Diseases Research programme of the World Health

Organisation. L.G. and S.L. worked on this study as members of the Health Economics and Financing Programme of the London School of Hygiene and Tropical Medicine, which receives financial support from the UK's Department for International Development.

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FAMILY PLANNING POLICIES AND PROGRAMMES IN EIGHT LOW-INCOME COUNTRIES: A COMPARATIVE POLICY ANALYSIS

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Abstract—The extent to which family planning programmes are successful at reducing fertility remains a major debate among population scholars. A comparative policy analysis of four pairs of low-income countries (Bangladesh/Pakistan, Thailand/Philippines, Tunisia/Algeria and Zimbabwe/Zambia) was carried out to understand why some countries develop appropriate and effective programmes, while other countries do not. The study found that the formation of coalitions among policy elites, spread of policy risk, and institutional and financial stability were factors which supported or inhibited the adoption of strong population policies and family planning programmes. © 1998 Elsevier Science Ltd. All rights reserved

Key words—family planning, population policy, health policy

One of the great debates among population scholars over the past thirty years has been the extent to which state-sponsored family planning (FP) policies and programmes are successful in reducing fertility and, hence, the rate of population growth. It is relatively easy to demonstrate that contraceptive use is higher, and fertility lower, in countries where governments have established active FP programmes, than in countries where this is not the case. However, it is more difficult to show a causal link between the establishment of FP services and any reduction in fertility. There continues to be little consensus among demographers, with convincing scholarship supporting opposing conclusions. On the one hand, Hernandez (1984) and Pritchett (1994) argue that FP programmes succeed in countries where people already wish to limit family size and will thus demand contraceptive services. Governments establish services, in other words, in response to preexisting demand. On the other hand, Mauldin and Ross (1991) argue that government FP services may actually stimulate demand which leads to subsequent reductions in family size. This is a debate which may never be concluded satisfactorily among demographers given the complexity of establishing causal links. Furthermore, recent developments in international health policy have reduced the level of attention paid to family size as the principal outcome of reproductive health programmes.

Using a different analytical lens, policy analysis, this paper seeks to address an important gap in the

population and health policy literature. To the extent that government policies contribute to demographic trends, there is a need to understand better the factors that support or inhibit the adoption of FP policies and programmes. However, limited comparative research has studied in detail the actors and processes involved in policy making on FP, and how this has taken place over time in specific national and international contexts (Finkle, 1972; Warwick, 1982). Contextual factors, in particular, have changed enormously over the past thirty years. During the late 1960s, some countries were beginning to promote FP actively, but many governments in the developing world remained vocally opposed to what was perceived as a western-driven policy agenda. By the mid 1980s, most countries had adopted FP programmes as part of national population policies aimed at limiting population growth and promoting economic development. In the mid to late 1990s, and following the International Conference on Population and Development (ICPD) held in September 1994, there is broad consensus behind the concept of reproductive health. In this context, FP is seen as one of a range of primary health services aimed at meeting the reproductive needs of individuals.

ANALYTICAL FRAMEWORK AND METHODS OF THE STUDY

This paper is drawn from a study (Lee *et al.*, 1995) of four pairs of low-income countries which were selected to minimise differences in economic, social and cultural factors within each pair, but

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Table 1. Selected countries and programme effort scores^a

	Programme effort score (% of maximum)		
	1970	1982	1989
Bangladesh	10	57	72
Pakistan	27	40	48
Zimbabwe	NA	27	56
Zambia	0	16	49
Thailand	37	61	80
Philippines	53	56	49
Tunisia	40	59	69
Algeria	10	25	46

Source: Mauldin and Berelson (1978) and Ross *et al.* (1992).

maximise differences in the strengths of their FP programmes. The case study countries were: Bangladesh/Pakistan, Thailand/Philippines, Tunisia/Algeria and Zimbabwe/Zambia.

The four pairs of case study countries were chosen for their roughly similar socioeconomic characteristics, yet difference in the strength of their population policies and FP programmes, as measured by the programme effort scores* of Mauldin and Berelson (1978) and Mauldin and Ross (1991). Ideally, countries would have been politically and socioeconomically identical within each pair, enabling any divergence in reproductive outcomes to be attributable to their policies and programmes. In reality, of course, no two countries are wholly alike. In addition, similar countries tend to evolve similar policies (Mauldin and Berelson, 1978; Mauldin and Ross, 1991). The selection process was also limited by available access to policy and demographic data which further restricted the choice of countries (e.g. North Korea and South Korea). Finally, any historical comparison of case studies needed to recognise that policies and programmes change over time, and that differences and similarities were relative to each pair rather than absolute across all countries.

The selected countries are shown in Table 1, with the first country of each pair having stronger population policies and FP programmes than the second. Bangladesh and Pakistan were united as one country until 1971, are both predominantly Islamic, and have similar levels of adult illiteracy (65% in

1990) and infant mortality (around 100 deaths per 1000 births in 1990). The most obvious differences between the two countries are the higher GNP per capita in Pakistan (US\$1862 in 1990) than Bangladesh (US\$872), even after adjusting for purchasing power parity. Notably, the two countries have pursued very different population policies since the early 1970s, and have experienced significantly divergent fertility outcomes. The earlier decline in fertility in Bangladesh could not have been predicted from the above socioeconomic factors, which would suggest a fertility differential in the opposite direction.

Until 1964 Zimbabwe and Zambia were also one country, Southern and Northern Rhodesia respectively. Both are predominantly Christian countries, with little difference in fertility and infant mortality rates throughout the 1960s and 1970s. There has also been a similar pattern of decline in adult illiteracy (from about 60% in 1963 to 33% in 1990), although GNP per capita increased in Zimbabwe during the 1980s at a faster rate. Despite their rough similarities, fertility rates in Zimbabwe fell more rapidly than in Zambia (23% vs 4% since the 1960s), accompanied by a stronger programme effort score for its FP programmes.

Tunisia and Algeria are neighbouring countries composed predominantly of Arab and Muslim populations. The two countries share historical links with France although Tunisia, like Zambia, had a more peaceful transition to independence. GNP has been roughly similar (US\$3000–3500 in 1990) after adjusting for purchasing power parity. Infant mortality has always been slightly lower in Tunisia (declining from 155 to 38 deaths per 1000 live births between 1960–90) than Algeria (declining from 160 to 64), as has the proportion of the adult population that is illiterate (35% compared with 43% in 1990). However, these differences appear far too modest to explain the divergence in programme effort scores and fertility rates over the past thirty years.

Thailand and the Philippines are perhaps less well-matched as comparative case studies, both politically and culturally, despite sharing a regional proximity. Selected indicators of socioeconomic development, however, suggest that the Philippines was actually more favourably placed during the 1960s and 1970s, a period when fertility began to decline more sharply in Thailand. In 1960 the Philippines had a higher GNP per capita, and lower adult illiteracy and infant mortality rates. It is only since the early 1980s that Thailand's GNP per capita has grown to exceed its neighbour, while adult literacy in both countries is now almost universal.

In summary, the selected pairs of countries show a difference in timing and rate of decline in fertility unexpected from comparing their socioeconomic features. In other words, there is little evidence

*A programme effort score or rating of the strength of family planning programme effort is derived from scoring along thirty items grouped into four components: policies and stage-setting activities, service and service-related activities, record keeping and evaluation, and availability of contraceptive methods. This information was obtained through detailed questionnaires sent to government officials, donor agency personnel, knowledgeable citizens and foreigners. There are two caveats for this ranking. First, the assessments were made by individuals who were familiar with fertility trends and levels of contraceptive use. This could have led to pre-judging programmes favourably or unfavourable depending on whether fertility is declining. Second, the two later measures of strength used a more comprehensive set of inputs which may suggest a lack of comparability with the first measure taken in the early 1970s.

from basic socioeconomic indicators that one country would be more likely to have an earlier or more rapid fertility decline than the other. This led the study to address two main questions:

(a) Why did some countries develop appropriate and effective FP programmes while others did not?

(b) How can this insight contribute to understanding the relationship between FP programmes and fertility decline?

In answering these questions, the study used a policy analysis framework. Policy analysis is a broad term which encompasses many theoretical and methodological approaches. In this study, policy was analysed from the perspective of actors and processes (Walt and Gilson, 1994), drawing strongly on political theories and concepts to understand how policy-making on population and FP was carried out in each pair of countries over a period of three decades. Beginning with a simple model of the policy process as consisting of four phases (i.e. problem identification, policy formulation, implementation and evaluation) (Kingdon, 1984; Ham and Hill, 1984), the study focused on the key actors in each country and how they influenced these different phases. The most prominent actors were expected to be “policy elites” defined by Grindle and Thomas (1991) as individuals or groups “formally charged with making authoritative decisions in government”. In addition, the study was concerned with the historical and contemporary context within which policy-making was carried out. The study used Leichter’s typology to identify and explore four types of contextual factor — situational, structural, cultural and exogenous (Leichter, 1979).

Using this analytical framework, national researchers carried out eight detailed case studies of the historical evolution of population policies and FP programmes in each country. The methods used by the researchers were interviews with key informants — notably past and present policy makers, officials of external donor agencies and representatives of NGOs — and reviews of primary and secondary materials on population policies and FP programmes. The case study reports were then used to draw out comparisons within each pair of countries concerning the policy actors, processes and contexts characterising them, and to draw lessons regarding how these factors have constrained or enabled population policies and FP programmes in their countries. An analysis of the link between policy-making at the national and global levels has been presented elsewhere (Lee and Walt, 1995).

The study found that there are three features of policy-making which may explain the difference in programme strength in each pair of countries:

(a) the formation of policy coalitions, supported by policy elites, has been an important contributor to the initiation of population policies and FP programmes;

(b) policy coalitions have been more likely to prevail over time where policy formulation has involved a sharing of the policy risks often associated with FP programmes; and

(c) institutional and financial stability has been important to achieving more effective implementation of FP programmes, as evidenced by increased rates of contraceptive use.

A discussion of each of these, in relation to each pair of countries, is provided below. The findings suggest that there is a need for policy makers to give consideration, not only to the content of population policies and FP programmes, but to how policy actors, processes and contextual factors can influence the strength and effectiveness of such policies.

THE INITIATION OF POPULATION POLICIES AND FAMILY PLANNING PROGRAMMES: THE ROLE OF COALITIONS OF POLICY ELITES

The case studies began by analysing how population issues in general, and FP in particular, came to be identified as a legitimate concern on the policy agenda, and how this was then taken forward in policy making. For all policy makers, the universe of potential issues to be addressed is vast. What leads to attention being given to one issue over another may be influenced by the emergence of new information, shifts in public opinion, lobbying by pressure groups or the convictions of policy makers themselves. The often transitory nature of policy making can also lead policy makers to move their attention from one issue to another.

The study sought to identify what and how actors were involved in supporting or opposing the initiation of population policies and FP programmes in each country. According to Grindle and Thomas (1991), policy elites “have considerable scope to identify problems, articulate goals, define solutions, and think strategically about their implementation”. The study explored the extent to which, in countries where broadly-based or cohesive coalitions of policy elites formed in support of FP, it was more likely that the issue appeared earlier on the policy agenda and was taken forward more effectively. In contrast, where coalitions did not form, or where coalitions opposing FP were comparatively strong, this was accompanied by weaker policies and programmes.

Thailand and the Philippines

Beginning with Thailand and the Philippines, in both countries the initial impetus behind FP came from external donor agencies. In Thailand, following a 1958 World Bank report on the adverse impact of rapid population growth on the country’s economic development, high-level consultations were held among policy elites which involved

the head of state (King Rama IX), the chief executive (prime minister), government ministers, civil servants, the academic community, health professionals and the mass media. This "highly collective process" was then institutionalised into a strong coalition with the creation of the Subcommittee on Population Policy and Planning which continued to hold regular meetings to discuss the country's population policy. Its membership included representatives of the ministries of public health, finance and education; the National Statistical Office; research institutions in state universities; and the Department of Technical and Economic Cooperation, Office of the Prime Minister. Finally, a National Family Planning Committee was created under the Ministry of Public Health, comprised of top-level bureaucrats (e.g. permanent secretaries), directors of research institutions, and heads of relevant NGOs such as the Planned Parenthood Association of Thailand (PPAT), to formulate specific policies on FP (Wongboonsin, 1994). With this broad and cohesive coalition of policy elites, Thailand was able to initiate and sustain a strong FP programme despite frequent changes in government from the 1960s.

The coalition of policy elites in Thailand contrasts with the disunity which characterised the Philippines during the early stages of the policy process. During the 1960s, external donor agencies such as the U.S. Agency for International Development (USAID), International Planned Parenthood Federation (IPPF), Ford Foundation and Population Council, also actively promoted FP programmes (Lim, 1976). This was initially supported by President Marcos who attempted to bring together different groups at a high-level meeting convened by his Executive Secretary, Rafael Salas, to discuss population issues. This led to the creation of the Population Commission (PopCom) in 1969, a consultative body comprising relevant government ministries and representatives of many religious groups. However, Salas left the Philippines soon after to become the first Executive Director of the UN Population Fund (UNFPA), leaving the task of building a policy coalition behind FP without sufficient leadership. PopCom quickly became a highly politicised body, with frequent changes made to its membership, mandate and authority in an effort to accommodate different interest groups (Carino, 1994). The result was an ineffectual body which lacked the cohesion to move policies forward effectively.

*Interview with Dr Zinanga, Director of Zimbabwe National Family Planning Council, Harare, 16 February 1994.

†Interview with Mrs. Danha, National Association of NGOs (NANGO), Harare, 16 February 1994.

Zimbabwe and Zambia

The strength of a policy coalition of elites also distinguishes Zimbabwe from Zambia. In Zimbabwe, early policy-making on FP centred on the Zimbabwean National Family Planning Council (ZNFPC), a body created in the early 1980s and backed by high-level leadership from Sally Mugabe, the president's wife, and Ester Boohene, his sister-in-law. A later director described the organisation's role as "leading from behind", encouraging consultation with "opinion leaders" including religious groups, NGOs, senior civil servants, the business community and the mass media*. This view is supported by the National Association of NGOs (NANGO) who have participated actively in the ZNFPC†, and by the World Bank which observed that "Zimbabwe has followed a deliberate consultative and broad-based process of population policy development which is in keeping with its participatory system of government and its focus on national consensus" (World Bank, 1989). In Zambia, President Kenneth Kaunda's efforts to build "one nation" during the 1960s did not include high-level support for FP. Early efforts to build public support for FP came from the Family Planning Welfare Association of Zambia (FPWAZ), an NGO formed in 1972 with partial funding from the International Planned Parenthood Federation (IPPF), and from small Christian-run health centres. This was met with vocal opposition from large religious groups, led by the Catholic Church, and from the Women's League, led by the prominent figure of Chibesa Kankasa. It would not be until the mid 1980s, when the UN Population Fund (UNFPA) successfully won over key individuals, including Mrs. Kankasa, that a policy coalition in favour of FP began to form. This was soon extended to other policy elites, such as the Ministers for Health and National Commission for Development Planning, as reflected in public statements supporting the need to limit population growth (Hopkins and Siamwiza, 1985; Kalumba, 1994).

Tunisia and Algeria

The formation of a supportive coalition of policy elites occurred in Tunisia earlier, and to a wider extent, than in Algeria. In the context of wide-ranging social reforms under the leadership of President Bourguiba and the Neo-Destour Party beginning in the 1950s, public statements began to be made by policy elites on the link between economic development and control of population growth. Support for a national population policy came from a broad range of prominent individuals and interest groups including the Prime Minister, Minister of Public Health, National Union of Tunisian Women (UNFT), Tunisian Association for Family Planning (ATPF), religious

leaders, research institutions and the mass media. For example, newspaper coverage of FP increased from ten articles per year between 1963–65 to an average of one article per week by the mid 1970s*. This support was strengthened further by the creation of the *Office National de Famille et Population* (ONFP) in 1973, affiliated with the MOPH, and the Higher Population Council and Regional Population Councils (headed by the country's governors) in 1974 under the Prime Minister. The result of this high-level coalition of support, backed by policy elites, was that FP remained firmly on the policy agenda. In Algeria, however, the *Front Liberation Nationale* (FLN) came to power in 1965 without “a strong enough social base in one section of the population to enable it to impose radical changes on the rest”†. Faced with persistent disunity among its political constituency, as well as within government, policy elites in favour of FP could only move slowly. By the mid 1960s, women's groups began to call for improved FP services and access to contraception as a right. This was followed by the first “birth spacing” centre in Algiers and a *fatwa* (religious edict) supporting the voluntary use of contraception. Yet political leaders remained divided throughout the 1970s and 1980s. President Boumedienne continued to be unconvinced by the need to limit population growth, given the country's size and oil resources, and saw FP as part of western-led neocolonialism (Kouaouci, 1994).

Bangladesh and Pakistan

In the final pair of countries, it has perhaps not been so much the formation of a policy coalition, but rather the weakness of opposition to FP, which distinguishes Bangladesh from Pakistan. During the mid 1970s, potential opposition to FP programmes by Muslim leaders in Bangladesh was effectively undermined by their political marginalisation after they favoured unity with Pakistan during the War of Independence. This opened the way for policy elites within government to take a firm position on

FP. Importantly, their position was supported by the substantial presence of external donor agencies whose representatives, in a country so dependent on foreign aid, was part of the policy elite. Together, both those who provided and those who benefitted from this inflow of external funding (e.g. MOH, research institutions, NGOs) formed a strong coalition supporting FP programmes (Mahmood, 1994).

In Pakistan, the changing relationships among policy elites was also an important determinant of success for FP programmes. Under the centralised government of Ayub Khan during the 1950s and 1960s, *maulanas* (religious leaders) did not play an influential role. Indeed, using a “steam roller approach” of rapid policy initiation and implementation, Family Planning Commissioner Enver Adil introduced the country's first, and perhaps strongest, effort to provide FP programmes. Between 1965–70, the family planning scheme was deployed nationally, a “crash programme” backed by high-profile publicity and substantial aid from USAID and other external donors‡. While this created many beneficiaries, deeper divisions were created among civil servants competing to share in the large influx of resources§. The result was that, instead of being built on a broad coalition of key policy actors, involvement in the FP programme was closely tied to the existing system of political favours. Thus, the overthrow of the Ayub regime in 1968 led to its downfall as well. As Khan (1994) writes, “If population was a favourite of Ayub's, it could never become President Bhutto's pet cause”. It was not until the mid 1970s that Bhutto began to support FP by setting up a government committee to investigate the population programme, and stating publicly that “much more needs to be done”. Again, however, this did not lead to widened support. During the 1977 general election, FP was again caught up in political turmoil. As Joseph Wheeler, Chief of the USAID Mission to Pakistan (1969–77) recalls, “Everything fell apart when the political forces took over population personnel and vehicles for the 1977 elections”. When General Zia declared martial law in 1977, FP was once again relegated to a marginal place on the policy agenda.

In all four pairs of countries, therefore, FP programmes were initiated earlier and more effectively where coalitions of policy elites supported them. In Thailand, Zimbabwe and Bangladesh, external donor agencies formed part of this policy elite given the importance of foreign aid. However, it was their role in contributing to a cohesive policy coalition with national policy elites, rather than their mere presence as in the Philippines, Zambia and Pakistan, which has been the important factor in getting and keeping FP on the policy agenda.

*Based on a survey by Gueddana (1994) of 481 articles which appeared in the main Tunisian newspapers from 1963–1974.

†The *Front de Liberation Nationale* (FLN) was a coalition of various factions and classes in Algeria during the anti-colonial struggle. Political differences between regions were overcome during the war against the French but factionalism surfaced again once independence was achieved. For a discussion see Roberts (1984).

‡Interview with Kabir, Vice President (1960–72) and President (1976–present) of the Family Planning Association of Bangladesh, Dhaka, 2 March 1994.

§For example, FP programme staff received salaries substantially higher than other government employees, had use of a fleet of vehicles to visit local communities, and were invited to conferences and training courses abroad.

SHARING POLICY RISK IN FAMILY PLANNING

In most countries, FP has been and remains a controversial issue. Dealing with the most private of human behaviours, yet with widespread and major implications for public policy, FP must be approached by policy makers with due care and attention. One way of approaching such a potentially contentious issue is to spread the policy risk. Policy risk is defined as the possible negative consequences that can arise from pursuing a particular policy. The potential impact may be material, such as a loss of tax revenue, or more intangible but politically important, such as a loss of public confidence. Yet policy makers must frequently take such risks. According to Grindle and Thomas (1991),

solutions to any given set of policy problems are not obvious because the impact of policy cannot always be known in advance, because the logic of economics and the logic of politics frequently do not coincide, and because real costs are imposed on specific groups in society when policies and institutions are altered. All policy choices thus involve uncertainty and risk.

Specific policies vary in the amount of policy risk involved depending on the nature of the issue addressed, stakeholders affected and policy environment. In general, policies posing greater risk include those which affect a wider range of stakeholders, involve a relatively large amount of resources, and have a greater lack of information or knowledge (i.e. uncertainty).

One strategy for dealing with policy risk is to spread risk across time or place. This could be achieved, for example, by encouraging broad participation in policy making by a wider range of stakeholders, creating a collective rationale for FP congruent with broadly held social values and beliefs (e.g. birth spacing, economic development), or introducing the policy more gradually over time. In this way, the risk associated with FP need not be incurred by a particular individual or group who might, in turn, be vulnerable to opponents of the policy.

The study sought to explore the extent to which FP programmes were more likely to be sustained where policy risks were successfully spread. While the degree of policy risk associated with FP varied from country to country, as described below, the comparative effectiveness with which policy elites spread the specific risk in each pair of countries was expected to distinguish stronger from weaker FP programmes.

In Thailand, where the government pursued a pronatalist policy until the late 1950s, the policy

risk for FP programmes stemmed from its aim to reverse two centuries of promoting large families and population growth for “the greatness of the nation”. These views were maintained by two committees of the National Research Council which, in a report submitted to the Cabinet in 1960, insisted that Thailand’s population should continue to grow as an engine for economic development. Furthermore, the report argued that a FP policy might lead to a deterioration in public morality (Wongboonsin, 1994). To address this policy risk, supporters of FP (the coalition of policy elites described above) involved different institutions within and outside of government by using a broadly appealing rationale for FP programmes. Reconciling FP with the country’s Buddhist culture, notably the strong reverence for life in all forms, strong emphasis was placed on the need to reduce population growth in order to improve the “quality of life” of all Thais. In this way, policy risk was tempered by arguing that FP programmes were in the collective interest of all citizens.

In contrast, policy risk remained concentrated in the hands of relatively few individuals in the Philippines, namely the President and his/her senior political appointees. While the government created a sense of shared responsibility for population policies in Thailand through a broadly appealing rationale, when President Marcos was re-elected in 1969, he felt secure enough to assume much of the policy risk himself. FP programmes were very much his administration’s initiative, with policy formulation involving few individuals other than political appointees. When his hold on power weakened in the 1970s, external donor agencies maintained momentum behind FP by providing a large proportion of the funding for programmes* but, in doing so, became the main risk holders. As Carino (1994) writes, heavy reliance on external funding contributed to a belief that the policy was “a foreign imposition which has never developed its own local constituency”. However, the lack of a broad domestic constituency for FP continued. The concentration of policy risk in the executive, and consequent vulnerability of FP to political change, became apparent when Aquino became president in 1986. Opposed to the strong influence of the U.S. on the country’s foreign and domestic policies, and drawing much of her support from the Catholic Church, she saw FP as closely identified with the previous regime or as foreign-driven (Carino, 1994). This was accompanied by the lack of one clear rationale for FP programmes with broad and sustained appeal, instead adopting different rationales as international opinion changed†.

In Zimbabwe, the government faced a high level of policy risk in supporting FP after independence in 1980. It needed to transform public perceptions of FP, from being a remnant of the colonial past, to a service perceived as run by and for black

*External donor agencies provided 35% of funding for FP programmes in the Philippines between 1970–88.

†Rationales put forth by the Filipino government have included social and economic development (1969), family welfare (1978), quality of life (1987), sustainable development (1992) and reproductive health (1993).

Zimbabweans. This was initially achieved by allowing an NGO, the Family Planning Association (FPA), to be the main risk taker, thus putting FP institutionally at arm's length. At the same time, the government continued to fund some of the FPA's activities with additional support from external donors (see below). With the banning of Provera in 1981, followed by the resignation of many long-serving (white) staff of the FPA, the government renamed the organisation the Child Spacing and Fertility Association (CSFA), with an emphasis on child spacing rather than fertility control. As the administrator of the CSFA stated in 1982, "In an African context, you cannot talk of limiting children. Child spacing however is more convincing in that you are not stopping anyone from having children but helping them plan their families" (Maveneka, 1994). Gradually, with greater acceptance by black Zimbabweans achieved, the government made the CSFA a parastatal in 1984 and renamed it the Zimbabwe National Family Planning Council (ZNFPC). In Zambia, policy risks were assumed by NGOs and a small number of external donors. As a result, FP was seen as a vertical programme in the MOH owned by outsiders, rather than an integrated part of the government's own health policies. With little support from government institutions, the programme itself had to persuade local authorities to introduce services.

In Tunisia, institutional mobility appears to have been balanced by the spread of policy risk widely throughout government, giving FP a firmer institutional support base than in Algeria. During the 1970s, the ONFP was located within the MOPH and managed by a Board of Directors representing eight ministries and three national organisations (Gueddana, 1994). In 1982 the ONFP became affiliated with the Ministry of Women and Family Affairs, and in 1986 it moved back again to the MOPH. Throughout this period, the rationale of improving the status of women was consistently given for the FP programme. In Algeria FP remained defined and institutionally fixed as a component of maternal and child health (MCH) within the MOH. Beyond the medical profession, and to a lesser extent women's organisations, policy risk was spread among few others. Indeed, political leaders did not support the policy, and openly criticised it at the international level during the 1970s (Kouaouci, 1994). This medicalisation of FP left the policy risk relatively unshared, leading it to become marginalised among government policies.

The same ineffectiveness at dealing with policy risk was found in Pakistan where it has been concentrated in prominent individuals or external donors, rather than spread across institutions. This led FP to become a victim of political change when policy elites fell from power (Khan, 1994). In Bangladesh, foreign donors also assumed a promi-

nent role in FP from the mid 1970s, and it was set apart from other sections of the MOH. However, marginalisation of the programme was prevented by policy elites, such as President Rahman, who shared the policy risk by publicly declaring the need to control the country's population growth as "the number one problem" (Mahmood, 1994). Policy risk was also shared by the extensive bureaucracy which became involved in FP, and by the network of NGOs whose activities were instrumental in delivering local services.

Institutional instability in Pakistan has coincided with a limited role for NGOs. From the late 1950s, the FPAP took a lead role in guiding the government on population. By the mid 1970s, however, the government discouraged increased NGO activity as a potential threat to centralised political power. In 1985, a brief attempt was made to institutionalise the role of NGOs, partly at the behest of the donors, in order to galvanise NGOs and provide another channel for funding. This led to the creation of the Non-Government Organisations Coordinating Council (NGOCC) whose control soon became a source of contention between the FPAP, the only NGO with extensive experience in FP, and the government. As Khan (1994) writes, negotiations proved a "testimony to deeper rifts that would not be resolved". A struggle ensued from 1985–93, with the government wishing to retain control of objectives, monitoring and evaluation of activities, as well as funding. In 1993, when the mandate of the NGOCC expired, policy makers became embroiled over whether and in what form the NGOCC should be reconstituted. In 1995 it was finally re-established as the National Trust for Population Welfare (NATPOW).

In all four pairs of countries, therefore, the over-concentration of policy risk in relatively few hands made FP programmes more vulnerable to political change. It appears that, along with policy coalitions, strong FP programmes need to be accompanied by a rationale that bonds policy elites together with a broader constituency. In some countries, achieving such consensus was more difficult than others given existing political divisions or instability. Yet, to the extent that policy makers were able to deal effectively with risk, even in potentially volatile policy environments, FP programmes were adopted and maintained. Dealing with policy risk is clearly not a precise science, but part of the art of effective government.

PUTTING POLICY INTO PRACTICE: THE ROLE OF INSTITUTIONAL AND FINANCIAL STABILITY IN IMPLEMENTATION

A third finding of the study is that there were important differences in how FP programmes were implemented in the eight countries. Walt (1995) writes that most attention in the analysis of health policy

has been focused on the formulation of policy, with the assumption that adopted policies will be implemented as desired. There is increasing recognition in the health sector, however, that strategies for the implementation of policies are also integral to effective policy making. An increasing amount of research has sought to identify various preconditions under which effective implementation occurs (Hogwood and Gunn, 1984).

The study found that stronger FP programmes were generally characterised by greater stability of institutional home and/or funding. On the former, implementation encountered difficulties where FP programmes were accompanied by frequent changes in institutional location and/or structure. Programmes were especially effective where the institutions responsible for policy formulation and implementation were closely linked in the policy process, and where responsibility for implementation was clearly demarcated. In addition, reliable financial support was also a necessary, albeit not sufficient, factor in creating strong FP programmes. The case studies showed that predictability of funding commitment over time, accompanied by institutional stability, was more important than significant, but volatile, levels of funding by governments and external donors.

Both institutional and funding stability distinguished the FP programme in Thailand from the Philippines. In Thailand, the Subcommittee for Population Policy and Planning remained "the focal point for the co-ordination of activities of all units engaged in operations, research, and resource allocation ... analysis of national demographic trends, and the monitoring and evaluation of programme implementation in accordance with the population plan" (Robinson and Rachapaetayakom, 1993) since the early 1970s. For the FP programme, in particular, the national family planning programme has remained within the national family planning committee (NFPC) of the MOPH since its creation in 1970, and has been the "focal point for operations and coordination of FP activities throughout the country" (Wongboonsin, 1994). This relatively unchanging institutional structure contrasts with the Philippines where the PopCom has been frequently changed, from a research institution in 1969, to coordinating body in 1970, to implementer cum coordinator in 1975, and finally to coordinator but not implementer in 1987. During this period, the institutional home of the PopCom shifted among the Office of the President, National Economic and Development Authority (NEDA), Department of Health and Department of Social Welfare and Development, and the appointment of nine executive directors with an average tenure of two to three years (Carino, 1994). While this institutional instability was a reflection of weak commitment to FP by the government, it contributed to difficulties in policy

making, including a failure to designate clear responsibility for implementing the programme.

Funding of FP programmes in the two countries also differed. In absolute terms, it is perhaps surprising that the Philippines received comparable, if not larger, amounts of population assistance than Thailand over the same period, with the largest external donors being the World Bank and USAID. In Thailand, however, there has been greater stability of funding over time. As external aid fell from 78% in 1981 to 12.6% in 1991 of total funding for FP, the government gradually assumed greater financial responsibility (Wongboonsin, 1994). This financial transition did not occur in the Philippines where political controversy over FP, and the country's dependence on external aid, meant a heavy dependence on external donors. This left the programme vulnerable when President Aquino adopted a policy of self-reliance which led to a sudden decline in external aid, unaccompanied by no corresponding increase in government funding. In the late 1980s, external aid began to increase again under President Ramos. However, the government continued to provide only a small fraction of funding for FP, with USAID (64%) and UNFPA (34%) contributing the largest shares (Carino, 1994).

In Zimbabwe/Zambia and Tunisia/Algeria, a separation of the institutions responsible for policy formulation and implementation characterised the weaker FP programmes. In Zambia there was minimal institutional support for FP services until the late 1980s, with the first public FP clinic established in 1988. The study found that this may have been due to the fragmentation of the policy process among different institutions. The National Commission for Development Planning was responsible for policy formulation, while the MOH implemented policy decisions. Limited FP services were provided at the local level by small-scale NGOs but this has not been coordinated with government policy. In Zimbabwe, the study found a more unified institutional structure, firmly linked to the primary health care infrastructure, and based on a close relationship between the MOH and ZNFPC. As a parastatal organisation located under the MOH, the ZNFPC maintained close communication with the government on all stages of the policy process. Nor did it need to compete with other service providers. The ZNFPC had firm ownership of the FP programme and had clear responsibility for its implementation. By 1988, an estimated 75–92% of contraceptives were obtained through public sector services (Kalumba, 1994).

Greater stability of funding also differentiated the two programmes. In Zimbabwe, public funding of FP has been supplemented by financing from USAID, the World Bank, UNFPA and NGOs (Maveneka, 1994). The FP programme in Zambia received minimal government funding during this same period, and far less assistance from external

donors. The largest sum (US\$3.8 million) came from UNFPA which funded the creation of the family health unit in the MOH in 1980. Major donors to Zimbabwe were noticeably absent from or erratic in their assistance to Zambia. It was not until 1993 that USAID agreed to provide a substantial package of support with the World Bank, ODA (UK) and SIDA (Kalumba, 1994). This combined lack of government and donor commitment to FP has resulted in low and unstable levels of funding.

Tunisia and Algeria show a similar contrast in institutional linkages. The Tunisian public health infrastructure was expanded from the 1960s, with FP closely integrated into this structure through the ONFP, a parastatal responsible for both the formulation and implementation of FP policy. Despite frequent changes to its institutional home and a complex institutional structure for service delivery compared to the other case study countries, the ONFP has remained the key organisation (Gueddana, 1994). It has been mainly through the public sector that contraceptives have been distributed (77% in 1988) (Ross *et al.*, 1992). The FP programme in Algeria has been located in the MOH since the early 1970s when the first Birth Regulation Centre opened in Algiers. By 1978 there were 160 centres in operation, and in 1985 599 centres, each providing contraceptives as part of the national health service (Stephen, 1992). Despite the existence of these facilities, however, most women (60%) obtained their oral contraceptives (the most frequently used method) from the private sector during the mid 1980s (Kouaouci, 1994). One reason for this may be the poor coverage of primary care facilities particularly in rural areas. The emphasis by the government on curative care, building of urban hospitals and training of health personnel during the 1970s may have meant limited implementation of FP services at the *wilayas* and *dairas* levels. It is notable that NGOs have not operated FP services in Algeria.

Despite its greater wealth from oil revenues during the 1970s, funding levels for FP in Algeria has been far lower than in Tunisia. While it is difficult to estimate the amount of government funding, because of the lack of a separate budget for FP within MCH until the 1980s, vocal opposition by political leaders to the control of population growth during this period suggests that the amounts were not substantial. Small amounts of population assistance were periodically provided from external donors, notably UNFPA, for demographic studies and censuses. It was not until 1989, however, that any sizeable sum (US\$9 million) was given, topped up with an additional 10% of this sum by the government (Kouaouci, 1994). In comparison, funding for the ONFP in Tunisia has been substantially higher from both government and external sources, notably from the World Bank, UNFPA, Population Council and IPPF. For example, World Bank loans

totalled US\$33 million between 1971–80 and US\$41 million between 1981–86. Since the mid 1980s, external aid to Tunisia's FP programme has declined, from 42% of the ONFP's budget in 1984 to 10% in 1992. Importantly, the government has taken up this slack with public funding (Gueddana, 1994).

In Pakistan and Bangladesh as one country, the MOH held low status among government ministries, and the health infrastructure remained poorly developed. Although a National Family Planning Council (NFPC) was created under the MOH in the mid 1960s, the health system was already overburdened and ill-equipped to take on a "crash programme". Despite this weakness, a massive scaling up of the FP programme followed which generated a large inflow of external funding. Implementation suffered many problems as a result including poor administration, record keeping and evaluation, and over ambitious target setting (Khan, 1994). The programme collapsed with the change of government and war with Bangladesh in 1971. Under President Bhutto, the government of Pakistan became keen to expand the national FP programme from the mid 1970s, again through a rapid scaling-up of successful local programmes. As a result of political tug-of-wars between federal and provincial authorities, however, the FP programme moved from the Population Welfare Division of the MOH in 1976, to the Ministry of Planning and Development in 1980, to provincial jurisdiction in 1983, to the Ministry of Population Welfare in 1989 (Robinson *et al.*, 1981). Among the initiatives put forth during this period were the continuous motivation scheme, contraceptive inundation scheme (1973–77), social marketing (1984) and social action programme (1995).

A poorly developed health infrastructure was also an important feature in Bangladesh, and early attempts at implementing FP programmes were not successful. To overcome this problem, the Population Control and Family Planning Division was created in 1974 within the Ministry of Health and Population Control. Supported by external funding, the division was highly vertical in structure yet with the aim of providing FP as part of existing MCH services. Importantly, unlike Pakistan, a strong role was given to NGOs at this early stage to implement FP services locally and fill gaps in the weak health system. By 1990, around 120 NGOs were providing FP services in Bangladesh, many in collaboration with the MOH, and were estimated to be supplying 20% of contraceptive users (Mahmood, 1994).

Differences in funding has also been evident in the two countries. In Pakistan funding has been relatively unstable and has never reached the levels achieved in Bangladesh. Between 1977–82, the government showed little financial commitment to either FP or the health sector as a whole. As

Noman (1988) writes, "The appalling allocations for the social sectors (including reproductive health) are a reflection of political representation in Pakistan. Public policy is formulated by, and in the interests of, a tiny elite which defines priorities and appropriates resources accordingly". The main source of funding for FP has come from external sources, notably from USAID (Khan, 1994). In Bangladesh, separate public accounts were set up for FP and health in 1974–75, with the government spending about 3% of its development budget on population and FP until 1987–88, rising to 4.4% in recent years (Mahmood, 1994). In comparison, for example, Indonesia has spent around one per cent. Importantly, these funds have been supported by larger amounts of external aid than received by Pakistan, including four World Bank loans (for example, US\$601 million for 1992–96).

The four pairs of countries shows that, while there is no single organisational formula for FP programmes that ensures effective implementation, institutional and financial stability distinguished strong from weak programmes. A clearly designated institutional home over time and long term financial commitment were, of course, a reflection of high level political commitment. However, institutional and financial stability, in turn, facilitated the policy process through which FP programmes could be introduced and sustained.

CONCLUSION

This paper has sought to supplement the ongoing debate among demographers on the impact of population policies and FP programmes on fertility decline by identifying factors that may support or inhibit the adoption of FP policies and programmes. Using comparative policy analyses in four pairs of countries, it has been shown that the strength of commitment by governments to FP has been shaped by differences in the process by which FP policies have been initiated, formulated and implemented; the specific actors involved in this process; and the context within which this process has taken place.

The overall conclusion of the study is that how policies are made, and who makes them, are equally important to what policies are made. Much of the population policy literature has focused on the content of policies — for example, what contraceptions to provide, which social groups to target, how to deliver reproductive health services and so on. These are clearly vital policy questions. However, there remains an important gap in the population and health policy literature on the strategies that policy makers can use to introduce, develop and carry out new or changes in policy. This paper has described three potential features of such a strategy — coalitions of policy elites, spreading of policy risk, and institutional and financial stability. More

policy analysis research is needed to better understand how policy making, for FP and other areas of health, can be further strengthened. Despite the international policy shift from population control to reproductive health since the 1994 International Conference on Population and Development in Cairo, these issues remain relevant. Increasing political sensitivity to a wider range of health care issues, coupled with the greater technical complexity of comprehensive reproductive health services than traditional FP, can only serve to highlight the need for careful attention to the processes and actors involved in policy development.

Acknowledgements—This research was funded by the United Nations Population Fund and London School of Hygiene and Tropical Medicine. The authors would like to acknowledge the contribution of detailed case studies and valuable insights by the following national researchers: Ledivina Carino (Philippines), Nebiha Gueddana (Tunisia), Ayesha Khan (Pakistan), Ali Kouaouci (Algeria), Lumba Kalumba (Zambia), Raisul Mahmood (Bangladesh), Leonard Maveneke (Zimbabwe) and Kua Wongboonsin (Thailand).

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The Incidence of Public Spending on Healthcare: Comparative Evidence from Asia

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The article compares the incidence of public healthcare across 11 Asian countries and provinces, testing the dominance of healthcare concentration curves against an equal distribution and Lorenz curves and across countries. The analysis reveals that the distribution of public healthcare is pro-rich in most developing countries. That distribution is avoidable, but a pro-poor incidence is easier to realize at higher national incomes. The experiences of Malaysia, Sri Lanka, and Thailand suggest that increasing the incidence of pro-poor healthcare requires limiting the use of user fees, or protecting the poor effectively from them, and building a wide network of health facilities. Economic growth may not only relax the government budget constraint on pro-poor policies but also increase pro-poor incidence indirectly by raising richer individuals' demand for private sector alternatives. JEL Codes: H22, H42, H51.

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THE WORLD BANK ECONOMIC REVIEW, VOL. 21, NO. 1, pp. 93–123

doi:10.1093/wber/lhl009

Advance Access Publication 24 January 2007

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Propoor public spending on healthcare and other services is a stated objective of national governments and international agencies. It is central to the mission of the World Bank and is a key component of the Heavily Indebted Poor Countries Initiative and the International Monetary Fund's Poverty Reduction and Growth Facility. Motivations include redressing inequity in the distribution of healthcare, reducing health inequality, and raising the human capital of the poor and thereby the growth potential of the economy. In low-income countries, where administrative constraints on redistribution through cash transfers are particularly binding, a subsidiary justification for public spending on healthcare may be the alleviation of poverty and the reduction of inequality (Besley and Coate 1991). The validity of these arguments for public spending on healthcare rests on the empirical question of whether the spending is in fact targeted to the poor.

Benefit incidence analysis identifies the recipients of public spending in relation to their position in the income distribution. Benefit incidence studies, many conducted by the World Bank, generally find that public spending on healthcare in developing countries is not concentrated on the poor (van de Walle 1995; Castro-Leal and others 2000; Mahal and others 2000; Sahn and Younger 2000; Filmer 2003). Most of these studies have been conducted on an ad hoc basis, with relatively little attention to consistency in methods. Limitations in the comparability of the evidence make it difficult to draw lessons about the economic, political, and health system characteristics that explain greater and lesser success in targeting health spending to the poor.

This article presents comparable evidence on the incidence of public health spending using consistent methods across eight Asian countries (Bangladesh, India, Indonesia, Malaysia, Nepal, Sri Lanka, Thailand, and Vietnam) and three Chinese provinces or regions (Gansu, Heilongjiang, and Hong Kong Special Administrative Region). Dominance tests are used to determine whether the distribution of public healthcare deviates significantly from perfect equality. Many indicators show that poorer individuals are generally less healthy (Gwatkin and others 2003) and, one may presume, in greater need of healthcare. From an egalitarian perspective an equitable distribution of healthcare demands that resources be concentrated on the poor. Evidence that the

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poor do not receive their population share of health spending would be sufficient to reject equity in the allocation of public healthcare. While the main justification for public provision of healthcare is likely to be its impact on the level and distribution of population health, redistribution of living standards may be a further motivation in largely informal economies that are constrained in the execution of tax and cash transfer policies.¹ To assess the redistributive impact of public health spending, its distribution is compared with the Lorenz curve of household income.

One limitation of many previous benefit incidence studies is the crudeness of the unit cost data used to value services (van de Walle 1998; Sahn and Younger 2000). This study derives costs from detailed health accounts, available for most of the countries and provinces, which document public expenditures across health services, facilities, and regions. This allows examination of whether conclusions about the incidence of public healthcare are sensitive to analysis of use or expenditure data.

Data and methods are described in the next section and results are presented and discussed in section II. The findings are summarized in section III.

I. DATA AND METHODS

The objective is to estimate and assess the distribution of public healthcare in relation to economic status. For each country data are from recent health or socioeconomic surveys that provide information on both use of public healthcare and a suitable measure of living standards (see table S-1 in the supplemental appendix, available at <http://wber.oxfordjournals.org/>). All are nationally representative except for the surveys of Chinese provinces. The preferred proxy for living standards is household (per adult equivalent) consumption, which includes the value of goods produced by the household for its own consumption and a use-value of housing and durable goods.² Household expenditure, rather than consumption, is used for Hong Kong SAR, where household production is much less significant. For Malaysia the only available measure of living standards included in the health survey is household income, which is likely to understate the living standards of rural households. It is, however, the measure that has been used in previous incidence studies of Malaysia (Meerman 1979; Hammer, Nabi, and Cercone 1995).

Distributions of three categories of public healthcare—hospital inpatient care, hospital outpatient care, and nonhospital care—are examined.

1. In Latin America cash transfers are increasingly used to affect the distribution of income, as well as that of health and education services, but this is less so in the low-income economies of Asia, where in-kind transfers, such as healthcare, continue to predominate.

2. The equivalence scale used is $e_h = (A_h + 0.5K_h)^{0.75}$, where A_h is the number of adults in household h , and K_h is the number of children 0–14 years old. Parameter values were set on the basis of estimates summarized in Deaton (1997, pp. 241–70).

Nonhospital care is an aggregate of visits to doctors, polyclinics, health centers, and antenatal care (table S-2). For inpatient care the recall period is 12 months, except in Bangladesh (3 months) and Sri Lanka (2 weeks). For all other care the recall period is generally 2 weeks to 1 month, except in Bangladesh where it is 3 months.

Use data do not capture variations in the quality of services received across facilities and geographic locations. This is a potentially important deficiency given evidence of marked quality differences favoring richer neighborhoods even within a single city, such as Delhi, India (Das and Hammer 2005). The service-specific non-negative public subsidy received by an individual can be defined as:

$$(1) \quad S_{ki} = \max(0, q_{ki}c_{kj} - f_{ki})$$

where q_{ki} is the quantity of service k used by individual i , c_{kj} is the unit cost of providing k in region j where i resides, and f_{ki} is the amount paid for k by i . Where possible, variations in costs by facility (local, district, teaching hospital) and service (inpatient/outpatient) are taken into account. Unit costs are computed as:

$$(2) \quad c_{kj} = \frac{\text{TRE}_{kj}}{\sum_{i \in j} q_{ki}w_i}$$

where TRE_{kj} is total recurrent public expenditure and w_i is an expansion factor that inflates sample use to population use. The total public subsidy received by an individual is computed as $S_i = \sum_k \alpha_k S_{ki}$, where the α_k terms are scaling factors that standardize use recall periods across services.

National health accounts, available for Bangladesh, the Chinese provinces, Hong Kong SAR, Sri Lanka, and Thailand, are used to disaggregate expenditure figures by facility, service, and region. Full accounts are not available for India, Indonesia, Malaysia, Nepal, and Vietnam. For India unit subsidies computed for another benefit incidence study are used (Mahal and others 2000). These are specific to 960 subgroups (three facilities, 16 major states, urban–rural residence, gender, and five income quintiles). For Indonesia public health expenditure review figures allow expenditures to be disaggregated for each of 30 provinces. For Malaysia expenditure data were disaggregated to five levels of public hospital care, but geographic disaggregation was not undertaken since the use data could not be analyzed by this dimension. Incomplete health accounts for Nepal allow disaggregation by hospital and nonhospital care by region. For Vietnam public accounts and hospital costing estimates were used to compute unit costs by service and facility but not by region (World Bank 2001).

Subtraction of the user payment from equation (1) to get the net benefit of the service is appropriate provided that quality is not responsive to the

payment. This is an untestable assumption with the available data. For China, India, Indonesia, Malaysia, Nepal, and Sri Lanka either the survey data do not contain information on payments made by individuals for public health services or the data are not considered sufficiently reliable, for example, because payments for public and other care are likely to be confused. For these countries it is assumed that all users in a particular region pay the same charge for a given service. Waiting and travel time also reduce the net benefit from care and should, in principle, be valued and subtracted in computing the subsidy. The survey data do not permit this, however. As a consequence, benefits to the rural poor, in particular, may be overstated to the extent that they travel long distances to access better quality care. By contrast, the cost of waiting time will be less for the poor if time is valued according to wage rates.

The incidence of public healthcare is described by its concentration curve, which plots the cumulative proportion of healthcare use and subsidy against the cumulative proportion of the population ranked by household consumption per adult equivalent. To establish whether the subsidy is propoor, in the sense that lower income individuals receive more of the subsidy than the better-off, a test is conducted of whether the concentration curve dominates (lies above) the 45° line. Whether the poorest 20 percent of individuals consume more than 20 percent of healthcare is also tested. Dominance of the concentration curve over the Lorenz curve of household consumption is tested to establish whether spending on public healthcare reduces inequality.

For the dominance tests standard errors of the ordinates of curves and of differences in ordinates are computed, allowing for dependence between curves where appropriate (Bishop, Chow, and Formby 1994; Davidson and Duclos 1997).³ A multiple comparison approach to testing is adopted (Beach and Richmond 1985; Bishop, Formby, and Thistle 1992), with the null defined as curves being indistinguishable. This is tested against both dominance and crossing of curves (Dardanoni and Forcina 1999). The null is rejected in favor of dominance if there is at least one significant difference between the ordinates of two curves in one direction and no significant difference in the other direction across 19 evenly spaced quantile points from 0.05 to 0.95. The null is rejected in favor of crossing if there is at least one significant difference in each direction. The 5 percent level of significance is used with critical values from the studentized maximum modulus distribution to allow for the joint nature of the test (Beach and Richmond 1985).⁴

An alternative dominance test consistent with the intersection–union principle (Kaur, Rao, and Singh 1994; Howes 1996), which has been used in the

3. The computation is carried out in Stata.

4. Dardanoni and Forcina (1999) show that the probability that this test will falsely reject the null in favor of dominance does not exceed the significance level and report Monte Carlo evidence suggesting that the actual significance level is well below its nominal value.

benefit incidence literature (Sahn and Younger 2000; Sahn, Younger, and Simler 2000), takes nondominance as the null and tests this against the alternative of strict dominance. This is a conservative test that requires statistically significant differences in ordinates at all points of comparison for the null to be rejected. Dardanoni and Forcina (1999) present Monte Carlo evidence showing that while this test reduces the probability of falsely rejecting nondominance to a negligible value, compared with the multiple comparison approach it has greatly reduced power of detecting dominance when true. Given these results, most weight in the discussion below is given to the results from the multiple comparison tests, but discrepancies with the more conservative intersection–union test are pointed out.

II. RESULTS

In Hong Kong SAR, Malaysia, and Thailand the concentration curve of the total public health subsidy dominates both the Lorenz curve and the 45° line of equality (table 1, final column), indicating that the subsidy is both inequality-reducing and propoor. With the exception of the comparison with the 45° line in the case of Thailand, these dominance results are robust to use of the stricter test. In Sri Lanka an equal distribution of the total subsidy is not rejected. In relative terms this shifts the distribution of living standards toward the poor, as the concentration curve dominates the Lorenz curve. In the remaining countries and provinces the concentration curve of the total subsidy is dominated by the 45° line but, with the exceptions of India and Nepal, dominates the Lorenz curve. That is, the subsidy is prorich but inequality reducing. For Bangladesh and the two Chinese provinces nondominance relative to both the Lorenz curve and the 45° line cannot be rejected when the more conservative intersection–union test is employed.⁵

The degree to which the public health subsidy is targeted to the poor can be seen more explicitly by examining the share of the subsidy received by the poorest 20 percent of individuals (table 2). Public healthcare is clearly most propoor in Hong Kong SAR, with the poorest fifth of the population receiving almost two-fifths of the total subsidy (table 2, final column). In Malaysia the poorest quintile also receives significantly more than 20 percent of the total subsidy, but the propoor bias is much less than it is in Hong Kong SAR. In Sri Lanka and Thailand the poorest quintile's share of the total subsidy does not differ significantly from 20 percent. In the remainder of countries and provinces, with the exception of Bangladesh, the poorest 20 percent of individuals receive significantly less than 20 percent of the public health subsidy. The share going to the poorest 20 percent of individuals is lowest in Nepal, at less than 7 percent, followed by the two Chinese provinces, at 8–10 percent. In these

5. Concentration and Kakwani indices, which provide summary measures of the magnitude by which the concentration curve deviates from the 45° line and the Lorenz curve, are given in table S-3.

TABLE 1. Tests of Dominance of Concentration Curves for Public Health Service Use and Subsidy against the Lorenz Curve and the 45 Degree Line of Equality

Country, province, or region	Use				Subsidy			
	Hospital inpatient		Hospital outpatient		Hospital inpatient		Hospital outpatient	
	Lorenz	45°	Lorenz	45°	Lorenz	45°	Lorenz	45°
Bangladesh		—	+	—	+	—	+	—
Gansu, China	+	—*	+	—	+	—	+	—
Heilongjiang, China		—*	+	—	+	—	n.a.	—
Hong Kong SAR	+	+	+	+	+	+	+	+
India		—*	+	—*	+	—*	+	—*
Indonesia	—	—*	x	—*	+	—*	+	—*
Malaysia	+	+	+	+	+	+	+	+
Nepal ^a	+	—*	n.a.	n.a.	—	n.a.	x	—*
Sri Lanka	+	+	+	+	+	+	n.a.	+
Thailand	+	+	+	x	+	+	+	+
Vietnam	+	—*	+	—*	+	—*	+	—

Blank cell indicates failure to reject the null hypothesis that curves are indistinguishable using the multiple comparison test (Bishop, Formby, and Thistle 1992) at the 5 percent significance level.

x indicates rejection of the null hypothesis that curves are indistinguishable in favor of curves crossing using the same test.

+ / — indicates rejection of the same null hypothesis in favor of dominance using the same test. A + indicates that healthcare is more concentrated on the poor than is household consumption per adult (Lorenz) or equal per capita distribution (45°), while a — indicates that it is less concentrated.

* indicates rejection of the null hypothesis of nondominance in favor of an alternative of strict dominance using the intersection–union test (Howes 1996) and a 5 percent significance level. Dominance is in the direction indicated by the + or —, as above.

n.a. means that data were not available to conduct the test.

^aThe results in the hospital inpatient columns refer to both inpatient and outpatient.

Source: Authors' calculations based on survey data documented in table S.1 (see supplemental appendix available at <http://wber.oxfordjournals.org/>).

TABLE 2. Share of Total Household Consumption and Public Healthcare Subsidy Received by Poorest Quintile of Individuals (percent)

Country, province, or region	Household consumption per adult equivalent	Hospital care		Nonhospital care	Total subsidy
		Inpatient	Outpatient		
Bangladesh	7.25* (0.0437)	15.20 (6.3732)	11.60* (1.8853)	24.42 (5.5695)	16.78 (3.4916)
Gansu, China ^a	5.24* (0.0695)	7.27* (1.5331)	9.57* (1.6473)	n.a.	8.17* (1.2265)
Heilongjiang, China ^a	5.98* (0.0759)	6.57* (1.8184)	12.32* (2.5677)	n.a.	10.47* (1.8729)
Hong Kong SAR	6.82* (0.0377)	38.77* (3.2580)	38.68* (2.2048)	38.19* (1.7718)	38.73* (2.7463)
India	10.50* (0.0083)	10.70* (1.1086)	18.59 (1.6219)	26.23* (1.5471)	12.49* (0.9553)
Indonesia	9.77* (0.0078)	3.80* (0.3762)	5.77* (0.4857)	19.73 (0.3199)	13.46* (0.2582)
Malaysia	7.20* (0.0370)	21.19 (0.8807)	18.72 (1.1208)	32.25* (1.3422)	22.95* (0.6921)
Nepal ^b	8.05* (0.0534)	3.52* (1.4851)	3.52* (1.4851)	9.04* (1.7220)	6.64* (1.1780)
Sri Lanka ^c	8.31* (0.0725)	20.76 (2.6013)	21.11 (1.9418)	n.a.	20.88 (1.8367)
Thailand	6.94* (0.0589)	21.26 (1.4144)	17.70* (1.0278)	31.16* (1.9137)	20.06 (0.8963)
Vietnam	8.78* (0.0429)	13.64* (1.9209)	11.55* (1.7049)	19.73 (1.7346)	14.79* (1.5416)

*Significantly different from 20 percent at the 5 percent significance level. Bold indicates that the subsidy share is significantly different from the household consumption share.

n.a. means that data were not available to conduct the test.

Note: Numbers in parentheses are standard errors.

^aThere are no data on nonhospital care, but low-level hospitals, equivalent to polyclinics and health centers, are included.

^bIt is not possible to distinguish between hospital inpatient and outpatient visits.

^cThe subsidy specific to nonhospital care cannot be computed.

Source: Authors' calculations based on data documented in table S.1 (see supplemental appendix available at <http://wber.oxfordjournals.org/>).

cases, and in Bangladesh, India, and Indonesia, the richest quintile receives more than 30 percent of the total subsidy (not shown in table). In all cases but Nepal the share of the subsidy going to the poorest quintile is significantly greater than its share of total household consumption.

Differences in Incidence across Health Services

Only in Hong Kong SAR does the concentration curve dominate the 45° line for both hospital inpatient and outpatient care and for nonhospital care (see table 1), with the poorest quintile receiving about 39 percent of the subsidy to all three services (see table 2). In Malaysia the concentration curves for inpatient and nonhospital care lie above the 45° line, but the outpatient care curve does not deviate significantly from the line of equality (see table 1). In Thailand it is inpatient care that is equally distributed, while the concentration curves for the other types of care dominate the diagonal, at least using the less stringent test criteria. However, in both Malaysia and Thailand the poorest quintile receives significantly more than 20 percent of the subsidy only for nonhospital care (see table 2). In Sri Lanka there is equality in the distributions of all services except for a propoor distribution of outpatient care as measured by use (see table 1). In the remainder of countries and provinces, concentration curves for hospital care tend to lie below the diagonal—meaning that the better-off consume more—while the curves for nonhospital care lie above it. The poorest quintile fairly consistently receives less than 20 percent of the subsidy for hospital care and significantly more than 20 percent of the subsidy for nonhospital care only in India (see table 2).

For most countries and provinces the distribution of nonhospital care dominates that of hospital inpatient and outpatient care (table 3), confirming that nonhospital care is generally more targeted to the poor than is hospital care.

Comparison of Use and Subsidy Distributions

Estimating the incidence of the public healthcare subsidy requires much more information than that of raw use. Unit costs must be estimated at the facility and regional levels and, where appropriate and possible, fees paid by individuals must be identified. The effort involved to obtain this extra information is worthwhile only if there is significant variation in unit costs or fees with the indicator of household living standards and if this covariance is sufficiently large relative to that for use. The dominance tests reported in table 1 display a considerable consistency across the use and subsidy measures. Only in 10 of 58 pairwise comparisons do the conclusions of the test differ depending on whether the distribution of use or the subsidy is examined. This is not an insubstantial degree of disagreement, but it suggests that the results of dominance tests are generally robust to the measure over which incidence is examined and that variation in use, not unit subsidies, is the main driver of the public subsidy distribution. This increases the confidence that can be placed in studies that look only at use. It is consistent with the findings of Sahn and

TABLE 3. Tests of Dominance between Concentration Curves for Different Public Health Services and between Use and Subsidy Distributions

Country, province, or region	Use			Use and subsidy		
	Hospital inpatient versus outpatient	Hospital inpatient versus nonhospital	Hospital outpatient versus nonhospital	Hospital inpatient	Hospital outpatient	Nonhospital
Bangladesh	op > ip					
Gansu, China	op > ip*	n.a.	n.a.		use > subsidy	n.a.
Heilongjiang, China	op > ip	n.a.	n.a.			n.a.
Hong Kong SAR						use > subsidy
India	op > ip*	non-h > ip*	non-h > op*		subsidy > use	subsidy > use
Indonesia	op > ip	non-h > ip*	non-h > op	use > subsidy*	use > subsidy*	use > subsidy
Malaysia		non-h > ip	non-h > op	use > subsidy*	use > subsidy*	n.a.
Nepal		non-h > (ip + op) ^a	non-h > (ip + op) ^a			use > subsidy
Sri Lanka			op > non-h	use > subsidy	use > subsidy	n.a.
Thailand		non-h > ip	non-h > op*			subsidy > use
Vietnam		non-h > ip*	non-h > op*	subsidy > use*		

ip is inpatient, op is outpatient, non-h is non hospital.

Blank cell indicates failure to reject the null hypothesis that curves are indistinguishable using the multiple comparison test at the 5 percent significance level.

> indicates that the null hypothesis is rejected in favor of dominance, for example, op > ip indicates that outpatient care is more propoor than inpatient care and use > subsidy indicates that the use distribution is more propoor than the subsidy distribution.

*indicates rejection of the null hypothesis of nondominance in favor of an alternative strict dominance in the direction indicated by >, as above, using the intersection–union test and a 5 percent significance level.

^aTest is between all hospital care (inpatient and outpatient) and all nonhospital care.

Source: Authors' calculations based on survey data documented in table S.1 (see supplemental appendix S.1 available at <http://wber.oxfordjournals.org/>).

Younger (2000) but somewhat stronger, since the current study allows for more sources of heterogeneity in unit subsidies.

Notwithstanding this result, there are significant differences between the distributions of use and subsidy. In Indonesia, Malaysia, and Sri Lanka the use distributions dominate—they are more propoor than the subsidy distributions—for all services, and in Gansu, Hong Kong SAR, and Nepal this is true for some services (see table 3). Dominance is not always found using the more conservative test, however. Urban–rural and regional differences in the quality of care are the most likely reason that the subsidy is less propoor than use. Only in India, Thailand, and Vietnam does the subsidy distribution dominate the use distribution for certain services, indicating that the subsidy per unit of care falls as household consumption rises. This is likely due to user payments rising with household consumption, whether because of exemptions granted to the poor or because richer households are paying for higher quality care that is not reflected in the unit cost figures.

Cross-Country Comparisons

As would be expected from the results already presented, the subsidy concentration curve of Hong Kong SAR dominates that of all other countries and provinces (table 4).⁶ The incidence of public care is so skewed toward the poor that the distribution of total healthcare (public and private) in Hong Kong SAR is propoor (Leung, Tin, and O'Donnell 2005).⁷ While this is in striking contrast with the distribution of healthcare in the low- and middle-income countries examined in this article, it is consistent with the distribution that prevails in most high-income economies (Van Doorslaer, Masseria, and Koolman 2006).

There are no significant differences between the concentration curves of Malaysia, Sri Lanka, and Thailand, where the subsidies range from slightly propoor to evenly distributed. On the less strict test the Vietnamese distribution is dominated by that of Hong Kong SAR, Malaysia, and Thailand and it is indistinguishable from that of Sri Lanka. It dominates the subsidy distributions of all the remaining countries and provinces using the less stringent test.⁸ For most pairwise comparisons the subsidy concentration curves of Bangladesh, Gansu, Heilongjing, India, Indonesia, and Nepal are indistinguishable. Exceptions are that India and Indonesia dominate Gansu and Nepal using the less strict test. In all these countries and provinces the public health subsidy is significantly and substantially prorich (see tables 1 and 2). This is

6. See table S-4 for cross-country dominance tests for each type of health service subsidy.

7. Some 43.5 percent of total expenditure on health in Hong Kong SAR is funded from private sources (Hong Kong Domestic Health Accounts 1999–2000).

8. This is not due simply to the fact that unit subsidies are negatively correlated with household consumption in Vietnam, unlike in most other countries and provinces. Only one cross-country dominance result for Vietnam becomes insignificant when use of each service rather than the subsidy to each service is examined.

TABLE 4. Cross-Country Dominance of Public Health Subsidy Concentration Curves

	Malaysia	Thailand	Sri Lanka	Vietnam	Bangladesh	Indonesia	India	Gansu	Heilongjiang	Nepal
Hong Kong SAR	D*	D*	D*	D	D*	D*	D*	D*	D*	D*
Malaysia		n.s.	n.s.	D	D	D*	D*	D*	D*	D*
Thailand			n.s.	D	D	D*	D*	D	D*	D*
Sri Lanka				n.s.	ns	D	D	D	D*	D*
Vietnam					D	D*	D	D*	D	D*
Bangladesh						ns	ns	ns	ns	ns
Indonesia							ns	D	ns	D
India								D	ns	D
Gansu, China									ns	ns
Heilongjiang, China									ns	ns

n.s. indicates failure to reject the null hypothesis that the curves are indistinguishable using the multiple comparison test at the 5 percent significance level.

D indicates rejection of the null in favor of dominance (more propoor) of the row country over the column country by the same test.

* indicates that the intersection–union test rejects the null of nondominance against the alternative of strict dominance at the 5 percent significance level.

Source: Authors' calculations based on survey data documented in table S.1 (see supplemental appendix available at <http://wber.oxfordjournals.org/>).

consistent with the findings of the majority of benefit incidence studies conducted in developing countries (van de Walle 1995; Castro-Leal and others 2000; Mahal and others 2000; Sahn and Younger 2000; Filmer 2003). But Malaysia, Thailand, Sri Lanka, and to a lesser extent Vietnam stand out as exceptions to this norm of pro-rich bias. Why is it that public healthcare is more pro-poor in these four countries than it is in other developing countries of Asia and elsewhere?

National income is an obvious candidate to explain cross-country variation in the targeting of public health spending. Public healthcare is strongly targeted to the poor in Hong Kong SAR in large part because Hong Kong is rich enough to afford a dual system of universal public healthcare funded from general taxation and a private healthcare system used predominantly by the better-off to bypass the bottlenecks and inconveniences of the public system. It is surely no coincidence that Malaysia and Thailand are the only other two countries where public health spending is significantly pro-poor. While they are not nearly as rich as Hong Kong SAR, they are considerably better off than the other countries included in this study (see table S-5).

Economic development is not the sole explanation for cross-country differences in the incidence of public healthcare. It does not explain why Sri Lanka, despite a lower GDP per capita than Indonesia, achieves a distribution of health resources that is much more favorable to the poor. Levels of public spending on health and health system characteristics might be expected to explain part of the residual cross-country variation in targeting of the poor. In per capita terms Sri Lanka spends 2.5 times as much as Indonesia on public healthcare (table S-5). The scale of public spending may influence its incidence by affording a wider geographic distribution of public health facilities and so bring services closer to poor, rural populations.

There may also be a trickle-down effect. At low levels of spending the politically powerful, higher income urban elite may be more successful than the rural poor in capturing spending for programs that meet their own needs. As spending levels rise and more of the health needs of higher income groups are satisfied, additional programs can be better targeted to the needs of the poor (Lanjouw and Ravallion 1999). Countering this tendency, the pressure from higher income groups for prioritization of tertiary-level city hospitals may be maintained by the attraction of continuing advances in medical technology (Victora and others 2000).

The extent to which higher income groups claim the benefits from public healthcare will depend on whether an attractive private sector alternative exists. Income-elastic demand for healthcare quality, in particular amenities and convenience of service, will lead to greater substitution of private for public care by an expanding middle-class as the economy grows. Hammer, Nabi, and Cercone (1995) argue that this mechanism was largely responsible for the increased pro-poor incidence of public health spending in Malaysia between the mid-1970s and the mid-1980s. The private sector continues to

grow in Malaysia, driven in part by dissatisfaction with the responsiveness of the public system (Shepard, Savedoff, and Phua 2002). In Thailand, which has also achieved impressive economic growth in recent years, the private sector is also expanding rapidly (Towse, Mills, and Tangcharoensathien 2004).

The combination of (near) universal public provision, a private sector offering an attractive alternative, and incomes that make demand for this alternative effective leads to redistribution through public provision in the way that theory predicts (Besley and Coate 1991). This mechanism implies a possibly uncomfortable tradeoff between the quality of public healthcare and the extent to which it is targeted to the poor. In lower income countries, such as Bangladesh, India, and Indonesia, separation of low- and high-income groups into the public and private sectors is constrained not only by the limited purchasing power of the middle class but also by marked intra-sectoral quality differentials. There is evidence of pronounced income gradients in the quality of private sector care used in India (Das and Hammer 2005). There, as in Bangladesh, the poor make extensive use of unqualified private providers.

This discussion suggests that economic development, the scale of public health spending, and the availability and quality of private sector alternatives may each help explain cross-country variation in the incidence of public health spending. Regression analysis is used to examine whether this is the case across the study countries and provinces and others for which benefit incidence results are available from other studies (Filmer 2003). Only 24 observations are available for this analysis, and so the results (table 5) should be treated with due caution. It is an exploratory exercise and not an empirical test of hypotheses. The dependent variable is the (log) percentage of the total public subsidy received by the poorest quintile. This share increases significantly with GDP per capita, with an elasticity of about 0.3. At a lower level of significance (10 percent), the poorest quintile's share is also increasing with public health spending as a percentage of GDP, with an elasticity of about 0.5. So, for a given GDP there is some evidence that the share of the subsidy going to the poor is increasing with the scale of public health spending.

To examine whether, for a given level of public expenditure, the share of the subsidy going to the poor increases with use of private sector alternatives, public spending as a percentage of total expenditure on health is included in the regression. Consistent with the hypothesis, the coefficient is negative but does not reach conventional levels of significance. The regression residuals are largest, in absolute value, for the two Chinese provinces. Public health spending in these provinces is much less targeted on the poor than would be expected given GDP and the scale of public spending and its share of total health financing. This is most likely due to the extensive imposition of user charges with no income-related exemptions. Excluding these two provinces increases the magnitude and significance of the coefficients. In particular, the

TABLE 5. Cross-Country Regression Analysis of Targeting of the Public Health Subsidy (Dependent variable: log of percentage of public health subsidy received by poorest quintile)

	Full sample		Excluding Gansu and Heilongjiang	
	Coefficient	Robust standard error ^a	Coefficient	Robust standard error ^a
Log of gdp per capita ^b	0.3214***	0.1002	0.3426***	0.0889
Public health expenditure as percent of gdp	0.2337*	0.1190	0.2971***	0.0884
Public health expenditure as percent of total health expenditure	−0.0080	0.0049	−0.0110**	0.0043
Eastern Europe and Central Asia	−0.3308	0.2091	−0.4895**	0.1889
Latin America and Caribbean	−0.2478	0.3535	−0.4338	0.2990
Sub-Saharan Africa	−0.8630***	0.3004	−1.0750***	0.2093
Constant	0.0691	0.7465	0.0294	0.7118
Sample size	24		22	
R ²	0.5712	p-value	0.7421	p-value
RESET (F _{3,n-k-3})	0.76	0.5371	0.71	0.5671

*Significant at the 10 percent level; **significant at the 5 percent level; ***significant at the 1 percent level.

Note: Observations are the 11 countries and provinces for the years of this study plus those from Filmer (2003): Armenia (1999) Bangladesh (1995), Bulgaria (1995), Costa Rica (1992), Cote d'Ivoire (1995), Ecuador (1998), Georgia (2000), Ghana (1994), Guinea (1994), Honduras (1995), Nicaragua (1996), South Africa (1994), and Vietnam (1993).

^aRobust to heteroscedasticity of general form.

^bGross domestic product per capita in purchasing power parity dollars at constant 2000 prices.

source: Dependent variable, authors' calculations based on data in table S. 1 (see supplemental appendix available at <http://wber.oxfordjournals.org/>) and that reported in Filmer (2003). GDP, World Bank, various years, *World Development Indicators*. Health expenditure, WHO, various years, National Health Accounts and *World Health Report* Statistical Annexes.

negative coefficient on the public health financing share becomes significant at 5 percent.⁹ Although this study has found that the public health subsidy is not targeted on the poor in the majority of the 11 Asian countries and provinces examined, the distribution appears to be even more skewed toward the better-off in Eastern Europe and Central Asia and in Sub-Saharan Africa.¹⁰

9. The results are similar if the weight given to observations with large absolute residuals is reduced, but not set to zero, using robust regression. The results are also robust to the exclusion of Hong Kong SAR, where the subsidy is much more pro-poor and GDP is much higher than in the other countries and provinces.

10. Other potential explanatory factors, including the Gini coefficient, the urbanization rate, and the doctor supply rate, were not found to be significant.

These regression results tell only of associations in a fairly small sample of countries and should not be interpreted as causal effects. GDP may be acting as a proxy for a number of primary determinants of incidence, such as the quality of governance and preferences for redistribution. Through human capital acquisition, assuming that the marginal product of investments in health is higher for poorer (and sicker) individuals, GDP may itself be responsive to the targeting of healthcare to the poor. Politics are of course endogenous. The positive correlation between the scale and the propoor incidence of public spending may derive from the degree of political commitment to reaching the poor. Reducing racial conflict in post-independence Malaysia was a major motivation for the expansion in access to healthcare and the channeling of public resources to the rural Malay population (Hammer, Nabi, and Cercone 1995). The early adoption of democracy and female suffrage in Sri Lanka contributed to the high priority given to healthcare and the wide geographical distribution of health resources in response to the lobbying of local politicians (McNay, Keith, and Penrose 2004). In fact, a 1928 commission proposed the full enfranchisement of women at the same time as men as a means of securing a political lobby for the prioritization of healthcare (Rannan-Eliya 2001). High rates of female literacy and a relatively high degree of female autonomy have raised awareness of maternal and child health problems, leading to high rates of use of modern health facilities and medicines (Caldwell 1986).

Political and economic circumstances determine the motivation and resources for the pursuit of propoor public healthcare, but realization of the objective depends on the specific health sector policies adopted. One policy has been to minimize charges for poor patients in accessing care. There are virtually no fees for public health services in Sri Lanka, and fees are minimal in both Hong Kong SAR and Malaysia (table S-6). In all three cases fees are not retained by facilities or even by the health sector, but accrue to general revenues, thus undermining providers' incentives for generating fee revenue. The near avoidance of user fees in resource-poor Sri Lanka has been feasible only by driving down unit costs (Rannan-Eliya 2001). Nonmonetary incentives, such as professional development and opportunities to work simultaneously in the private sector, help maintain high levels of staff productivity. In Thailand fees have been much higher. Prior to the introduction of universal coverage in 2001, public hospitals received 20–50 percent of their revenue from user fees (Towse, Mills, and Tangcharoensathien 2004). But the disincentive effect on use by the poor was limited through a fairly effective healthcard scheme that covered about two-thirds of the poor. Crucially, this scheme compensated providers for fee exemptions from a designated budget.

A geographically dispersed network of health facilities close to the rural population also appears to contribute to the propoor targeting of health spending. In Malaysia half the population lives within 10 kilometers of a public

hospital and within 4.6 kilometers of a public clinic.¹¹ In Sri Lanka most of the population has lived within 5 kilometers of a healthcare facility since the early 1970s, and most of the rural population is within 5–10 kilometers of a peripheral facility (Hsiao 2000). In Thailand, although beds and doctors are highly concentrated in Bangkok, an extensive rural infrastructure has been developed over decades. There are primary care health centers in all subdistricts and community hospitals in all districts (Towse, Mills, and Tangcharoensathien 2004). The introduction of universal coverage has initiated a major shift of resources from urban hospitals to primary care. Vietnam also has a relatively high level of provision in rural areas through a comprehensive network of commune health centers.

But the contribution of primary care to propoor public health spending should not be exaggerated. Public health spending is better targeted on the poor in Hong Kong SAR, Malaysia, Thailand, Sri Lanka, and Vietnam because the distribution of hospital care is more favorable to the poor and not because more resources are devoted to nonhospital care (see table S-3). Of course, hospitals differ. In Malaysia and Sri Lanka many hospitals are small in scale and not particularly well equipped. But their wide geographic distribution makes them accessible to the rural poor. In many other low-income countries, such as Bangladesh, resources are more concentrated in large, well-equipped hospitals in urban centers that are inaccessible to the poor.

III. CONCLUSION

The analysis reveals substantial variation across Asia in the incidence of public subsidies for healthcare. Public spending is strongly propoor in high-income Hong Kong SAR. The total public health subsidy is more moderately propoor in low- to middle-income Malaysia and Thailand and it is evenly distributed in low-income Sri Lanka. At a still lower level of national income the subsidy is mildly prorich in Vietnam. In the remainder of the low-income countries and provinces examined, which account for the far greater share of the Asian population, the better-off receive substantially more of the subsidy than do the poor. In most cases there is prorich bias in the distribution of hospital care, while nonhospital care is propoor. A greater share of the healthcare subsidy goes to hospital care, and so this dominates the overall distribution. While public health subsidies are typically not propoor, they are inequality reducing in all cases except India and Nepal.

Most within- and between-country dominance tests are robust to whether the distribution of healthcare use or the value of the subsidy is examined. This is a reassuring result since the health accounts data required for analysis of subsidy incidence are often unavailable and raw use data must be relied on. There are, however, significant differences between the distribution of

11. Authors' calculations from the 1996 National Health and Morbidity Survey.

healthcare use and healthcare subsidies, with use often more propoor. Where this occurs, the likely explanation is urban–rural and interregional differences in the nature and funding of facilities.

The analysis shows that the prorich distribution of public healthcare subsidies that is pervasive in most developing countries is avoidable but that effective targeting is easier to realize at higher levels of national incomes. The experiences of Malaysia, Sri Lanka, Thailand, and Vietnam suggest that achieving a more propoor incidence of public health spending requires limiting the use of user fees, or at least effectively protecting the poor from them; building a wide geographic network of health facilities; and ensuring that hospital care, which absorbs most spending, is sufficiently targeted at the poor.

APPENDIX: THE INCIDENCE OF PUBLIC SPENDING ON HEALTHCARE: COMPARATIVE EVIDENCE FROM ASIA
TABLE S1. Description of sample surveys

Country	Survey year	Survey name	Institution conducting survey	Survey coverage	Survey design	Sampling unit	Response rate	Sample size individuals
Bangladesh	1999–2000	Health and Demographic Survey (HDS) 2000	Bangladesh Bureau of Statistics (BBS)	National	Stratified	Household and Individual	99%	56,010
Gansu (China)	2003	National Health Household Interview Surveys	Ministry of Health	Gansu province (poor in west China)	Stratified, cluster sample. Self-weighting	Household	100%	15,535
Heilongjiang (China)	2003	Heilongjiang Health Household Interview Survey	Health bureau of Heilongjiang province	Heilongjiang province (north-east China)	Stratified, cluster sample. Self-weighting	Household	100%	11,572
Hong Kong SAR	April–June 2002	Thematic Household Survey in the second quarter of 2002	Census and Statistics Department, Government of Hong Kong SAR	National	Stratified. Sample weights applied	Household (noninstitutional); individual (institutional)	78.4% (noninstitutional); 97.2% (institutional)	31,672
India	1995–96	National Sample Survey 52nd round	National Sample Survey Organisation	National	Stratified, cluster sample. Weights applied	Household	100%	629,024
Indonesia	2001	Socioeconomic Survey (SUSENAS)	National Board of Statistics	National	Stratified, cluster sampling. Self-weighted	Household	98%	889,413

(Continued)

TABLE S1. Continued

Country	Survey year	Survey name	Institution conducting survey	Survey coverage	Survey design	Sampling unit	Response rate	Sample size individuals
Malaysia	1996	National Health and Morbidity Survey II	Public Health Institute, Ministry of Health	National	Stratified, cluster sample. Weights applied	Household	86.90%	59,903
Nepal	1995/96	Nepal Living Standards Survey	Central Bureau of Statistics (CBS)	National	Stratified, cluster sample. Weights applied	Household	96.60%	18,855
Sri Lanka	1996/97	Consumer Finance Survey	Central Bank	Excluded Northern Province due to civil war.	Stratified	Household	98%	399,28
Thailand	Jan–June 2002	Socioeconomic Survey	National Statistical Office	National	Stratified	Household	80%	17,489
Vietnam	1998	Living Standards Survey	General Statistical Office	National	Stratified, cluster sample. Weights applied	Household	70%	28,623

TABLE S2. Measures of healthcare utilisation

	Hospital care		Doctor visits	Nonhospital care Polyclinic/health center	Antenatal care	Comments
	Inpatients	outpatients				
Bangladesh						
Reference period	last episode in previous 3 months	last episode in previous 3 months	last episode in previous 3 months	3 months		Care at satellite and community clinics also included but not child immunisation
Measurement unit	Number of days	Number of visits	Number of visits			
Gansu and Heilongjiang (China)						
Reference period	12months	2 weeks	n.a.	2 weeks	n.a.	Data on hospital care only. Five levels of hospital are distinguished, the lowest of which are equivalent to polyclinics.
Measurement unit	Number of days	Number of visits	Number of visits			
Hong Kong SAR						
Reference period	12 months	30 days	30 days	n.a.	n.a.	Hospital outpatient includes visits to specialist and A&E. Doctor visits is general outpatient visits.
Measurement unit	Number of days	Number of visits	Number of visits			
India						
Reference period	12 months	2 weeks	2 weeks	2 weeks	2 weeks	
Measurement unit	Number of days	any visits	any treatment period	any treatment period	any visits	
Indonesia						
Reference period	12 months	1 month	n.a.	1 month	1 month	Puskesmas (inpatients and outpatients) and supplementary Puskesmas (outpatients) included in health centre/polyclinic.
Measurement unit	Number of days	Number of visits	n.a.	Number of days for inpatient	Number of visits	Polindes and Posyandu in antenatal care.

(Continued)

TABLE S2. Continued

	Hospital care			Nonhospital care Polyclinic/health center	Antenatal care	Comments
	Inpatients	outpatients	Doctor visits			
Malaysia						
Reference period	12 months	2 weeks	n.a.	2 weeks	n.a.	
Measurement unit	Number of admissions	Number of visits		Number of visits		
Nepal						
Reference period	30 days	30 days	n.a.	30 days	n.a.	Data does not allow distinction between hospital IP and OP
Measurement unit	Number of visits	Number of visits	n.a.	Number of visits	n.a.	
Sri Lanka						
Reference period	2 weeks	2 weeks	2 weeks	2 weeks	n.a.	
Measurement unit	Any admission	Any visit	Any visit	Any visit		
Thailand						
Reference period	12 months	1 month	n.a.	1 month	n.a.	A distinction is made between public and private care only for the last 2 IP admissions and the last episode of other care. Assumed all care received in same sector
Measurement unit	Number of admissions	Number of visits		Number of visits		
Vietnam						
Reference period	12 months	4 weeks	n.a.	4 weeks	n.a.	No distinction between public and private sector for IP care. Since vast majority of hospitals were public, assumed all IP is public
Measurement unit	Number of days	Number of visits		Number of visits		
IP inpatient.						
OP outpatient.						
n.a. not applicable.						

TABLE S3. Summary indices of incidence of the public healthcare subsidy

	Hospital care			Total public subsidy
	Inpatient	Outpatient	Non-hospital care	
Bangladesh				
Concentration index	0.2325 (0.1154)	0.1356 (0.0360)	0.0474 (0.0838)	0.1588 (0.0609)
Kakwani index	-0.1338 (0.0909)	-0.2388 (0.0372)	-0.3358 (0.0692)	-0.2244 (0.0499)
Subsidy share	47.99%	25.33%	26.69%	100%
Gansu (China)				
Concentration index	0.2442 (0.0509)	0.1199 (0.0373)	0.1199 (0.0373)	0.1970 (0.0365)
Kakwani index	-0.2286 (0.0439)	-0.3529 (0.0360)	-0.3529 (0.0360)	-0.2758 (0.0332)
Subsidy share	65.42%	34.58%	34.58%	100%
Heilongjiang (China)				
Concentration index	0.03232 (0.0605)	0.2192 (0.0474)	0.2192 (0.0474)	0.2527 (0.0385)
Kakwani index	-0.1242 (0.0652)	-0.2281 (0.0510)	-0.2281 (0.0510)	-0.1946 (0.0424)
Subsidy share	60.09%	39.91%	39.91%	100%
Hong Kong SAR				
Concentration index	-0.3193 (0.0355)	-0.2762 (0.0264)	-0.2444 (0.0232)	-0.3104 (0.300)
Kakwani index	-0.6919 (0.0356)	-0.6491 (0.0265)	-0.6173 (0.0232)	-0.6831 (0.0301)
Subsidy share	82.47%	13.36%	4.17%	100%
India				
Concentration index	0.2630 (0.0193)	0.00296 (0.0211)	-0.1325 (0.0328)	0.2117 (0.0164)
Kakwani index	0.0122 (0.01928)	-0.2476 (0.02113)	-0.3830 (0.03281)	-0.0390 (0.0165)
Subsidy share	83.68%	9.62%	6.65%	100%
Indonesia				
Concentration index	0.4896 (0.0254)	0.3891 (0.0186)	-0.0078 (0.0045)	0.1822 (0.0081)
Kakwani index	0.1752 (0.0248)	0.0880 (0.0187)	-0.3142 (0.0047)	-0.1245 (0.0080)
Subsidy share	26.54%	14.86%	58.59%	100%
Malaysia				
Concentration index	-0.0416 (0.0124)	-0.0165 (0.0231)	-0.2410 (0.0181)	-0.0807 (0.0116)
Kakwani index	-0.4100 (0.0131)	-0.3863 (0.0235)	-0.3863 (0.0235)	-0.4493 (0.0123)

(Continued)

TABLE S3. Continued

	Hospital care			Total public subsidy
	Inpatient	Outpatient	Non-hospital care	
Nepal				
Subsidy share	37.02%	38.53%	24.45%	100%
Concentration index	0.3422 (0.0709)	0.3422 (0.0709)	0.1865 (0.0411)	0.2541 (0.0398)
Kakwani index	0.1268 (0.0605)	0.1268 (0.0605)	-0.0677 (0.0487)	0.0384 (0.405)
Subsidy share	54.58%	54.58%	45.24%	100%
Sri Lanka				
Concentration index	0.0220 (0.0377)	-0.0486 (0.0304)	-0.0486 (0.0304)	-0.0020 (0.0269)
Kakwani index	-0.3313 (0.0252)	-0.4042 (0.0172)	-0.4042 (0.0172)	-0.3561 (0.0284)
Subsidy share	68.00%	32.00%	32.00%	100%
Thailand				
Concentration index	-0.0242 (0.0308)	-0.0392 (0.0227)	-0.2506 (0.0325)	-0.0404 (0.0195)
Kakwani index	-0.4199 (0.0317)	-0.4348 (0.0242)	-0.6463 (0.0335)	-0.4361 (0.0210)
Subsidy share	50.74%	45.16%	4.18%	100%
Vietnam				
Concentration index	0.0354 (0.0359)	0.1672 (0.0349)	-0.1065 (0.0272)	0.0114 (0.0283)
Kakwani index	-0.1495 (0.0471)	-0.0599 (0.0667)	-0.4623	-0.2573 (0.0458)
Subsidy share	86.88%	2.13%	10.98%	100%

Robust standard errors in parentheses.

Source: Authors' calculations from data documented in table S-1.

TABLE S4. Cross-country Dominance of Public Health Subsidy Concentration Curves

Total subsidy	Malaysia	Thailand	Sri Lanka	Vietnam	Bangladesh	Indonesia	Gansu	India	Heilongjiang	Nepal
Hong Kong SAR	D*	D*	D*	D	D*	D*	D*	D*	D*	D*
Malaysia		n.s.	n.s.	D	D	D*	D*	D*	D*	D*
Thailand			n.s.	D	D	D*	D	D*	D*	D*
Sri Lanka				n.s.	n.s.	D	D	D*	D*	D*
Vietnam					D	D*	D*	D	D	D*
Bangladesh						n.s.	n.s.	n.s.	n.s.	n.s.
Indonesia							D	n.s.	n.s.	D
Gansu (China)								n.s.	n.s.	n.s.
India							D		n.s.	D
Heilongjiang (China)									n.s.	n.s.
Hospital inpatient subsidy	Malaysia	Thailand	Sri Lanka	Vietnam	Bangladesh	Gansu	India	Heilongjiang	Nepal	Indonesia
Hong Kong SAR	D*	D*	D*	D	D	D*	D*	D*	D*	D*
Malaysia		n.s.	n.s.	D	n.s.	D*	D*	D*	D*	D*
Thailand			n.s.	D	n.s.	D	D*	D	D*	D*
Sri Lanka				n.s.	n.s.	D	D*	D	D*	D*
Vietnam				n.s.		D	D	D	D*	D
Bangladesh						n.s.	n.s.	n.s.	n.s.	n.s.
Gansu (China)							n.s.	n.s.	n.s.	n.s.
India							n.s.	n.s.	D	D*
Heilongjiang (China)								n.s.	n.s.	n.s.
Nepal ^a										
Indonesia									D	
Hospital outpatient subsidy	Sri Lanka	Thailand	Malaysia	India	Gansu	Bangladesh	Vietnam	Heilongjiang	Indonesia	
Hong Kong SAR	D*	D*	D	D*	D*	D	D*	D*	D*	
Sri Lanka		n.s.	n.s.	n.s.	D	D	D*	D	D*	
Thailand			n.s.	n.s.	D	D	D	D	D*	

(Continued)

TABLE S4. Continued

Total subsidy	Malaysia	Thailand	Sri Lanka	Vietnam	Bangladesh	Indonesia	Gansu	India	Heilongjiang	Nepal
Malaysia				n.s.	D	D	D*	D	D*	
India					D	D	D*	D	D*	
Gansu (China)						n.s.	n.s.	n.s.	D	
Bangladesh							n.s.	n.s.	D	
Vietnam								n.s.	D	
Heilongjiang (China)									D	
Non-hospital subsidy	Hong Kong	Malaysia	India	Vietnam	Indonesia	Bangladesh	Nepal			
Thailand	D	D	D	D	D*	D	D*			
Hong Kong SAR		n.s.	D	D	D*	D*	D*			
Malaysia			D	D	D	D	D*			
India				n.s.	D*	D	D*			
Vietnam					D	D	D*			
Indonesia						n.s.	D*			
Bangladesh							n.s.			

Note: Countries/provinces are ranked from most to least propoor according to values of concentration indices.

Tests follow the multiple comparison approach with the null hypothesis defined as curves being indistinguishable. n.s. indicates failure to reject the null at 5% significance.

D indicates that the subsidy concentration curve of the row country/province dominates (is more pro-poor) than that of the column country/province. There are no cases of crossing concentration curves.

*indicates that the intersection union principle test rejects the (different) null of nondominance against the alternative of strict dominance at 5%. If no * appears, then this test does not reject its null.

^acomparison with Nepal are for the aggregate of inpatient and outpatient subsidies.

TABLE S5. National Income and Government Expenditure on Health

Territory	Year ^a	GDP per capita, PPP \$ ^b	General government expenditure on health as % GDP ^c	General government expenditure on health per capita, PPP \$	General government expenditure on health as % total expenditure on health
Bangladesh	1999	1495	0.98	15	27
China	2002	4568	2.26	103	42
Gansu (China)	2002	2661	2.38	63	42
Heilongjiang (China)	2002	5434	1.48	80	36
Hong Kong SAR	2001/02	26049	3.26	849	57
India	1996	1994	0.81	16	16
Indonesia	2001	3146	0.57	18	36
Malaysia	1996	8254	1.34	111	58
Nepal	1995/96	1179	1.20	14	24
Sri Lanka	1996/97	2951	1.63	48	50
Thailand	2000	6740	2.04	138	61
Vietnam	1998	1854	1.44	27	33

^aYear of survey used for distributional analysis.^bGDP per capita in international \$ using purchasing power parity (PPP) exchange rates. Constant year 2000 prices.^cGeneral government expenditure on health including social insurance.

Source: GDP per capita—World Development Indicators, World Bank. Health expenditures—National health accounts estimates, except: India, Malaysia and Vietnam from World Health Report, Statistical Annexes, WHO, and Nepal from (HMG/Nepal 2000 and Horthkiss, Rous and others 1998).

TABLE S6. Charges and exemptions for public healthcare

	Charged services	Free Services	Income/poverty related fee waivers	Nonpoor groups exempt from charges
Bangladesh	Secondary services (nominal registration fee for inpatient/outpatient); Inpatient care in major hospitals	Most primary care (or local services); medicines within facility; immunization; some reproductive healthcare	Poor exempt or pay lower charge	Civil servants (selected services)
China	Inpatient (including etc medicines); Outpatient (including medicines); Immunisation	Family planning	None	Old Red Army soldiers and Retirees
Hong Kong SAR	Inpatient (including medicines); dental	Accident and emergency (until December 2002)	Welfare recipients exempt	Civil servants and dependents (reduced rate for Inpatients); hospital staff and dependents
India	Inpatient bed charge; outpatient registration charge; certain medicines; tests/x-rays; dental	Hospital consultation and certain medicines. Primary care/health center/polyclinic consultation and medicines. Family planning. Vaccinations and immunizations	None formally. Indirect relation to income through price differentiation in inpatient care. Informally, "poor" can be exempted partially or fully from charges	Civil servants
Indonesia	All medical care and medicines	None	Poor exempt from all charges. Indirect relation of inpatient charges to income through price discrimination	Charges determined at local government level. Some better off local govts. Provide free health centre care
Malaysia	Hospital inpatient and outpatient. Primary care. Dental care. Diagnostics and x-rays	Family planning and vaccinations/immunizations. Outpatient ante and postnatal care. Treatment of infectious diseases on third class wards. Dental care for pregnant women and pre school children	Hospital directors have discretion to waive fees for destitute. Upper limit on charges for third class ward patients	Infants less than 1 year (outpatient). State rulers, Governors and families. Civil servants (including retired) and dependents. Local authority employees and dependents

Nepal	All medical care and medicines. Nominal charge for outpatient varying with facility.	Emergency services; selected vaccines, immunization and reproductive health services. 60% subsidy for medicines at Health Posts and Primary Care centres.	Poor either exempt or pay reduced charge but not fully implemented.	None
Sri Lanka	Family planning services. Patients occasionally asked to buy medicines/supplies from private retailers when out of stock at facility.	All medical and medicines except family planning.	No official exemptions, but limited survey evidence suggests that facility staff tend to avoid asking the poorest patients to self-purchase medicines and supplies, or ration available stocks to them.	None
Thailand	All medical care and medicines. After Oct 2001, fixed fee (30 Baht) UC scheme means very minimal co-payment.	Nonpersonal healthcare; EPI vaccination	Poor exempted from user fees and co-payments. Informally, those "unable to pay" are exempted.	children <12; elderly >60; public health volunteers; monks.
Vietnam	Fees for most services introduced in 1989. Medicines rarely provided free of charge.	Outpatient services at commune health centres.	Fee exemptions for individuals who have certification of indigency from neighbourhood or village People's Committee.	Families of health personnel, certain classes of patients (like handicapped, TB), orphans.

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7. Action research

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Action research is one form of emancipatory research. It has a long tradition in community and organizational development work, for example, including work that adopts a systems thinking approach (for example, Lockett & Grossenbacher, 2003). It is also increasingly being used in quality improvement work in low- and middle-income countries (see for example, work supported by the Institute for Health Improvement <http://www.ihl.org/IHI/Programs/StrategicInitiatives/DevelopingCountries.htm>) and in health policy and systems-related work with communities – such as the work on governance issues supported by the Regional Network on Equity in Health in Southern and Eastern Africa (Loewenson et al., 2010). However, there are still relatively few published action research studies.

Action research is an overarching approach to research. “Essentially action research is concerned with generating knowledge about a social system, while, at the same time, attempting to change it” (Meyer, 2001:173). Sometimes the researchers are those whose practices and actions are the subject of inquiry; sometimes external researchers can support participants to examine their practices and experiences, and also act as facilitators to support the introduction of new practices or interventions. Such research is always flexible in character and responsive to participants’ changing needs as findings are repeatedly fed back to them, reflected on and, perhaps, acted on. Action research studies always involve multiple methods, but are mainly qualitative in nature and are often written up as case studies.

Rigour in action research

Given the features of action research and the active role of the researcher in the process, the three key approaches to ensuring rigour, particularly addressing the possibility of researcher bias (Meyer, 2001), are:

- triangulation across data sources and rich contextualization of experience
- researcher reflexivity
- member checking, that is the feedback of findings to participants for their review and reflection.

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Overview of selected papers

Two papers were chosen for this section as they together illuminate the approach of action research, based on the same study.

Khresheh & Barclay (2008) report on the findings of their action research study supporting the implementation of a new birth record system in three Jordanian hospitals. Subsequently, they report their reflections on their experience in conducting this study (Khresheh & Barclay, 2007).

References for selected papers

Khresheh R, Barclay L (2007). Practice—research engagement (PRE): Jordanian experience in three Ministry of Health hospitals. *Action Research*, 5:123.

<http://dx.doi.org/10.1177/1476750307077313>

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Khresheh R, Barclay L (2008). Implementation of a new birth record in three hospitals in Jordan: a study of health system improvement. *Health Policy and Planning*, 23:76–82.

<http://dx.doi.org/10.1093/heapol/czm039>

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ARTICLE

Practice–research engagement (PRE)

Jordanian experience in three Ministry of
Health hospitals

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ABSTRACT

This article describes the practice–research engagement (PRE) that occurred during an action research project conducted in three hospitals in Jordan. The project aimed to develop and test the feasibility of an improved clinical record-keeping system. This article focuses on how relationships were built and evolved over time with national and local leaders and practitioners to facilitate the study, and how this led to a process of health system improvement. The article draws on outcomes and analyses from data collected in field notes, recorded interviews and focus groups. Results showed that the PRE approach assisted people to change as they undertook a process of clinical improvement and health systems development.

KEY WORDS

- action research
- clinical improvement
- partnerships
- practitioners–researchers engagement
- system development

Background

This article describes the details of the practitioner–researcher engagement process, undertaken by the first author and field researcher (Khresheh), to implement a shared, consolidated clinical record (the Jordanian Consolidated Birth Record [JCBR]) within three hospitals in Jordan. We took a pragmatic quality-improvement approach to the research. In the article we describe how practice–research engagement was employed within a number of action research cycles to contribute to health service improvement. The JCBR was tested in three different hospitals in Jordan with the new record being completed by staff in addition to the normal records for the duration of the study. In particular, we analyse the importance and complexity of engaging project participants and building relationships, which deepened as staff and researcher worked together towards the ultimate success of the project. Himmelman’s (2001) framework is used to analyse the researcher-managed process of engagement. Change processes within action research cycles (Brown, 2001) were undertaken jointly by the field researcher and practitioners to achieve mutual goals around practical system improvement (Batliwala, 2003; Brown, Bammer, Batliwala & Kunreuther, 2003; Reason & McArdle, 2006).

Problem identification and need for change

Jordan is a small developing country, located in the Middle East. The Jordanian population is approximately 5.5 million with a birth rate of 29/1000, a death rate of 5/1000 and a fertility rate of 3.7 (Department of Statistics, 2004). The Maternal Mortality Rate (MMR) in Jordan is 41/100,000 live births with 82 percent of these identified as being preventable (Nsheiwat & Al-Khalidi, 1997). Preliminary research suggested improvements could be made in maternal and child health data systems. Initial field visits to Jordan by both authors and their meetings with key stakeholders in the Ministry of Health in October 2003 confirmed the need to improve maternity care records and to develop ways of monitoring performance.

The research reported in this article was part of a larger study aimed at testing the introduction of a new clinical record in Jordan. This was designed to inform planning, and demonstrate accountability from the local level to a national system of monitoring perinatal mortality and morbidity, as well as improve clinical outcomes and organizational efficiency. The study was conceived and planned by both authors in conjunction with Jordanian health leaders, with the field research carried out by the first author who is a Jordanian national. Other publications are in preparation including an article describing the process of implementation of the new record as a first step toward system improvement and a second article reporting on the testing of the new standardized record to

provide regular and reliable data around birth services and allow comparison with evidence-based practice.

There are two information systems for birthing women in Jordan held in two parallel national records. The antenatal and postnatal records are held in the Maternal Child Health clinics in the community where care is provided by obstetricians, midwives and nurses. Labour and birth records are held in the hospital where other obstetricians, midwives and nurses provide care. Currently in Jordan there is no opportunity for women to retain copies of these records in the form of hand-held records. As a result clinicians work without vital information and there are no opportunities to ‘benchmark’ performance of clinicians, or by one hospital against another hospital, or to compare Jordanian outcomes of maternity care with international standards.

The study

The study used an action research process underpinned by Practice–Research Engagement (PRE) (Brown, 2001). Brown describes PRE processes as: working on a problem that requires the resources of both practitioners and researchers; recruiting participants appropriate to the problem and the PRE process; establishing shared values, goals and expectations for joint work and diagnosing institutional arrangements that support or retard PRE, organizing the engagement process to use participants’ resources effectively and learning from the process about the issues and PRE. These principles were integrated into each action research cycle and influenced the relationships built with participants. The action research was also guided by literature that acknowledges that research aimed at practical systems change cannot generate knowledge or improvement without engaging with practitioners (Batliwala, 2003; Brown et al., 2003; Lindsey, Shields & Stajduhar, 1999; Reason & McArdle, 2006).

The Ministry of Health gave approval to conduct the study in three selected hospitals in three different areas of the country. The Ethics Committee of the University of Technology, Sydney (UTS), also provided ethical clearance for the research to be undertaken.

Prior to commencement of the project we conducted a baseline audit that investigated the quality of the data kept in the regular clinical record. We then engaged policy-makers and clinicians in the design and then the implementation of the JCBR (Brown et al., 2003). In this process, which is described below, we applied change theories within action research cycles during the planning, implementation and evaluation of the new clinical record (Brown, 2001).

The audit of 180 medical records of mothers from the three participating hospitals confirmed the poor quality of the data collected in hospitals. Only 50 percent of these records were adequately completed with documentation

occurring in 18 different places throughout the record. It took an average of 90 minutes to complete the full record for each woman. Further, the records were often completed retrospectively by a person who had not provided the care that was described, as clinicians would complete the information when they had time or leave this task to their senior colleagues to complete (Khresheh, 2006).

In keeping with the first principle of PRE (Brown, 2001) the record audit data were presented at preliminary meetings with practitioners in the field. Health leaders in the Ministry of Health, managers of the three hospitals, and health professionals working in the maternity departments in participating hospitals all agreed that high quality clinical data for the care of mothers should be a priority and that the current poor records needed to be improved. The new consolidated and linked birth record, the JCBR, was considered to be a solution that could improve the quality of record-keeping systems around birth, inform planning, and demonstrate accountability from the local level to a national level through monitoring perinatal mortality and morbidity. It was believed the record would improve clinical outcomes and organizational efficiency. This new record was based on a similar record used in the Australian health system (NSW Department of Health, 2004).

This high level of agreement around the new record as a solution to the problem of poor clinical records supported the rationale for the study. Participants were enthusiastic about the potential for an integrated, better designed, shared record to assist clinicians, managers and policy-makers to improve a range of outcomes for which they were responsible: the clinicians for improved care of individual women, the managers for more accountable performance in their hospital and the policy-makers for a system that reviewed services and worked to improve health care. In exchange for the assistance of the researchers in designing, implementing and evaluating the new record, participants agreed to facilitate and contribute to finding solutions and to generate the data needed to investigate and understand the quality improvement process.

Initial interviews and focus groups were undertaken with 36 people. These included staff in medical records departments ($n = 3$), nurses and midwives ($n = 15$), medical directors and senior staff in hospitals ($n = 12$) and Ministry of Health officials ($n = 6$). These initial interactions with participants in the interviews and focus groups at national and hospital level helped identify the practitioners in the various departments who were able to work with researchers to improve the quality of records and manage the change process. The formation of 'communicative spaces' through focus groups (Reason, 2004) encouraged interaction that led to active participation. New forms of communication also developed among participants from different disciplines, for example nursing, medical and midwifery professionals came together for the first time, with the research providing them with the opportunity for mutual understanding and a means to reach a shared agreement about actions (Reason, 2004). These discussions raised the practi-

tioners' awareness of the problem by presenting them with an analysis of their own baseline data. This helped to build motivation for change as they realized their own data was of poor quality.

Once the strategy for improvement was identified and agreed with health leaders and hospital staff, practice–research engagement groups were established at different levels of the health system and in the three different hospital settings. These were entitled the 'National Steering Group', with separate groups: the 'Local Leadership Group' and 'Local Action Group'. The National Steering Group comprised experts from the Ministry of Health and included those responsible for maternal and child health, quality assurance and nursing leadership. The National Steering Group provided the field researcher with the authority to conduct her work, assistance in planning, guidance and recommendations that were helpful to the study. The Local Leadership Groups consisted of the managers of the three selected hospitals, directors of nursing, medicine and medical records departments. The Local Leadership Groups provided the researcher with the authority to work with their staff, guided and assisted in her work and were linked at a policy and professional level with the national steering group. The Local Action Groups consisted of the health professionals who were working in the maternity departments of the selected hospitals, including obstetricians, resident doctors, midwives and nurses, and included medical records department workers. The Local Action Groups were supported and guided by their directors in their work with the researcher in the implementation of the JCRR. The process of practitioners–researcher engagement in this study and the role of the researcher in relation to the National Steering Group, Local Leadership Groups and Local Action Groups is described in Figure 1.

The action research cycles

Planning

Overlapping cycles of action research, diagnosing, planning, implementing and evaluating activities were used in each setting and guided the researcher's interactions with participants (Davison, Martinsons & Kock, 2004; Meyer, 1993). Interviews and focus groups conducted with staff from three Maternal Child Health clinics, linked to the participating hospitals, allowed additional data to be collected to investigate the changed record system and its impact outside hospitals and were also fed back into research cycles and conclusions.

Health policy leaders, hospital managers, clinical and medical directors and clinicians were all included in planning to ensure their co-operation and commitment in achieving the aims of the study (Brown, 2001; Brown et al., 2003; Evans, 2003; Larrabee, 2004). Open communication and co-operative interactions between researcher and practitioners on each level produced valuable feedback

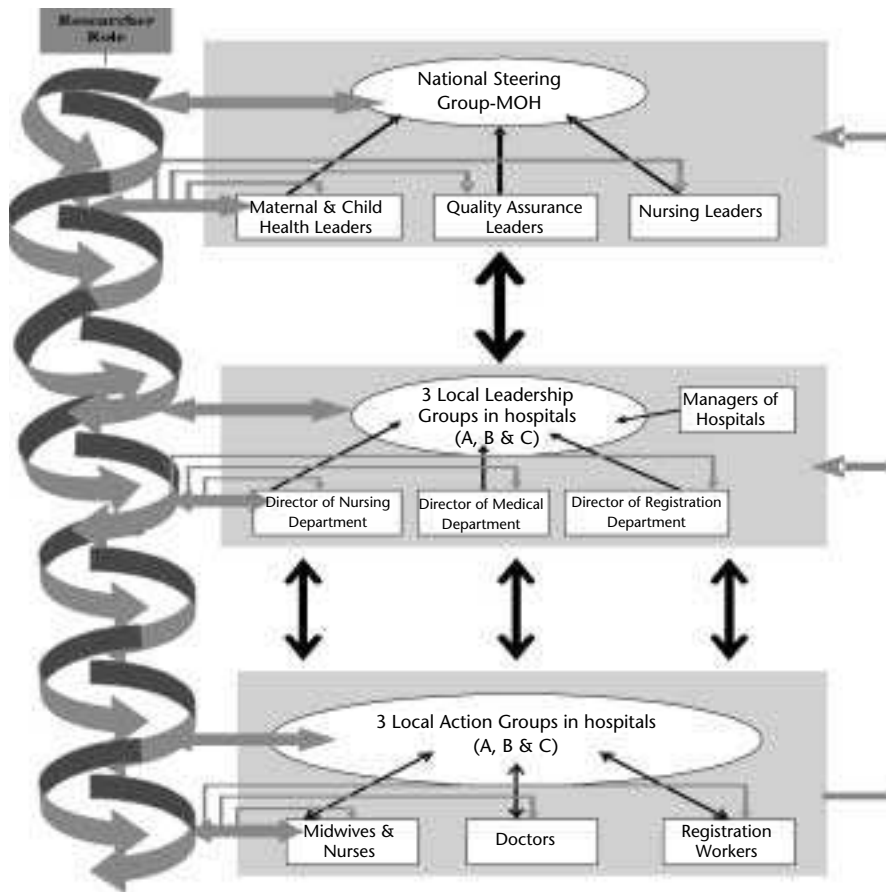


Figure 1 A description of the practitioners–researcher engagement process used in this study

on the final draft of the JCBR and the process of its implementation in the field. This included modifications of the items in the record, adding new items, specifying who should complete the JCBR, the training of the health professionals in the use of the JCBR and the process of its implementation. The items, the design of the record, and identifying who should complete the form were decided and agreed. The draft JCBR was reviewed, discussed and revised many times during group meetings. All groups from the national to local levels were then invited to provide feedback on the final draft of the JCBR before this was implemented.

‘Training’ sessions that were conducted to enable practitioners to use the new JCBR were also motivating, engaging and consultative in the PRE sense (Brown et al., 2003). They were planned jointly by the first researcher and the action research groups and conducted based on their recommendations. This included the number of training sessions to be conducted in each hospital, the

knowledge and practice that needed to be provided to health professionals and the best time for conducting training sessions.

Implementation

The National Steering Group led the study, with members identifying participating hospitals, providing formal approval for the study and encouraging hospitals to participate. Local Leadership Groups supported the implementation of the JCBR in the three hospitals, facilitating the involvement of their staff in the process of the implementation. The Local Action Groups working in the maternity departments at the three hospitals were involved in the implementation of the JCBR. The staff of the registration office, admission unit, labour room and postnatal department in the three hospitals shared this responsibility with the researcher. The local director encouraged staff to become actively involved in the implementation process. This helped increase the staff's commitment to the implementation process and enabled continuous feedback to be included in the evolving, shared process of the study.

The flexibility of the PRE approach and the overlapping action research cycles assisted the researcher and practitioners in dealing with problems that arose during the implementation of the JCBR. The frequent interaction between the researcher and staff during the fieldwork and the co-operative relationship that shaped this interaction created opportunities for the researchers and whole team to reflect, analyse and make change during the implementation process. This resulted in rapid problem solving and was used to keep staff informed and provide supportive feedback to them. For example, the researcher found during earlier field visits that some health professionals did not complete their sections in the record as had been agreed. The researcher, with the co-operation of the director of each department, conducted additional meetings with staff providing more explanation and clarification of the process, resulting in improved compliance in record-keeping.

The engagement between the support groups, practitioners and researcher was organized, managed and sustained by the field researcher, balancing the different values, goals, perspectives and capacities of the researcher and practitioners. This helped limit any negative impact of unequal levels of participation, and maintained the co-operative relationship between researcher and practitioners (Brown, 2001; Brown et al., 2003). The organization of the practice research engagement process into national and local action groups helped solve the problems of power differences that would have arisen if these groups had been integrated (Brown, 2001; Brown et al., 2003). This enabled open and frank exchanges within each group unhampered by issues of status and power as groupings included similar levels of authority, experience and participation. Action research groups at each level were provided with different types of support to

manage the change processes of the project ranging from the use of authority and guidance to the personal involvement by clinicians as staff used the new record on a daily basis.

Evaluation

The evaluation of the implementation of the JCBR in the three participating hospitals began at a local level in September 2004 and finished nationally with a meeting of leaders in May 2005. Immediate outcomes as well as longer-term evaluations were assessed using record audits, interviews and focus groups. The data obtained were analysed into themes on the basis of frequency and strength of responses. Findings from the evaluation of the JCBR were fed back to groups at each level and discussed in meetings. Initially findings were also shared with the Local Action Groups in the three hospitals at meetings held during field visits to each hospital. These findings and the staff reflections were then shared with Local Leadership Groups in each hospital. Finally the findings and the reflections of both these groups were reported to the National Steering Group in the Ministry of Health. The ultimate results of the project were presented, by invitation, at a national public forum hosted by the National Steering Group. This inclusive process allowed the project to become the jointly owned work of the Ministry of Health and the researcher, and indicated the ultimate success of the practice–research engagement process (Brown, 2001).

The engagement between the researcher and the practitioners challenged current practices, identified effective improvements and developed a tool, the JCBR, which was based on both research and practice (Brown, 2001). The members of all the action research groups and the researchers found the results of the study important and promising. Relationships had been built between the research team and the action research groups that have evolved into long-term collaborations on national and local levels. These have been sustained subsequent to the research being completed. One of us, the first author, has been invited to help in a new project for the Ministry of Health that aims to improve the quality of records in maternity care in all the hospitals in Jordan. Additionally practitioners originally involved in the research are still collecting data on the JCBR and sending this to the first author for analysis.

Outcomes and analysis

The outcomes of this study are on multiple levels and exist in the real world as the Jordanian maternal child health system continues to evolve informed by our work. The learning that we experienced as researchers during the study is explicated below, as we believe it is valuable to share.

Formation of the practice–research engagement groups

The PRE group formation phase started in January 2004 and continued until June 2004 during the diagnosing, or planning, phase of the early action research cycles. It was important to have a co-operative inquiry group that consisted of people who shared a common concern for developing understanding and practice in a specific field. It was the field researcher's role to create the conditions for democratic dialogue among participants within each group (Reason & McArdle, 2006). Data generated during interviews and focus groups was also fed back into the system and informed and stimulated representatives of the whole system in thinking through and planning change.

Key people were identified and engaged in the process during the initial interviews and discussions and continued to participate throughout the project. The researcher targeted her efforts to establish, build and strengthen relationships with the partners in the study and used networking to maximum effect in the early stages (Himmelman, 2001). One health leader in the Ministry of Health, for example, directed the researcher to other key people who could help; this 'snow-balling' technique of recruitment became the starting point for building action research teams. Frequent, informal meetings and discussions with key people identified their interests and capacity to engage in the research process. Focus groups helped to identify other appropriate people for the practice–research engagement at the local level who were then invited to participate in the project subject to completion of normal formal consent processes (Brown, 2001).

The nature and level of the working relationship that developed between the field researcher and her colleagues in each setting became clearer over the duration of the project and differed according to the nature of tasks undertaken together. Different strategies for engagement were also used with different groups and with individuals. These were influenced by the Jordanian culture, gender and professional role and type of involvement. This was of particular importance when applied to the relationship between the field-based researcher and participants who were doctors, nurses and midwives. This became played out very overtly because the field researcher was a woman and a nurse, making it challenging in the early stages for her to achieve a collegial or leadership role with male medical directors who were of higher gender and professional status within this culture. For example, in one of the participating hospitals, the director of the medical department, a doctor, initially completely refused to co-operate. While there were other complicating factors also operating, relating to hierarchical disputes within the hospital, additional efforts were required to gain his co-operation in the research. The researcher took advice from other health professionals working in the hospital on the best way to get the co-operation of the hospital directors, and was ultimately successful in developing a personal and friendly relationship with each separately, and over time earning their respect as a researcher.

Establishing shared goals and objectives

The researchers and action research groups all shared a common goal of improving the quality of care provided to birthing women and increasing the accountability for services by the health professionals. However, another unpredicted level of goal sharing and team work developed through this study. Training sessions, focus groups and meetings helped doctors, nurses and midwives in the three hospitals to interact positively, find common interests and begin to work in teams focused on this project's goal rather than as different status individuals (Reason, 2004). Shared objectives and frameworks developed as the content of the JCBR was renegotiated, tested and modified based on group suggestions during discussions in meetings (Brown, 2001). These negotiations resulted in the strategies and methods suitable for the implementation of the JCBR within the Jordanian health system and its hospitals. Further discussions and negotiations resulted in agreement on the level and degree of commitment of participants and how their own interests would be served by their participation in the research (Batliwala, 2003; Brown, 2001; Brown et al., 2003; Lindsey et al., 1999).

The field researcher actively applied the principle of reciprocity confirming the notion that in PRE, research does not just 'take' but also contributes (Redelmeier & Cialdini, 2002). She found that she could meet the needs of some participants in ways that enhanced their working relationship. For example, one hospital director was interested in becoming more up-to-date with normal birth and evidence-based practice, and needed a source for this information. The researcher provided her with copies of articles about evidence-based practice and normal delivery and also recommended a contact person within the WHO office in Jordan.

The changing nature of the partnership in PRE

While the commitment to developing partnerships between the researcher and practitioners in this study was based on PRE principles (Brown, 2001), it can also be explained using the definitions of networking, co-ordination, co-operation and collaboration strategies identified by Himmelman (2001). These definitions describe the transformation of power relations necessary to achieve coalitions between organizations to solve problems. They can be usefully applied in relation to the different levels of PRE achieved over the duration of the study and the ever developing relationships in this project.

Networking involves the exchange of information for mutual benefit. It initiated the relationship and began to build trust between researcher and practitioners (Himmelman, 2001). Coordinating involves the exchange of information for mutual benefit and altering activities for a common purpose. This requires time to develop. In this study the establishment of trust between researcher and

practitioners was demonstrated, for example, in the relationship built between the researcher and the hospitals' managers, leading to joint planning of the study and implementation of the training program. Co-operating involves the exchange of information, altering activities, and sharing resources for mutual benefit and a common purpose (Himmelman, 2001). This also requires significant amounts of time, high levels of trust, and a significant sharing of 'turf'. This took at least 10 months to develop and considerable targeted effort by the field researcher and shaped, for example, the relationship between the researcher and the National Steering Group. This co-operation resulted in letters authorizing the research being sent to hospitals and generated the co-operation, guidance and support of Local Leadership Groups and department directors in facilitating their staff's involvement in the study. The co-operation of the directors of departments was not only logistically desirable, but also increased the motivation of their staff to attend the two hour training sessions. Directors informed the participants about the activities of the training sessions and some promised the nurses and midwives on their staff a day 'off' if they attended the training sessions. The field researcher also provided small incentives during the training sessions, such as food, drinks and small gifts in keeping with local Jordanian customs.

A collaborative strategy operates at the peak level of Himmelman's hierarchy. It involves exchange of information, altering activities, sharing resources and enhancing the capacity of practitioners for mutual benefits and a common goal (Himmelman, 2001). Again this requires the highest level of trust, considerable amounts of time, and extensive sharing undertaken for the good of the research and its potential outcomes. The shared goals of improving the health care for mothers and babies and the maternal and child health system in Jordan guided the researcher and practitioners in their joint work and created commitment for the considerable effort needed for the research to succeed. For example, involvement of health care professionals (Local Action Groups) in the implementation of the birth record over a period of time, and their willingness to contribute to the improvement of the quality of care in their health systems, required them to complete two sets of records for the duration of the study. Figure 2 describes the nature and the level of partnership development with the three action research groups.

Institutional arrangements

Institutional arrangements may affect the practice–research engagement work and, as Brown (2001) describes, researchers need to learn how to interact within institutional requirements. The first step was obtaining permission from leaders in the Jordanian health systems for the study. The Ministry of Health's interest and subsequent permission for the study helped provide managers of the hospitals with the flexibility to engage in the research and to use their own authority to

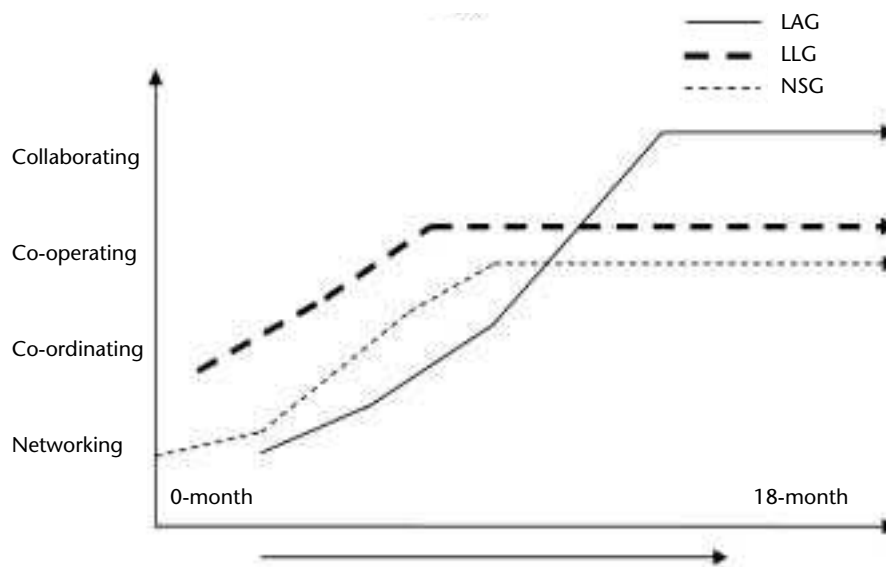


Figure 2 The nature and the level of partnerships development with the three action research groups, the National Steering Group (NSG), Local Leadership Groups (LLG) and Local Action Groups (LAG), over the duration of the study and how these changed against Himmelman's hierarchy

facilitate the implementation process. This high level approval enabled the engagement of practitioners throughout the health system and reduced institutional constraints regarding their participation. It also helped the researcher to interact with practitioners in the field in a flexible and authoritative manner.

The second level of institutional participation was required at the hospital level. The manager's permission for the research allowed directors of each department (medical, nursing, registration) to engage in the process and use their authority similarly with their staff to facilitate the research process. This provided doctors, nurses, midwives and other workers, who implemented and used the JCBR, with the flexibility to participate and reflect on the process of the implementation with the researcher.

Frequent discussions between the researcher and practitioners helped identify the challenges and/or constraints that an institution might impose on the practice–research engagement within the field. These challenges and constraints were documented during fieldwork and discussed in PRE meetings. We found, as have others, that organizational development and action research can be strongly emancipatory, creating processes and structures for collaborative inquiry (Reason & McArdle, 2006). These processes encourage values of inquiry and learning and mutual respect for other people (Reason & Bradbury, 2001; Reason & McArdle, 2006).

Conclusion

Practice–research engagement was effective in merging the insights of practice with the analytic tools of research to generate new knowledge and improvement in practice. It also helped us learn about managing a process of change that ultimately could improve a health system (Brown, 2001).

Good communication skills, skilful listening, flexibility and respect are some of the strategies the change agent should use to build trust and close relationships with key persons (Buonocore, 2004). The field researcher attempted to model these characteristics and apply them with leaders in the system and appeared to be highly successful in doing so.

Baseline data from interviews and focus groups showed that the time for training, shortage of staff and workload, and resistance to change, were potential barriers to the implementation of the JCBR and constituted risks to the study. Strategies to overcome these were identified early and key people at national and local levels assisted us in implementing these strategies. We found the work of Reason and McArdle (2006), stating how action research can contribute to organizational development through more effective work practices and better understanding of processes of organizational change, to hold strongly in this study. Information collection and feedback to staff led to joint problem solving so that organizational development became not only a process of organizational improvement but also a process of mutual and liberating inquiry. In this study, for example, practitioners learned together that each discipline needed to improve their record-keeping behaviours and work together as a team to improve care for women.

The researchers identified resistance to change by health professionals as one of the barriers to the implementation of the JCBR. Most resistance to change occurs due to lack of knowledge about the change and fear of the unknown. Understanding the key areas of change management and how to avoid obstacles are critical to project success. Professionals may feel threatened, especially if there is no clear positive benefit of change apparent to them immediately. They will assume negative consequences and act accordingly to stop or delay the change process (Handly, Grubb & Keefe, 2003; Howardell, 2006; Linton, 2002). In this study, health professionals working in the maternity departments in the three hospitals were involved in the implementation process of the JCBR. In addition, key persons at national and local levels actively assisted and were actively engaged. Effective communication, clear and shared goals and establishment of joint involvement and shared ownership proved effective strategies that were adopted to enhance change and were successful in preventing resistance.

Co-operation from health professionals was essential for the implementation of the JCBR. One of the participating hospitals was an institution where the field researcher had previously worked. She was well known in this hospital with

most of the staff having previously been colleagues and they readily accepted and co-operated with her. While creating some bias, this confirmed the importance of close relationships between researcher and practitioners in the process of implementing the required change. She worked hard to build this type of relationship in the other two hospitals, where she was not known initially, and while not achieving the same depth or duration of relationship, she was ultimately successful.

Our research verified findings reported in the literature that careful structured planning of the change process helps overcome barriers to change (Buonocore, 2004). Also that preventing resistance to change is better than overcoming it, with involvement and communication being the best strategies to prevent resistance to change (Szocska, Rethelyi & Normand, 2005). Achieving change in a public-sector organization requires more than minimizing resistance however and is difficult because the complexity is overwhelming. Success depends on the quality of the implementation, on the sensitivity to different points of view, the degree of support from key persons in the organization and the reliability of principles of the change approach adopted (Byram, 2000; Iles & Sutherland, 2001; Winkelman, 2003).

We found that developing effective practice–research engagement and using action research at different levels of the system concurrently enabled us to achieve substantial health system change. Our work has confirmed that a PRE approach can facilitate complex health system change associated with quality improvement.

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Implementation of a new birth record in three hospitals in Jordan: a study of health system improvement

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Accepted 13 August 2007

This study tested the introduction of a new integrated clinical record in Jordan where currently no clinical report links antenatal, birth and postnatal care for women. As a result, no continuity of information is provided to clinicians nor are there national statistics on trends, or performance of hospitals around birth. Our study was conducted in the Jordanian Ministry of Health, the maternity wards and registration departments of three hospitals in Jordan and in the Maternal and Child Health Centres located near these hospitals. We used an exploratory, descriptive design and practice-research engagement to investigate and report on the process of change to improve and implement the new birth record. Through engaging practitioners in research, care improved, the quality of reporting changed, managers developed more effective measures of hospital performance and policy makers were provided with information that could form the basis of a national maternity data monitoring system. Quantitative and qualitative audit data demonstrated improved clinical reporting, organizational development and sustained commitment to the new record from clinicians, managers and policy leaders.

Keywords Maternal health services, practice-research engagement, quality assurance, health care quality

KEY MESSAGES

- Clinical information can extend beyond individual patient care to include quality review and improvement processes within health information systems.
- Identifying a shared goal and engaging practitioners and researchers in practical activity to achieve this goal can bring about sustained clinical improvement.
- A Practice Research Engagement process led by a skilled researcher can play a key role in quality improvement beyond the immediate aims of the research project.

Introduction

Efforts to develop a Perinatal National Minimum Data Set have been undertaken in many countries, led by the World Health Organization (World Health Organization 2004). The aim of such data collection is to improve the health of mothers and babies by monitoring perinatal health, as well as providing ongoing information to service providers and policy makers

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about trends and patterns in the health status of mothers and babies. Although perinatal surveillance systems are feasible in developed countries, they have still not been implemented widely (Beck *et al.* 2003; Laws and Sullivan 2004). Often where elements of such record systems exist, they are described as fragmented, incompatible, uncoordinated and not comprehensive, and a concerted effort is needed to enable regular monitoring of maternal morbidity and mortality (AbouZahr and Wardlaw 2001). Researchers have stressed that practice could be adversely affected by inaccurate clinical information and that there is an urgent need for the development of standard data-collection tools for collection of high-quality data (Wyatt and Wright 1998; M'kumbuzi *et al.* 2004).

Jordan is geographically small and classified as a developing country with a population of 5.5 million people (World Health Organization 2001). The birth rate is 29/1000 and the fertility rate is high at 3.7 (Department of Statistics 2004). In Jordan, 27 Ministry of Health hospitals provide birth services, with nearby Maternal and Child Health Centres providing antenatal and postnatal care. The record-keeping system in these hospitals and Maternal and Child Health Centres is controlled nationally, resulting in two separately located information systems. Pregnant women's antenatal and postnatal records are held in the community at the Maternal and Child Health Centres, while labour and birth records are in the hospital. There is no system linking the antenatal, birth and postnatal record to provide continuity of information to clinicians, national statistics on trends, or performance of hospitals around birth. Incorrect reporting of maternal and infant mortality and morbidity is likely as there are difficulties in collection and aggregation of poor quality data, with no validation of this or quality controls in place.

Available data are usually based on 'snap shot' research or surveys which are costly to conduct (Nsheiwat and Al-Khalidi 1997; Shihadeh and Al-Najdawi 2001), while large-scale demographic and reproductive health surveys are carried out intermittently (Department of Statistics and Macro International Inc. 1998; Department of Statistics and ORC Macro 2003). Our baseline study confirmed that recording of birth data collected in hospital records was of poor quality, recorded in 18 different places in the hospital record and that insufficient hospital data were returned to the community to inform postnatal care. There were other concerns including duplication of data that was time consuming for the recorder, with frequent gaps in information, retrospective completion of

records and clinicians often not reporting on their own care. In addition, pregnant women had no access to their own records and there was no peer review of performance in the health team. Since data were not used for analysis or planning there were no opportunities to 'benchmark' performance individually by clinicians or by the hospital against other hospitals or with international evidence or standards (Khreshneh 2006). No published studies or reports are available in Jordan describing professional practice during labour that could be linked to morbidity outcomes, and efforts have been made through research, rather than routine data collections, to explore the causes of mortality (Nsheiwat and Al-Khalidi 1997; Khouri and Masaad 2002). However, a National Information System now being introduced provides an opportunity to combine an 'on line' clinical data entry system with one that can report trends in the safety and quality of birthing services through aggregation of clinical data (National Information Centre 2001).

The study reported here aimed to investigate the feasibility and outcomes of introducing a new birth record shared between hospital and community. The new record, the Jordanian Consolidated Birth Record (JCBR), is based on the NSW Perinatal Data Collection Form (NSW Department of Health 2004) which is part of the Australian perinatal data collection system of national reporting and benchmarking (Laws and Sullivan 2004). It was modified by Jordanian experts to meet Jordanian needs. This Australian tool was chosen for pragmatic reasons because of its accessibility to the researchers. The JCBR consists of eight basic areas, many modified from the Australian tool to suit the Jordanian context. Items include demographic data and information on maternal health, the pregnancy, labour, delivery and perinatal outcomes (see Box 1). Modifications suggested by the Ministry of Health officials included removal of data not applicable to the Jordanian community such as 'aboriginality' and addition of data such as the woman's nationality, occupation, husband's occupation and income, type of health insurance, final diagnosis upon discharge, haemoglobin level, blood grouping and Rh of mother and infant etc.

Our research objectives were to improve the quality of the clinical reporting system, to enhance organizational development through teamwork around data collection and to improve the quality of care by linking community and hospital antenatal, birth and postnatal records. We explored whether the JCBR could be the basis of a national maternity data system

Box 1 Items collected in the new record (JCBR)

Demographic: Record number, national number, hospital name, woman's full name, age, address, date of admission, nationality, occupation for woman and husband, and health insurance.

Maternal health: Number of previous pregnancies, live births and abortions; type of last delivery and number of previous caesarean sections.

Pregnancy: Date of last menstrual period, antenatal care, medical conditions, smoking status.

Labour and delivery: Onset of labour, pain relief or anaesthetics, presentation at birth, type of delivery, perineal status, surgical repair of vagina or perineum, immediate post-natal complications.

Baby: Place of birth, date of birth, sex, plurality, birth weight, estimated gestational age, Apgar scores, resuscitation of baby, breastfeeding initiation, birth defect, admission to NICU.

Discharge notes: Final diagnosis, mother discharge status, baby discharge status, date of discharge for mother and baby, laboratory results for mother, physician treatment and advice.

that would monitor and benchmark maternity care services in Jordan. The results are reported against these objectives.

Methods

Design

The study, begun in January 2004 and completed in October 2005, used an exploratory, descriptive design and an action research approach; practice-research engagement. This approach was chosen because the design allows investigation of a quality improvement process that simultaneously supports change management (Brown 2001). The study drew on a combination of quantitative and qualitative data to compare baseline data with implementation data produced from the new record.

Setting

The study was conducted in three Ministry of Health hospitals (A, B, and C) purposively selected by the Ministry in different regions of Jordan. Two hospitals are peripheral hospitals and one is a tertiary centre. These hospitals provide birthing services for approximately 14 530 women annually (Department of Statistics 2001). The Ministry of Health in Jordan and the Ethics Committee of the University of Technology, Sydney, approved the study. De-identified hospital data were used for the record audit and all participants in the action research study formally consented to participate.

Data collection and analysis

The study consisted of three standardized record audits, pre-implementation baseline data, immediate post-implementation data and a smaller opportunistic evaluation conducted 7 months post-implementation. Qualitative data that describe and explain the change process were collected in each setting from managers, clinicians and medical records staff using focus groups, interviews and standardized questions. Field notes were also kept.

A training programme was conducted in each hospital to prepare health professionals to use the JCBR. This was also an important part of the action research methodology as sharing information from the outset, especially the baseline data which confirmed the nature of the problem, was helpful in motivating participants to work together to improve their record keeping. Clinicians were also encouraged to complete the JCBR contemporaneously, rather than retrospectively.

A detailed coding sheet was developed for manually coding audit data from records. This sheet collected completeness of record, errors, persons/role of person completing the record as well as clinical data. This coding sheet was tested pre-baseline, modified slightly and then used for baseline assessments, post-implementation and for the longer term follow-up.

The first record audit was with a random sample of 180 records, 60 from each hospital, of women who gave birth in 2003. This sample was considered of sufficient size to convincingly describe the size and nature of the problem. This was compared with results of a second audit post-implementation ($n=1254$) that sampled records of all women who gave birth during 2 months use of the new record. The size of the third

opportunistic audit of 42 records, randomly selected from women who gave birth 7 months after implementation, was estimated to be sufficient to assess the sustainability of the effect of the new record on the quality of reporting and recording of data about mothers and babies. Quantitative data were collected for record audits and analysed using Excel spreadsheets and frequency tabulation.

Nine interviews and three focus groups (spread equally across each of three participating hospitals) were undertaken before the implementation of the JCBR with a total of 36 people who played key roles at different levels of the health system. This established their opinions of the record. A second round of interviews and focus groups was undertaken immediately after the implementation of the JCBR with clinicians and medical record staff ($n=40$), with mothers ($n=15$) who received their own copy of the JCBR and with Maternal and Child Health Centre staff who provided antenatal and postnatal care ($n=21$). A third round of interviews with hospital staff ($n=23$) occurred concurrently with the 7 months post-implementation audit. Questions explored how the JCBR affected the reporting and recording of data and how staff used the data subsequently. Audio-recorded data from interviews and focus groups were transcribed in Arabic and content analysis was used to identify repetitive themes which are reported qualitatively using text and quotes. Field notes recorded observations made during visits to hospitals, to clinics or during appointments, and were updated daily. Field notes were also analysed for themes, quotes and observations, which have been extracted to exemplify findings reported here.

The field researcher, Khresheh, who is Jordanian and a clinician, worked alongside staff during the implementation in each hospital. During random weekly checks at each hospital the accuracy of data being recorded in the JCBR was assessed, enabling us to see if records had been fully completed, and if not, the type and number of incomplete items, the accuracy of these records compared with the notes in the medical records and the differential participation rates of groups of staff. Consistent with a methodology that promotes change, these visits maintained, or built, the commitment of the participating health professionals as the researcher and participants worked together to analyse and improve results. At each visit, the researcher randomly drew 10 records of participating women. The participation rates of different groups of staff were identified through their signatures, enabling the researcher to identify whether a doctor or midwife or registration worker had completed his or her section. The percentages of completed sections for each different group's signatures were calculated by the researcher (see Figure 3 below).

Results

Quality of clinical records

In pre-implementation audit data, up to 50% of the records were inadequately completed with important clinical information unrecorded. It was also difficult to find this information since records were duplicated and recorded in 18 different places and by up to four different care-providers. In contrast, post-implementation data showed that although completion rates of the JCBR continued to improve over time, even at the

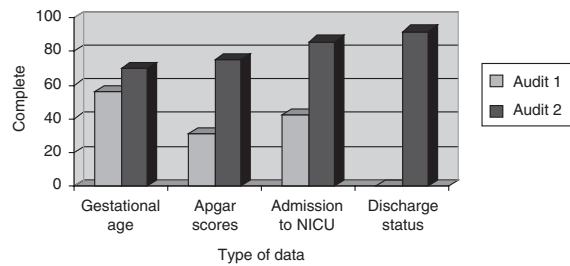


Figure 1 Improvement across a sample of data measuring completeness of record before (Audit 1, $n=180$) and after the implementation of the JCBR (Audit 2, $n=1254$) in the three hospitals

Table 1 Improvements in a sample of aggregated data from three hospitals before implementation (Audit 1), after implementation (Audit 2) and at 7 months post-implementation of the JCBR (Audit 3)

Type of data	Audit 1 ($n=180$)		Audit 2 ($n=1254$)		Audit 3 ($n=42$)	
	No.	%	No.	%	No.	%
Gestation age	101	56	992	79	31	74
Apgar scores	55	31	940	75	25	60
Admission to NICU	75	42	1072	86	24	57
Baby discharge status	–	–	1153	92	7	17

beginning of implementation, quality and completeness were better. By the end of the implementation period, more than 75% of records were fully completed. Hospital A had the best results with more than 78% of the record items completed at the end of implementation, followed by Hospital B then Hospital C. Overall percentages of improvement on a sample of data are shown in Figure 1 and Table 1.¹

The quality and completeness of the recording of important clinical information such as Apgar scores, gestational age, admission to NICU and discharge status improved. Additional data which had not been sufficiently well recorded previously, or were absent from the mother's medical records, were now being collected. This included socio-economic status of the mother; type of last delivery; information on the current pregnancy, for example the date of the first visit to the antenatal clinic and smoking status; complications after delivery; information about breast-feeding initiation and advice for the mother about postnatal care. Now, all this data could be found in one place in the record. Results from the third record audit showed sustained improvement in the completeness rate and the quality of data recorded in the women's medical record (Figure 2 and Table 2).

Qualitative post-implementation data also showed that the JCBR was considered to be useful and valuable for hospital staff, mothers and Maternal and Child Health Centre staff. Hospital staff wanted the JCBR to continue because documentation was easy to complete, took less time and effort, and provided valuable data that assisted their clinical decision-making. For example, one obstetrician said, 'the information on the baby after delivery is very important. I don't know why we didn't record these data before.'

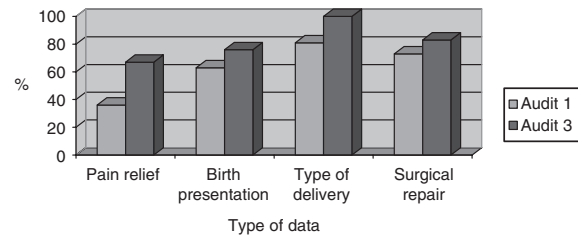


Figure 2 Improvements in a sample of clinical data before (Audit 1, $n=180$) and 7 months after the implementation of the JCBR (Audit 3, $n=42$) in the three hospitals

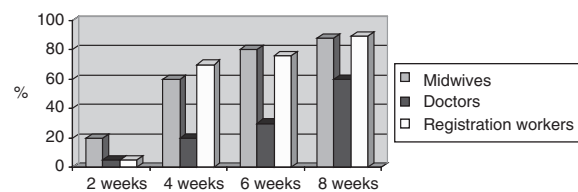


Figure 3 Improvement of staff commitment toward the implementation of the JCBR over 2 months

Table 2 Improvements in a sample of clinical data aggregated across three hospitals before implementation (Audit 1), after implementation (Audit 2) and 7 months post-implementation of the JCBR (Audit 3)

Type of data	Audit 1 ($n=180$)		Audit 2 ($n=1254$)		Audit 3 ($n=42$)	
	No.	%	No.	%	No.	%
Pain relief and anaesthesia	65	36	1074	86	28	67
Presentation at birth	113	63	1163	93	32	76
Type of delivery	145	81	1172	93	42	100
Surgical repair of the vagina or perineum	132	73	1111	89	35	83

Organizational and individual performance

The action research and practice-research engagement process was designed to engage staff in a quality improvement process. Initially we found there was a relatively low commitment by staff to the new system in all departments in each hospital, although commitment by midwives was generally higher than for doctors. Registration workers were less committed in two of the three hospitals. However, commitment and enthusiasm for change gradually improved over time for all groups of health professionals (Figure 3).

The use of JCBR increased the health professionals' sense of responsibility toward the care they provided, their respect for others in the team and the accuracy of data they recorded in the mother's records. As a midwife said, 'everyone had to write and record and sign off the exact care provided to a woman so the next care-provider could continue with the suitable care.'

The managers of the hospitals and clinical directors supported both staff and the field researcher, and contributed to the

positive effect the JCBR had on promoting teamwork and enhancing relationships among health team members. For example, a midwife commented, 'it was team work; we all participated in completing the JCBR.' While a doctor said, 'when I was not sure of something recorded in the JCBR usually I went back to the responsible care-provider for more clarification.' The JCBR also improved the health professionals' record-keeping habits including the timely and accurate completion of the important clinical data record and recording of new clinical data unrecorded previously. The accessibility of data from the JCBR also encouraged some of the health professionals to review their practices for the first time, motivating them to question the current situation. One resident doctor demonstrated the enhanced clinical leadership and accountability when he stated, 'at first I found this new record unnecessary, but with time I valued its importance; we noticed that the majority of mothers have low haemoglobin.'

The implementation phase of the research was completed in 2 months. During this time staff undertook a double load as they completed their routine documentation as well as the JCBR. Staff from all three hospitals have continued using the JCBR and are still collecting the statistical summary copies of the new record and sending them to the researcher for analysis.

Creating links between services

Health professionals in the Maternal and Child Health Centres were highly motivated to link community and hospital records. They were aware that information about the course of labour, details of birth and health of the baby influences the quality of postnatal care. For example, one obstetrician said, 'these information systems are of no benefit if they stay like this, without connection. We need complete information if we want to make real improvement.' In interviews and focus groups, staff suggested that client-held records would facilitate integration and that a simple computerized system based on three hard copies of the antenatal record, birth and postnatal record would be feasible. The immediate post-implementation and longer term evaluations, record audits and interviews confirmed the potential of developing a sustainable national hospital-based perinatal information system using the new record and connecting all hospitals and nearby Maternal and Child Health Centres. There is national commitment in Jordan to achieve these links.

Discussion

The study had a number of limitations. This included the positive bias that was introduced by purposive selection of the hospitals and the researcher's attention to the quality of interaction with people. This was intentional and an element of the design. The evaluation conducted after 7 months was opportunistic rather than ideally situated in scope or time from completion to convincingly measure long-term sustainability.

System improvement

The study confirms that clinical information and health information systems can be used for purposes that extend

beyond individual patient care to include quality review and improvement processes. The data produced and their improved quality confirms the claim by others that this information can assist with allocation of resources, budgetary and long-term planning, and productivity measurement (Slagle 1999; World Health Organization 2004).

The process of quality improvement in clinical practice and health system development is complex and challenging. Quality improvement should focus on areas of real importance, the organization should have capable leadership and be prepared to change, and the external environment should encourage change (Shortell *et al.* 1998). In this study, action research, which emphasizes practice-research engagement and is based on theories of change management (Brown 2001), was successful in introducing and managing the change identified by the researcher-practitioner team, as well as investigating this process and its outcomes.

Effective leadership is necessary to manage improvement in clinical practice settings. This leadership involves influencing others to contribute to positive outcomes (Redelmeier and Cialdini 2002). As a result of the researcher working with them, health workers demonstrated increased professionalism, while managers and clinical directors were supportive in creating a simple change that enhanced the working environment in a way that appears to be sustained.

As well as solving the immediate practical clinical record problems, a significant outcome was that the research process helped initiate, develop and maintain new opportunities for professional dialogue as doctors, nurses and midwives worked towards the common goal of improving health care for mothers and babies. This process helped in building a team in a hierarchical environment where professionals were not used to this mode of operating. Practitioners were given the opportunity to work in new ways with medical record workers, nurses and midwives who are usually low status within the system. Obstetricians, at first somewhat sceptical, ultimately responded positively, also finding that teamwork produced better results for their work. Providing women with their own copy of their clinical record facilitated their communication with health professionals.

Proper staff preparation was important and is necessary in any major quality improvement process (USAID 1999). During training, health professionals were educated about the purpose of the study and became committed to the new record. This enabled them to maintain a sense of control, built further support during implementation, and also minimized resistance to change (Henry 1997; Moody *et al.* 2001). Commitment of staff to the process of implementation varied across hospitals and among the health professionals themselves. From the beginning, Hospital A showed the highest commitment of staff while Hospitals B and C began with less commitment but improved over time. It was likely that the relationship between the researcher and the hospital staff contributed, as the researcher was already known to colleagues in Hospital A at the beginning of the study, and she was able to spend more time in the field there because of its close location to her home. Despite this, hospitals B and C also showed significant and sustained improvement.

Midwives and registration workers were initially more committed than doctors to improvement processes. They may have accepted the leadership of the researcher, a female nurse, more readily than the doctors, but this may also be explained by gender issues common in some Arab countries. Overall, because of the strategy and effort of building strong researcher-practitioner relationships, the commitment of all staff improved over this time, including that of male doctors.

The JCBR helped improve the accuracy of data recorded by health professionals, with data now recorded once only by the person providing care, reducing risks of transcription errors. The increased accuracy of data in the JCBR may also be explained by the increased accountability of health professionals toward their data. Important data that were previously not collected such as Apgar scores at birth were now available, were able to be aggregated and could be used for a national reporting system.

Similar to other improvement studies, interaction with practitioners in the field helped to identify problems and plan and initiate solutions during the implementation period (Webb 1990; Nolan and Grant 1993; Brydon-Miller and Greenwood 2003). The reciprocal process, in which the researcher and practitioners informed each other, established new knowledge and effective problem-solving actions. In turn this appeared to develop collaborative relationships with practitioners in the field, to build motivation and to provide practical support. Local and national leaders helped manage and lead this project.

Conclusion

Our study showed that identifying a shared goal and engaging practitioners and researchers in practical activity to achieve this goal can bring about sustained clinical improvement. Clinicians were recording better quality, more useful data collected with increased professionalism following the study. The health professionals were using aggregated information to evaluate their performance and the hospitals could use the data in planning for improvements. The policy makers who supported and guided the study as partners now have a basis to apply the results nationally. They are closer to their goals of consolidating data into electronic records that can be analysed automatically, which provides the capacity to monitor the national maternity system.

Endnote

¹ While all items mentioned in Table 1 were analysed, there were too many items to be presented here or in Tables 2 and 3. Therefore, a sample of items that represent particularly important clinical data that were not collected or inadequately collected previously have been presented.

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Part 5

Reflections on Health Policy
and Systems Research

This final section of the Reader aims to stimulate broader thinking about key methodological and other issues when doing Health Policy and Systems Research (HPSR). Some of the papers presented here focus on research strategy issues, including critical papers that address weaker areas of current HPSR practice in low- and middle-income countries. Other papers report researchers' own reflections on their experience.

In addition to this selection of papers, we encourage readers to draw on the 'How to do ...' series of papers in the journal *Health Policy and Planning* as they can inform and guide the use of particular methods in HPSR.

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- *Rationale for selection:* to stimulate thinking about new approaches to intervention evaluation that allow for systems

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- *Rationale for selection:* to provoke critical reflection on how to do health policy analysis work

Health Policy and Systems Research

A Methodology Reader

What does this Reader offer?

Health Policy and Systems Research (HPSR) is often criticized for lacking rigour, providing a weak basis for generalization of its findings and, therefore, offering limited value for policy-makers. This Reader aims to address these concerns through supporting action to strengthen the quality of HPSR.

The Reader is primarily for researchers and research users, teachers and students, particularly those working in low- and middle-income countries (LMICs). It provides guidance on the defining features of HPSR and the critical steps in conducting research in this field. It showcases the diverse range of research strategies and methods encompassed by HPSR, and it provides examples of good quality and innovative HPSR papers.

"Health Policy and Systems Research is a rapidly developing and critically important field of health research, but has lacked any coherent presentation of its nature, scope and methods. This Reader remedies this gap, and will be an indispensable source of guidance for anyone conducting Health Policy and Systems Research or wishing to learn about it," said Anne Mills, Professor of Health Economics and Policy and Vice-Director, London School of Hygiene and Tropical Medicine.

The production of the Reader was commissioned by the Alliance for Health Policy and Systems Research and it will complement its other investments in methodology development and postgraduate training.



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ISBN 978 92 4 150313 6

