MINISTRY OF HEALTH

STRATEGIC PLAN FOR CERVICAL CANCER PREVENTION AND CONTROL IN UGANDA

2010–2014

Ministry of Health
P.O. Box 7272
Kampala, UGANDA

APRIL 2010

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ACRONYMS

ABC	Abstain, Be faithful, use **C**ondoms
AIDS	Acquired Immune Deficiency Syndrome
CIN	Cervical Intra-epithelial Neoplasia
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HPV	Human Papilloma Virus
IEC	Information, Education and Communication
LEEP	Loop Electrosurgical Excision Procedure
LLETZ	Large Loop Excision of the Transformation Zone
M&E	Monitoring and Evaluation
NCD	Non Communicable Diseases
PATH	Program for Appropriate Technology in Health
STI	Sexually Transmitted Infection
UNEPI	Uganda National Expanded Programme on Immunisation
VIA	Visual Inspection with Acetic Acid
VILI	Visual Inspection with Lugol's Iodine
WHO	World Health Organisation

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- Ministry of Health, Reproductive Health Division
- Ministry of Health, Uganda National Expanded Programme on Immunisation
- Mulago National Referral and Teaching Hospital, Obstetrics and Gynaecology Department
- Palliative Care Association of Uganda
- PATH/Uganda
- PATH/Seattle
- Save A Woman Initiative
- Uganda Women Cancer Support Organisation
- Uganda Women's Health Initiative
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FOREWORD

Annually, an estimated 500,000 women are diagnosed with cervical cancer and more than 270,000 women lose their lives to this devastating disease. Unfortunately, nearly 85 percent of the women who die live in resource-poor countries like Uganda, where there is limited access to cervical cancer prevention programmes (WHO, 2006). Virtually all cervical cancer cases (99%) are linked to genital infection with the Human papilloma virus which is the most common viral infection of the reproductive tract.

The burden of cervical cancer in Uganda is enormous. Cervical cancer rates in Uganda is one of the highest in the world, and poor access to preventive screening services leads to high mortality rates. Uganda's incidence and mortality rates from cervical cancer are at 45.6 per 100,000 women and 25 per 100,000 women respectively (Parkin et al., 2002; Sankaranarayanan & Ferlay 2006). In this country, more than 80 percent of women are diagnosed with late-stage disease, when it is problematic or impossible to treat. Cervical cancer accounts for 40 percent of all cancers in Uganda, according to the Kampala cancer registry, and is the leading gynaecological cause of death in Ugandan women.

Organised screening and treatment programmes and effective human Papilloma virus vaccination are the best interventions for preventing cervical cancer, having effectively reduced cervical cancer morbidity and mortality rates in industrialised nations. Unfortunately, they are not widely available in Uganda, save for a few initiatives in a handful of hospitals and health centres.

The Uganda Ministry of Health recognises the devastating impact of cervical cancer on the country, and has developed a health-sector policy and strategic plan to guide implementation of a national cervical cancer prevention and control programme that focuses on strengthening existing health systems to improve accessibility to primary and secondary prevention measures. The Ministry is committed to rolling out effective cervical cancer interventions country wide as part of the NCD national policy and medium term strategic plan.

It is my sincere hope that all stakeholders involved in the cervical cancer prevention and control programme in Uganda will utilise and adhere to this strategic plan, to contribute to a reduction in morbidity and mortality from cervical cancer.

Thank you,

Dr. Sam Zaramba
Director General of Health Services
Uganda Ministry of Health

EXECUTIVE SUMMARY

The Strategic Plan for Cervical Cancer Prevention and Control in Uganda describes the burden of cervical cancer at global, regional and national levels, and examines the current strategies for cervical cancer control in Uganda. It also details the proposed strategies to achieve the set targets for cervical cancer control in Uganda based on World Health Organisation recommendations.

Barriers to implementation of a country-wide cervical cancer control programme are highlighted, and a programme based on the various levels of care, including sector-wide approaches and community involvement, are also outlined in the plan.

The broad priority areas of the strategic plan are:

- Public education and advocacy.
- Prevention of human Papilloma virus (HPV) infection (primary prevention).
- Screening and treatment of cervical precancerous lesions (secondary prevention).
- Treatment of cervical cancer.
- Palliative care for cervical cancer.
- Programme monitoring and evaluation.

The core interventions for prevention and control of cervical cancer indicated in the strategic plan include efforts to prevent HPV infection through HPV vaccination of girls 10–14 years old, for primary prevention, and use of feasible cervical screening and pre-cancer treatment modalities, such as visual inspection with acetic acid and cryotherapy, for secondary prevention of cervical cancer amongst women ages 25–49 years.

The strategic plan emphasises the need for cautious investment in cervical cancer treatment modalities such as surgery, chemotherapy, radiotherapy, and palliative care, because with extensive public education, HPV vaccination, and screening and treatment of cervical precancerous lesions, the demand for treatment and palliative care services will be low.

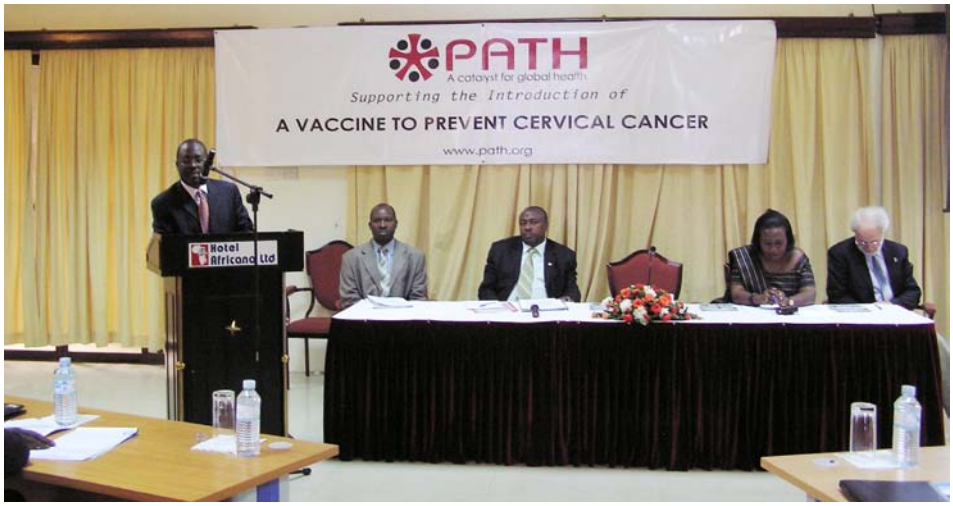
Lastly, the strategic plan stipulates routine development of health service data collection tools, relevant research, and special surveys for collecting data for monitoring and evaluating cervical cancer prevention and control interventions. The strategic plan further stipulates integration of three key programme performance output indicators into the existing health management information system (HMIS) namely the number of girls/women immunised or screened, cervical pre-cancer test-positive cases, and the

number of positive cases treated.

The goals are, by 2015:

- 90 percent of Ugandans will be reached with IEC materials about cervical cancer.
- 80 percent of eligible girls ages 10–14 years will be vaccinated against HPV in the implementing districts.
- 80 percent of eligible women ages 25–49 years will be screened and treated for cervical precancerous lesions.
- 80 percent of eligible women with cervical precancerous lesions will be provided diagnostic services.
- 10 percent of eligible cervical cancer patients will be provided surgical treatment for invasive cervical cancer.
- 65 percent of eligible women with cervical cancer will be provided radiotherapy and chemotherapy services.
- 25 percent of eligible cervical cancer patients will be provided palliative care services for improved quality of life.

To achieve these goals, the strategic plan stipulates the need for public investment in advocacy and communication; procurement of HPV vaccines, cryotherapy equipment, loop electrosurgical excision procedure equipment, colposcopy equipment, surgical theatre equipment, and radiotherapy equipment; strengthening of the cold chain system; training of health care providers; strengthening of the HMIS; and relevant research; amongst others.



Prof. Anthony Mbonye giving a speech during the launch of HPV vaccine in Uganda. Centre is Hon Dr. Richard Nduhura, Minister of State for Health .

The health outcome indicators of interest are decreased prevalence of HPV infection, decreased incidence of cervical intraepithelial neoplasm and cervical cancer and improved quality of life and survival rates from cervical cancer.

CHAPTER 1

BACKGROUND

Introduction

Cervical cancer is the uncontrolled growth of cells on the cervix. It is unique because it can take 10 to 20 years for invasive cancer to develop after mild dysplasia is identified (WHO, 2006). This slow progression from early lesions to overt cancer provides the basis for early screening, detection, and treatment.

Cervical cancer is caused by infection with the human Papilloma virus (HPV). HPV is one of the most common sexually transmitted infections (STIs). Most infections resolve spontaneously within one to two years, but some persist, becoming chronic, which drives the cells of the cervix to grow abnormally, resulting in early precancerous lesions. Host factors like early sexual debut (before age 16); closely spaced, frequent births; and behavioural and environmental factors may facilitate cervical cancer development.

Global burden

According to the World Health Organisation (WHO), cervical cancer is the second most common cancer in women, globally, with more than 500,000 new cases occurring annually, nearly 85 percent of them in developing countries (2006). Cervical cancer causes an estimated 273,000 deaths in women each year, and is one of the leading causes of death in women in the developing world (Parkin et al 2003; WHO, 2006). It has also been noted to be the most common cancer of women in Sub-Saharan Africa (Parkin et al 2003).

The highest burdens of cervical cancer have been reported in Asia, Southern Africa, Central America, Eastern Africa, and South America. In all of these regions, the rate is more than 40 cases per 100,000 women (Parkin et al., 2002; Sankaranarayanan & Ferlay 2006).

Figure 1. Number of cases and incidence of cervical cancer in 2002.

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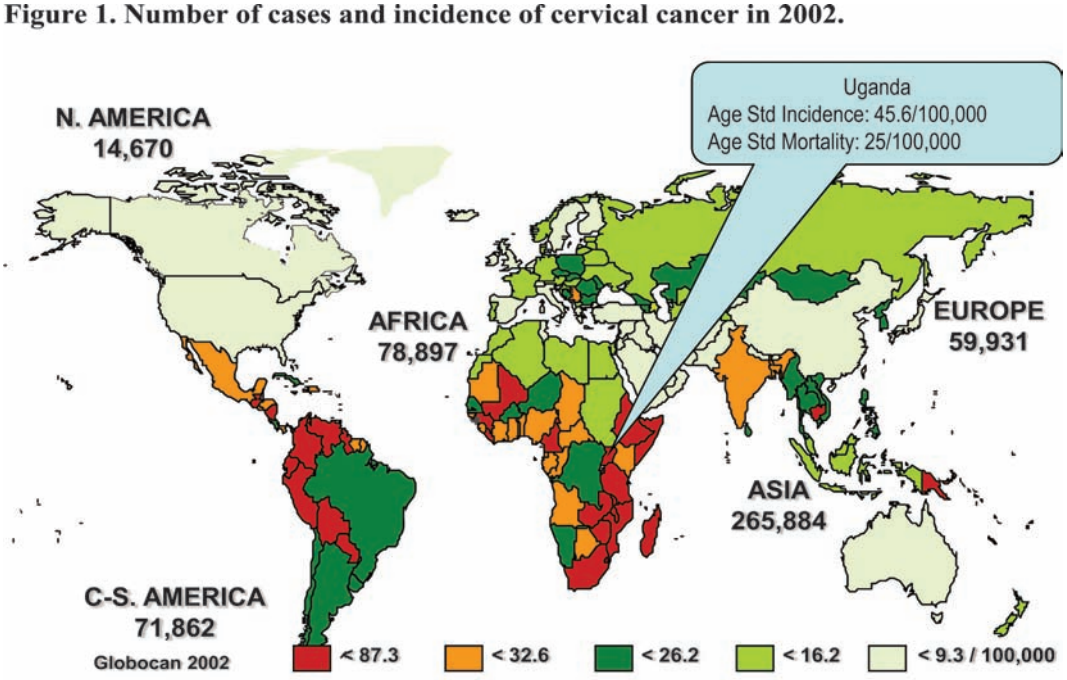


Burden of cervical cancer in Uganda

The incidence rate for cervical cancer in Uganda is 45.6 per 100,000 women (WHO, 2006), which is one of the world's highest age-adjusted cervical cancer incidence rates. In Uganda, cervical cancer is ranked as the leading cancer in women, accounting for 40 percent of all cancers recorded in the Kampala cancer registry.

Figure 2. New cancer cases in Uganda: estimates for 2002.

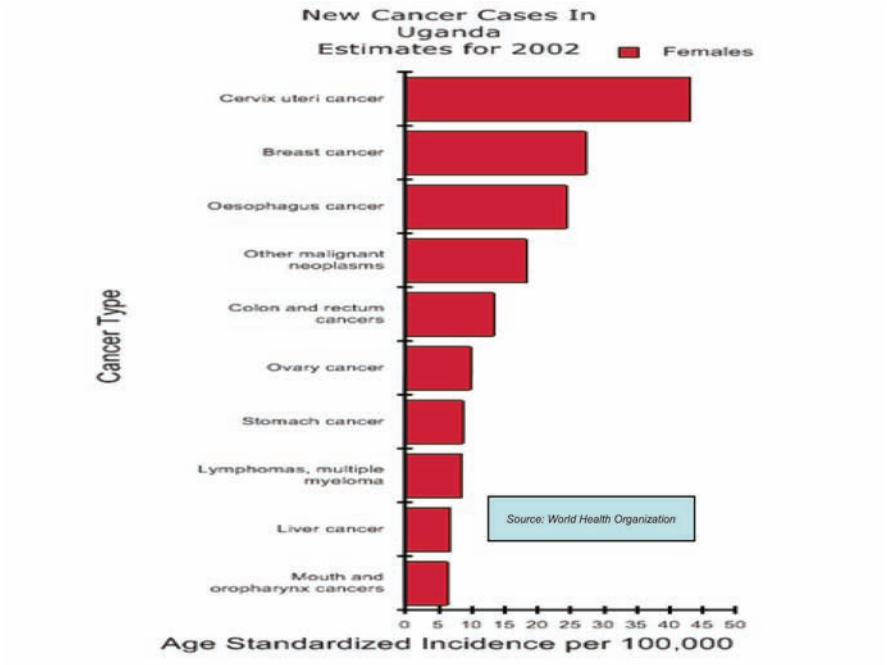
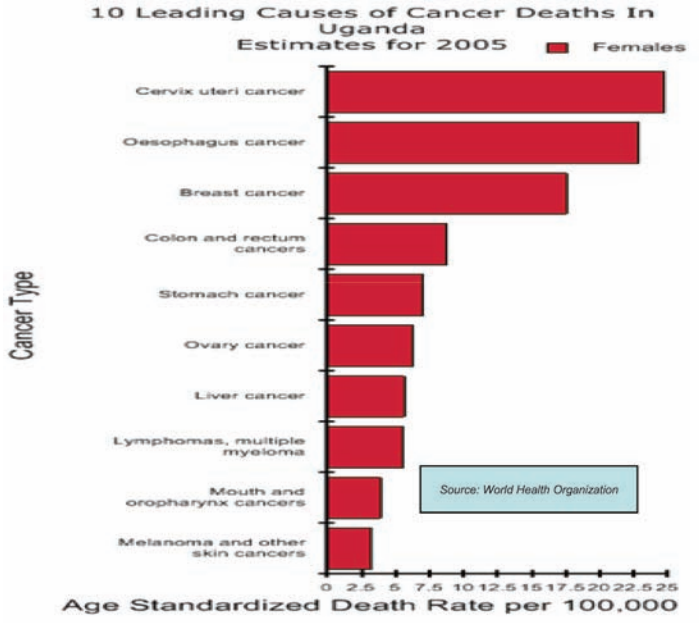


Figure 3. Ten leading causes of cancer deaths in Uganda: estimates for 2005.

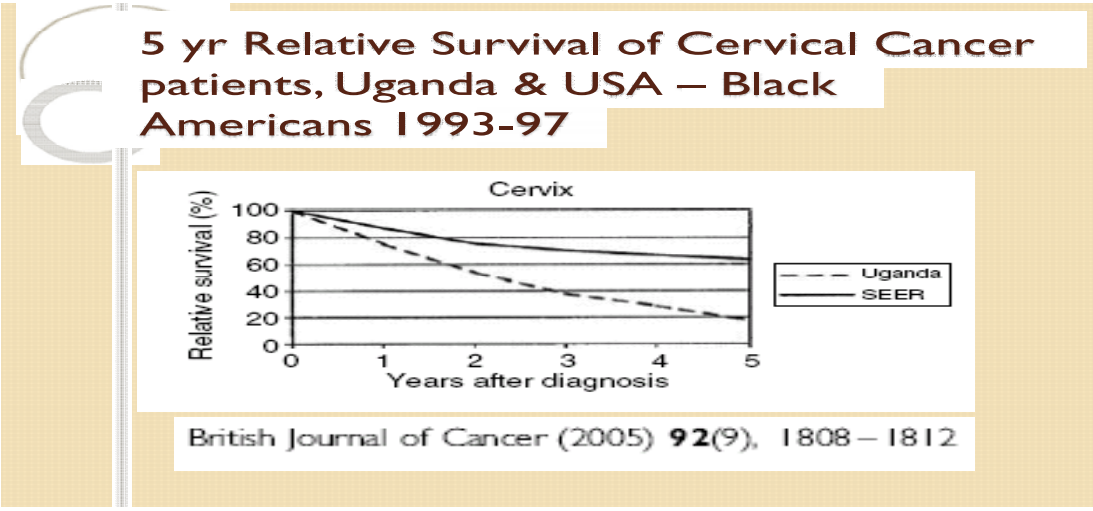


Mulago National Referral Hospital is the main referral hospital for cervical cancer management and palliative care in Uganda. Clinical reports for 2006 indicate 30% bed occupancy on the Gynecological wards by cervical cancer patients of whom 80% were diagnosed with late stage disease and could benefit from radiotherapy offered in Mulago (Katahoire et al 2008). Katahoire et al further observed that 35% (484/1400) of patients seen in the gynecology out patients had suspected cervical cancer. The 2007 hospital

records reviewed revealed that patients with cervical cancer had 63.5% bed occupancy indicating an increase. Deaths due to cervical cancer of the total gynecological deaths were at 70% (Katahoire et al 2008). She further noted that investigative surgery for cervical cancer formed 40% of the theatre workload. The majority of patients diagnosed had stage III/IV disease classified as late stage disease (72%). This underscores the high burden that appears to be on the increase. Regarding the age distribution of the patients most were between 41-50 years (40%). Noteworthy is the fact that 20% of patients seen were between 31-40years. There were also a number of patients above 70 years, which is not typical. This data is important if one is to plan an intervention with limited resources. Earlier reports in late 1980S indicate that annually, cervical cancer is responsible for 2.4–5.1% of all gynecological admissions and up to 65 percent of gynaecology oncology unit bed occupancy in Uganda national referral hospital, Mulago (Okong 1989; Kasuija 1988). By the time of diagnosis, more than 80 percent of patients have advanced disease, which is associated with increased morbidity and low five-year survival rates (Okong 1989; Kasuija 1988).

The HIV/AIDS pandemic has worsened the picture of the cervical cancer disease. Women with HIV have been found to have an increased incidence of cervical intraepithelial neoplasia (CIN), the precursor lesion for ICC, probably due to HIV-associated immunosuppression, and ICC is recognized as an AIDS-defining illness (Zorrilla et al., 1991; Sekirime & Gray 2007). It is estimated that without urgent action, deaths due to cervical cancer will rise by almost 25 percent in the next ten years in developing countries due to the HIV/AIDS epidemic (Zorrilla et al., 1991; Sekirime & Gray 2007).

Figure 4. Five-year relative survival of cervical cancer patients, Uganda and the United States (amongst black Americans), 1993–1997.



British Journal of Cancer. 2005;92(9):1808–1812.

Most women who die from cervical cancer are in the prime of their life, thus

robbing countries of their immense contribution to social and economic development. Cancer control programmes can go a long way toward preventing cervical cancer and reducing the unnecessary morbidity and loss of life from the disease.

The overall goal of the strategic plan is to establish a framework for a comprehensive cervical cancer prevention and control programme in Uganda.

Determinants of the burden of cervical cancer

The burden of cervical cancer is not merely represented by the alarming figures. There is a lack of community awareness around the disease, and knowledge regarding cervical cancer amongst health workers who should be engaging in public education is low. These factors, coupled with minimal access to available screening services, which are not routine, contribute to late patient presentation. In addition, data on cervical cancer are insufficient. Available data are facility based, therefore not comparable, and no community-based data exist.

Risk factors to HPV infection and cervical cancer

There is evidence that the following factors increase the risk of developing cervical cancer:

- Risk of acquiring HPV infection is highest soon after sexual activity begins, and in some cases, it has a second peak amongst women at menopause.
- HPV is sexually transmitted; however, penetrative sex is not required for transmission. Skin-to-skin genital contact is a well-recognised mode of HPV transmission.
- Sexual intercourse without condom use increases the risk of becoming infected with HPV.
- Persistent infection with HPV types 16 and 18, which causes the majority of cervical cancer cases increases the risk of disease development.
- HIV-infected individuals are at higher risk of HPV infection, and persistence of the infection, even when they are on antiretroviral therapy (Blossom et al. 2007)
- The risk of HPV exposure appears to increase with the number of lifetime sexual partners of women or men (Winer et al., 2003).
- Age at first sexual contact: In all regions of the world, age has been found to be a strong, consistent risk factor for HPV infection. Initiation of sexual activity at a young age is a risk factor for HPV infection (Clifford et al., 2005).

Factors that contribute to development of cervical cancer after infection with HPV include immune suppression, multi-parity, early age at first delivery, cigarette smoking, long-term use of hormonal contraceptives, and co-infection with Chlamydia trachomatis or herpes simplex virus.

Prevention of HPV infection and cervical cancer

Primary prevention

Cervical cancer is primarily caused by HPV, a virus transmitted through sexual contact; therefore, primary prevention of cervical cancer involves prevention of HPV.

This can be achieved through social mechanisms such as behaviour change, or through biological mechanisms such as HPV vaccination. Abstinence from sex and condom use is likely to reduce transmission of HPV. Vaccination against HPV has been proven to prevent the types of HPV that cause the majority of cervical cancer cases, therefore reducing the occurrence of the disease. However, HPV vaccines are still very expensive therefore beyond reach for low-income countries such as Uganda.

Secondary prevention

Several methods are available for detection of forms of cervical pre-cancer, including direct visual inspection of the cervix aided by chemicals like 5 percent acetic acid and iodine (visual inspection with acetic acid [VIA] and visual inspection with Lugol's iodine [VILI]), which cause recognisable colour changes. Other screening techniques, like cytology (conventional Pap smears, liquid-based cytology) and HPV DNA testing, and treatment of pre-cancer using cryotherapy or the loop electrosurgical excision procedure (LEEP), are helpful in reducing the burden of cervical cancer. However, these services are available in very few health centres in Uganda, contributing to low screening rates and unequal distribution of services in the country. Research is ongoing to determine a system that will work best, and be cost effective, accessible, and affordable. However, there is insufficient funding for establishing and maintaining screening and treatment facilities for cervical cancerous lesions at levels of health care.

Cancer treatment and palliative care

Ideally, the diagnosis of cervical cancer should be done through histopathological examination mainly at higher-level health care units (general, regional referral, and national referral hospitals). Diagnosis and treatment calls for specialised training and the use of sophisticated equipment, and requires highly experienced personnel, all of which are in short supply. Uganda does not provide training in gynaecological oncology. Furthermore, there is insufficient funding for establishing and maintaining histopathology laboratories at the regional referral hospital level.

Most patients present with advanced disease, for which treatment is very costly in terms of equipment, personnel, and time. Methods available for treatment in Uganda include surgery, radiotherapy, chemotherapy, and palliative care. Early-stage disease is treated by surgery and followed on occasion by radiotherapy. Few patients present early, and surgery is possible only in regional and national referral hospitals.

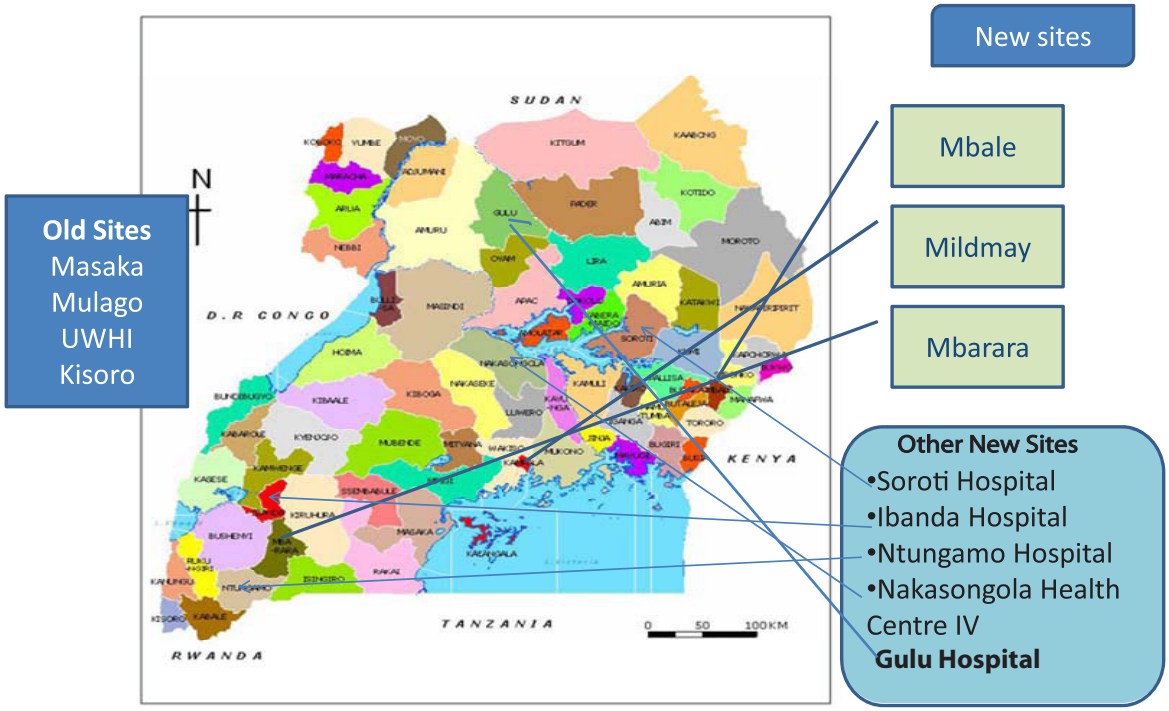
Palliative care is an essential element of cervical cancer treatment. Emotional support for patients and their families is a critical component of therapy. Once a woman is diagnosed with untreatable cervical cancer, or treatment has failed, she qualifies to receive palliative care. This care helps to avoid unnecessary suffering and improve the quality of life of women with cervical cancer and their families. It encompasses emotional support, symptom control, end-of-life care, and bereavement support. It also addresses the physical, psychosocial, and spirituals needs of patients and their families. Palliative care is currently provided by a limited number of health facilities in Uganda. Uganda does not have enough capacity in terms of human resources and supplies for provision of palliative care throughout the country.

Hospice Uganda has taken a leading role in supporting provision of palliative care in the country. Hospice Uganda is founded in 1993 and it has worked with the Uganda Ministry of Health to make morphine – purchased in powder form at less than one tenth of one US cent per milligram and mixed on site -- available to health facilities across much of the country by 1995. In its first nine years of operation, Hospice Uganda served 4,000 patients – an extraordinary number, yet only a minute proportion of those in need. In 2002, the organization began offering a distance learning diploma course in palliative care to raise awareness and increase capacity among health professionals within Uganda and across the sub-continent.

Current efforts in cervical cancer prevention and control in Uganda

Programmes and services offered in Uganda for prevention and control of cervical cancer vary based on location and organisation; however, Uganda is working to establish an organised cervical cancer screening programme. PATH, WHO, and the Uganda Women's Health Initiative have opened screening clinics in a few regions of the country, but their efforts need to be increased to cover all regions of the country. Masaka, Mbarara, Kisoro and Mbale Regional Referral Hospitals are three of the few hospitals currently providing screening and treatment for cervical precancerous lesions using the single-visit approach. Other screening clinics are in Kampala City Council and the Mildmay Centre. None of the centres have incorporated an HIV testing component into their cervical cancer screening programme.

Figure 5. Phased approach to integrating cervical cancer programmes into existing services.



Currently, cytology-based screening is conducted upon request in a few selected hospitals, and a mobile van has been provided to Mulago National Referral and Teaching Hospital, which to date, has facilitated the screening of 500 women. These efforts do not meet overall demand in the country. Ideally, all levels of health care, from health centre III upward, should routinely provide cervical cancer screening and treatment of precancerous lesions.

Other cervical cancer initiatives, provided by civil society, mainly focus on advocacy, community mobilisation, and sensitisation for screening. Vaccination pilots have been initiated in Nakasongola and Ibanda districts for girls aged 10 years. There are plans to roll out this pilot, but plans to ensure sustainability need to be developed.

Cervical cancer treatment is mainly provided in regional referral hospitals, especially palliative care and surgery on a minimal scale. The Mulago hospital offers surgical treatment, chemotherapy, and palliative care, and it is the only hospital that provides radiotherapy. Treatment coverage is grossly insufficient.

Resources

Currently, health care financing comes from the Government of Uganda and a few development partners, primarily the United Nations Population

Fund, WHO, and PATH. Human resources for health care in the form of screening personnel, cytotechnicians, and pathologists are inadequate. This is further compounded by inadequate infrastructure, equipment, supplies, and financing for cervical cancer control.

Rationale for the strategic plan

Recognising that Uganda has one of the world's highest incidences of cervical cancer, a leading cause of cancer death in women, and knowing that cervical cancer can be prevented, it is imperative that Uganda establish a focused plan to deal with this burden.

Without a national screening programme, current strategies for prevention and control of cervical cancer are far from ideal, and have had little impact on reducing morbidity and mortality from the disease. Efforts to prevent development of cancer and to provide appropriate treatment and palliative care are fragmented and poorly coordinated. Furthermore, resources available for the already proven cost-effective interventions are minimal. Therefore, there is a need to develop a strategic plan to guide and coordinate implementation of programmes and services and enable the country to raise resources to ensure availability of services at all levels of care.

Implementation modalities

Overall coordination of implementation of the cervical cancer prevention and control programme will be conducted by the Ministry of Health. Service provision will be offered by level as specified below.

Village health teams, community-based organisations, and community leaders:

- Community mobilisation and sensitisation.

Health centre II:

- Health education.
- HPV vaccination of target groups.
- Referrals for screening and treatment.

Health centre III:

- Health education and counselling.
- HPV vaccination of target groups.
- Cervical screening using VIA.
- Referral for cryotherapy.
- Basic palliative care.
- Referrals for LEEP, cervical cancer diagnostic tests, surgery and radiotherapy.

Health centre IV/health sub-district:

- Health education and counselling.
- HPV vaccination of target groups.
- Cervical screening using VIA.
- Cryotherapy treatment for cervical pre-cancerous lesions.
- Referrals for LEEP, cancer diagnosis, surgery, and radiotherapy.
- Budgeting for cervical activities for the health sub-district.

District hospital:

- Health education and counselling.
- HPV vaccination of target groups.
- Cervical screening using VIA or cytology or both.
- Colposcopy.
- Cryotherapy.
- LEEP.
- Surgical treatment (if possible).
- Referral for Cytology and histology for cancer diagnosis and staging.

Regional and national referral hospitals:

- Health education and counselling.
- HPV vaccination of target groups.
- Cervical screening using VIA or cytology or both.
- Colposcopy.
- Cryotherapy.
- LEEP.
- Cytology and histology for cancer diagnosis and staging.
- Surgery for early invasive cancer.
- Technical support of lower health units.
- Radiotherapy.
- Chemotherapy.

District health teams:

- Budgeting for cervical cancer prevention and control activities for the district.
- Technical support of health units.

- Community mobilisation and sensitisation.
- Mobilisation of human resources.
- Assisting in planning for HPV vaccination of target groups.
- Supportive supervision and monitoring and evaluation.

Ministry of Health:

- Development/review of policy on cervical cancer prevention and control.
- Community mobilisation and sensitisation.
- Development of the national operational plan on cervical cancer prevention and control.
- Mobilisation of resources (financial, material).
- Organisation of vaccination campaigns in conjunction with districts.
- Supportive supervision and monitoring and evaluation.

Development partners:

- Mobilisation of resources (financial, material).
- Provision of technical support.

Civil society organisations:

- Community mobilisation and sensitisation.
- Provision of palliative care in conjunction with district health offices.

Parliamentarians:

- Community mobilisation and sensitisation.
- Advocating for further resource allocation for cervical cancer prevention and treatment.

Table 1. Proposed standard services for cervical cancer prevention and control in Uganda.

Health facility level	Services required (standard)	Equipment required (standard)
Regional and national referral hospitals	• Health education/social mobilisation • HPV vaccination • Cervical screening using VIA or cytology • Colposcopy • Cryotherapy • LEEP • Surgery and • Radiotherapy (if available)	• Colposcopy equipment • Cryotherapy equipment • Gas tanks • Electrosurgical generator • Cervical screening equipment (speculums, consumables, and supplies) • LEEP equipment • Radiotherapy unit
District hospitals	• Health education/social mobilisation • HPV vaccination • Cervical screening using VIA • Cryotherapy • LEEP • Surgical treatment (if possible) • Referral for radiotherapy	• Colposcopy equipment • Cryotherapy equipment • Gas tanks • Cervical screening equipment (speculums, consumables, and supplies)
Health centre IV	• Health education • HPV vaccination • Screening using VIA • Cryotherapy • Referrals for LEEP, surgery, and/or radiotherapy	• Cryotherapy equipment • Gas tanks • Cervical screening equipment (speculums, consumables, and supplies)
Health centre III	• Health education • HPV vaccination • Screening using VIA • Referral for cryotherapy • Referrals for LEEP, surgery, and/or radiotherapy	• Cryotherapy equipment • Gas tanks • Cervical screening equipment (speculums, consumables, and supplies)
Health centre II	• Health education and mobilisation • HPV vaccination • Referrals for screening and treatment	• Educational materials

CHAPTER 2

VISION, GOAL, OBJECTIVES, AND IMPLEMENTATION STRATEGY

Vision

Ugandan women free from cervical cancer.

Goal

To reduce HPV incidence and or prevalence, cervical cancer incidence and or prevalence and mortality, improve quality of life and survival rates through education and advocacy, HPV vaccination (primary prevention), screening and treatment of cervical precancerous lesions (secondary prevention), treatment with surgery, radio-chemotherapy and palliative care services.

Objectives

- Raise awareness around and advocate for cervical cancer prevention and treatment in Uganda.
- Reduce the incidence and prevalence of HPV in Uganda through vaccination.
- Decrease cervical cancer incidence by 50 percent through screening of all eligible women and treatment of cervical precancerous lesions.
- Increase access to cervical pre-cancer screening and treatment services amongst eligible women ages 25–49 years by providing visual inspection and cryotherapy in lower-level health facilities, and/or VIA, cryotherapy, cytology, histology, colposcopy, LEEP, or LLETZ (large loop excision of the transformation zone) at higher-level health facilities.
- Build institutional and technical capacity at the regional and national referral levels in order to perform appropriate surgery for cervical cancer.
- Increase the one-year cervical cancer survival rate through diagnosis and effective treatment, including surgery, chemotherapy, radiotherapy, and palliative care.
- Improve the quality of life of patients with cervical cancer and their families through management of pain and other physical, psychological, social, and spiritual problems.

Targets by 2015

- 90 percent of Ugandans will be reached with IEC materials about cervical cancer.
- 80 percent of eligible girls ages 10–14 years in the implementing districts

will be vaccinated against HPV .

- 80 percent of eligible women ages 25–49 years will be screened and treated for cervical precancerous lesions.
- 80 percent of eligible women with cervical precancerous lesions will be provided diagnostic services.
- 10 percent of eligible cervical cancer patients will be provided surgical treatment for invasive cervical cancer.
- 65 percent of eligible women with cervical cancer will be provided radiotherapy and chemotherapy services.
- 25 percent of eligible cervical cancer patients will be provided palliative care services for improved quality of life.

Implementation strategy

The implementation strategy for scaling up cervical cancer prevention and control will emphasise galvanising efforts of all stakeholders, including the Ministry of Health. This approach will focus on:

- The National Technical Advisory Committee, guided by clear terms of reference, which will act on behalf of the Ministry of Health and all stakeholders. This group will guide implementation of the strategic plan, oversee training of health care providers, and direct quality assurance functions. It will review the current policy on cervical cancer screening and treatment and regularly update the policy based on available new evidence. The committee will hold regular meetings with stakeholders and policymakers, and technical planning meetings with the Ministry of Health and all relevant departments of health, including the directorate of clinical services, health education and promotion, non-communicable diseases, reproductive health, disability, and the resource centre. The committee will ensure that cervical cancer prevention and control fits in with the Ministry of Health strategy for reproductive health and is effectively integrated at the policy, programmatic, and health service delivery levels, and that resources are available for sustainability.
- The Ministry of Health, which will carry out a needs assessment to identify the major gaps to address for the strategic plan to succeed, including training needs and service provision skills improvement amongst health care providers, infrastructure gaps, available capacity to provide cervical cancer screening and treatment services, quality assurance needs and monitoring and evaluation requirements, and level of awareness around cervical cancer and its prevention.
- Infrastructure improvements, which will be carried out based on the findings of the needs assessment and the projected client load. This

will focus on establishment of facilities for VIA, colposcopy (where appropriate), and treatment with cryotherapy and LEEP at appropriate health facility levels. The Ministry of Health will strengthen surgical services at regional referral hospitals to meet the needs of the anticipated increase in clients requiring surgery, improve theatre facilities and anaesthetic services, and ensure the necessary supplies.

- Training of health care providers, which will begin with a training-of-trainers course for all gynaecologists, who will then provide local training in VIA and cryotherapy. Gynaecologists will also be trained to provide colposcopy, LEEP, and other treatment services for cervical precancerous lesions. They will be provided with on-the-job training to perform difficult surgery for invasive cervical cancer. For district hospitals and health centres III/IV, the approach will be to train health workers in VIA and cryotherapy. The trainings will use lectures, demonstrations, audio/ video presentations, and hands-on practice in screening. Pre/post-test evaluations will assess performance. Sites will be trained in the order in which implementation will occur.
- A national advocacy campaign, which will be amongst the key preparatory activities. This is justified to ensure increased awareness around cervical cancer and screening and treatment services. Community mobilisation and education, as well as client counselling, will be used to eliminate myths and misconceptions associated with cervical cancer, and to ensure support for effective service utilisation. Advocacy will target policymakers, and community mobilisation and education will focus on clients of cervical screening and pre-cancer treatment services. Providers will support policy formulation, programming, and updates whilst also supporting resource re-allocation for prevention programmes.
- Eliminating barriers to screening and vaccination, which include lack of awareness due to under-appreciation of the burden of cervical cancer, and poor understanding of the principles of effective prevention.
- Adopting broad-based advocacy efforts to achieve programme and policy support for cervical cancer prevention interventions.
- Ensuring an enabling policy environment, treatment guidelines, and service standards.
- Engaging decision-makers and stakeholders throughout the process to ensure that supportive policies and regulations are developed to reflect national realities.
- Community advocacy campaigns, which will be held regionally and

nationally to target clients, as well as people who have the power to sway decision-making and uptake of services.

- Initially, strengthening of screening services at Mulago National Referral and Teaching Hospital and the regional referral hospitals. Services will then be extended to district and nongovernmental hospitals in the respective catchment areas of the referral hospitals.
- Cervical pre-cancer screening and treatment clinics, which will be established to provide screening services in a phased manner by region. Clinic protocol will include community mobilisation; health education; consent; screening with VIA/VILI; colposcopy where available; biopsy when applicable; and cryotherapy, LEEP, or surgery. The services provided will depend on the level of the health care facility and available resources. Mulago National Referral and Teaching Hospital will provide VIA/VILI, cryotherapy or LEEP, surgery and/or radiotherapy, and palliative care. Regional referral hospitals will provide all services, some will have radiotherapy. Health centre IVs, district and nongovernmental hospitals will provide VIA/VILI and cryotherapy. Health centres III will carry out VIA and then refer clients with cervical precancerous lesions to the nearest district or regional referral hospital for further care.
- As much as possible, integration of cervical pre-cancer screening and treatment of precancerous lesions into existing services, such as breast cancer screening, gynaecological outpatient services, voluntary HIV counselling and testing, antiretroviral therapy, family planning, and postnatal services to ensure sustainability using available resources. Vaccination will be delivered through the Uganda National Expanded Programme on Immunisation (UNEPI).
- Utilisation of UNEPI's cold chain infrastructure. Vaccination will be conducted either in schools or on Child Health Days Plus. (The final roll-out strategy will depend on demonstration project findings.)
- Implementing an effective communication and mobilisation strategy for both women and men. This strategy will be developed before commencement of screening and improved upon thereafter. Information, education, and communication (IEC) materials are almost ready for piloting. The advocacy component will focus on political leaders, policymakers, Ministry of Health technical personnel, other relevant ministries that impact health, and community service organisations. The community mobilisation strategy will be implemented at the community level for all women and their spouses. Other avenues to reach women will include campaigns involving local community leaders, churches, mosques, women's groups, radio messages, and/or the use of film vans

or public address systems at the community level.

- Monitoring, evaluation, and quality assurance, which will be included in the training programme for all health workers, to ensure the screening programme meets its objectives. Monitoring and evaluation at the district, regional, and national levels will be conducted by the National Technical Advisory Committee. New sites will be supervised monthly for the first three months, then quarterly for up to one year and semi-annually thereafter. In the long run, monitoring and evaluation will be integrated into the existing supportive supervision strategy, and cervical cancer data will be integrated into the existing health management information system (HMIS).

Implementation phases

Implementation of HPV vaccination, cervical pre-cancer screening, and the pre-cancer treatment programme will be phased as follows.

First year: 2011

- All governmental, nongovernmental, and private health facilities in two pilot districts will implement a bridging programme for HPV vaccination.
- All regional and national referral hospitals will start cervical pre-cancer screening and treatment programmes.

Second year: 2012

- All governmental, nongovernmental, and private health facilities in two pilot districts will continue with implementation of the bridging HPV vaccination programme.
- All district hospitals will implement cervical pre-cancer screening and treatment programmes.

Third year: 2013

- All governmental health facilities throughout the country will implement an HPV vaccination programme.
- All health centres IV will implement cervical pre-cancer screening and treatment programmes.
- All nongovernmental and private hospitals will implement cervical pre-cancer screening and treatment programmes.

Fourth year: 2014

- All governmental, nongovernmental, and private health facilities throughout the country will implement an HPV vaccination programme.

- All health centres III will implement cervical pre-cancer screening and referral for treatment programmes.

Fifth year: 2015

- All health centre II will implement community mobilization and sensitization for cervical cancer prevention programmes.
- Evaluation of the 2010-2014 strategic plan for cervical cancer prevention and control.

Expected Health Outcomes

- Decreased prevalence of HPV infection among women both vaccinated and non-vaccinated
- Decreased incidence of cervical intraepithelial neoplasm (CIN) among women with high risk HPV infection
- Decreased incidence of cervical cancer
- Increased 1-year and or 5-year survival rates from cervical cancer
- Improved quality of life of cervical cancer patients

CHAPTER 3

PUBLIC EDUCATION AND ADVOCACY FOR CERVICAL CANCER PREVENTION AND CONTROL

Introduction

Cervical cancer is the most common cancer in Ugandan women, and one of the leading causes of morbidity and mortality amongst women in Uganda. There is a need to increase awareness around the cause of cervical cancer, the preventable nature of the disease, and availability of screening and treatment services.

Health education messages will reflect national policy and will be culturally appropriate and consistent at all levels of the health care system (including the community level). Health promotion, including education and counselling of women and men, will be an integral part of the cervical cancer control strategy. Health workers will be trained to discuss sexuality in a nonjudgmental way, and be able to address behavioural issues related to cervical cancer and HPV.

HPV is a common virus which is transmitted by penetrative and non-penetrative sexual contact. A large proportion of women and men are infected with HPV at some time in their life; therefore, women, men, and adolescents need to know about the virus and how it is transmitted, and appreciate the factors that are associated with the development of cervical cancer in women infected with HPV. Strategies will be developed to disseminate information on behaviour change, such as reducing the number of sexual partners, delaying sexual debut, and using condoms.

Community education will take place in a variety of settings, such as in religious or community groups, in schools, at sports activities, on Health Awareness Days, or within the context of a screening campaign. Various members of the community, including medical professionals, teachers, community leaders, health promoters, traditional healers, and midwives, will be trained to deliver key messages. Written materials, radio and television messages, newspaper articles, and pamphlets will be used to reach people in the community.

There has been some public education on the need to screen for cervical cancer, in selected health facilities and communities where screening services are available. There has also been community education on the benefits of HPV vaccination and screening services at the national level; however, it has been most intensive in the two districts where implementation is taking place.

National advocacy for increasing resources for cervical cancer screening and

treatment services has been underway. There is a need for sustained advocacy efforts to realise the desired quantity and quality of services.

This chapter highlights the objectives, strategies, core interventions, activities and required resources for an effective advocacy, community mobilisation, and sensitisation campaign.

Goal

- 90 percent of Ugandans will be reached with IEC materials about cervical cancer.

Strategic objectives

- Raise awareness around cervical cancer prevention, control, early diagnosis, and treatment.
- Increase demand for utilisation of cervical cancer prevention, control, diagnostic, and treatment services.
- Increase allocation of resources to improve access to quality cervical cancer prevention, control, diagnostic, and treatment services.

Strategies

- Sensitize women, men, adolescents, policymakers, health care workers, and opinion leaders about the causes of cervical cancer and effective methods of prevention.
- Sensitise communities about cervical cancer prevention services, including screening, diagnostics, and available treatment options, and where to access them to increase service utilization.
- Lobby the government to allocate necessary resources to cervical cancer prevention, control, diagnostic, and treatment services to ensure they are effective, available, affordable, and accessible to those who need them.

Core interventions

- Behavior change communication.
- Advocacy.
- Community mobilisation.

Activities

Behavior change communication

The public

- Design, develop, pre-test, and disseminate IEC materials to raise awareness around cervical cancer, methods of prevention, and control,

including HPV vaccination, cervical screening, diagnostics, and treatment. These will include leaflets and posters, which will need to be translated into 11 key local languages.

- Develop and implement mass media campaigns, including radio and television messages, radio advertisements, and billboard advertising to raise awareness around cervical cancer prevention and control.
- Hold talks and presentations with survivors to raise awareness around cervical cancer, and methods of prevention, control, and treatment.
- Hold meetings pioneered by peer educators specifically targeting men, to sensitize them to support their wives to attend cervical cancer screening and their daughters to receive HPV vaccinations.
- Partner with popular local artists to develop songs about cervical cancer prevention and control.
- Develop youth-focused IEC materials to raise awareness around cervical cancer, its prevention, and the benefits of HPV vaccination.
- Sensitize the public about cervical cancer prevention, including HPV vaccination, the ABC strategy (Abstain, Be faithful, use Condoms [which offers partial protection]), and screening.

Women with cervical cancer and their families

- Hold workshops or counseling sessions for women with cervical cancer regarding treatment options for disease management, including palliative care.
- Hold workshops or counseling sessions with family members of cervical cancer patients to demystify and reduce stigma of the disease.

Health workers

- Conduct trainings with health care workers on messaging and communication on cervical cancer prevention, control, diagnosis, and treatment.
- Orientate district health management teams to enable in-charges in health settings to talk to the public about cervical cancer prevention, early diagnosis, and control, including ensuring they implement approaches for male involvement.

Other key organizations and individuals

- Identify and mobilize cervical cancer champions, who may include community or religious leaders, cervical cancer survivors, or others with influence.
- Hold training workshops for cervical cancer champions, village health

teams, media organisations, women's groups, HIV/AIDS groups, and other community-based organisations to enable them to provide accurate information to their communities about cervical cancer prevention and control.

- Design, develop, pre-test, and disseminate fact sheets for use by cervical cancer champions and other key organizations to reinforce training.
- Integrate cervical cancer prevention messages into the ABC strategy for HIV/AIDS and other STIs.

Advocacy

- Establish advocacy group(s) to lobby at different levels, targeting district, regional, and national policymakers on cervical cancer prevention, control, diagnosis, and treatment issues. Group(s) should include academicians, clinicians, representatives of professional bodies, media organisations, community and religious leaders, parliamentarians, and cervical cancer survivors.
- Design, develop, and pre-test advocacy materials, including fact sheets, survivor testimonials, radio and television documentaries, common question-and-answer sheets, and collateral materials.
- Hold workshops to lobby policymakers and other key stakeholders at the national level to mobilise funds to ensure effective, affordable, and accessible cervical cancer prevention, control, diagnostic, and treatment services for all who need them.
    - Prevention and control: Advocate for roll-out of HPV vaccination to all girls ages 10-14 years in Uganda, and for provision of sufficient screening services for all women of 25-49 years of age.
    - Diagnostics: Lobby for development of health professionals' training modules on cervical cancer diagnostics, including cytology, colposcopy, and histology, and for provision of the necessary equipment so that sufficient services are available for women who need them.
    - Treatment: Advocate for additional technical equipment, specialist staff, and training. This will include lobbying for the purchase of seven new radiotherapy units; renovation of existing units in Lacor and Gulu; the establishment of an intra-cavity radiotherapy treatment facility and bunkers (treatment rooms) in those two health units in Lacor and Gulu; the purchase of gynaecological surgical equipment; and the hiring and training of therapy radiographers, medical physicists, oncology nurses, gynaecological oncologists, and maintenance technicians for each facility.

- Hold workshops to lobby health subdistrict, district, regional, and national officials to provide support for cervical cancer prevention and control.
- Lobby the Ministry of Education and other key officials to include cervical cancer prevention and control and HPV vaccination in the school curriculum.
- Advocate for training of health care workers on cervical cancer prevention, diagnosis, and treatment.

Community mobilisation

- Support drama and folk-media groups to raise awareness around cervical cancer.
- Use mobile film and sensitisation vans in communities to raise awareness around cervical cancer.
- Develop and test guidelines for community mobilisation for cervical cancer prevention and control.
- Orientate and provide cervical cancer prevention and control tools to partner organisations, including community-based organisations and health care providers.
- Integrate cervical cancer prevention, early diagnosis, and control messages into existing family planning, HIV/AIDS, immunisation, school, and college programmes.

Table 2. Proposed interventions and target audiences.

Level	Interventions	Target audiences
National level	Advocacy meetings	• Policymakers • Parliamentarians • Stakeholders (including line ministries) • Media
District level	Behaviour change communication and advocacy	• District leaders • Health workers
Community level	Community mobilisation	• Community leaders • Village health teams • Women's groups • Religious leaders
Health facility level	Advocacy, orientation, and supportive supervision	• Health facility in-charges • Health workers • Health unit management committees

Inputs

- IEC mechanisms and materials, including radio and television, newspapers, film van, audiovisual materials such as DVD players, Video CD, DVDs, posters, flyers, counselling flipcharts, and information booklets for health care providers and the community.
- Personnel and champions for advocacy.

Output indicators

- Government policy, guidelines, and strategic plan for cervical cancer prevention and control.
- Number of posters, radio and television messages, films, and advocacy meetings.
- Government policy statements on cervical cancer prevention and control.
- Increased public awareness about cervical cancer.

Health Outcome Indicators

- Behaviour change, abstinence, condom use, faithfulness to sexual partners
- Greater participation rates in the cervical cancer prevention and control programme amongst the targeted populations including participation in HPV vaccination, screening, and treatment programs. .
- Government and civil society budgetary allocations for the cervical cancer prevention and control programme.
- Stakeholder involvement in cervical cancer prevention and control activities.

Key Assumptions

- Cervical cancer IEC strategies and messages will be acceptable culturally and religiously
- Government will allocate funds for IEC about cervical cancer
- Government line ministries, Politicians, policy makers, district leaders, community leaders, health workers, teachers and parents will be involved in IEC about cervical cancer.
- Non-Governmental Organizations will be interested to participate in cervical cancer prevention and control

CHAPTER 4

PREVENTION OF HPV INFECTION (PRIMARY PREVENTION OF CERVICAL CANCER)

Introduction

There are two ways to prevent HPV infection: behaviour change (abstinence) and vaccination against HPV, the virus that causes cervical cancer (primary prevention).

Behaviour change

Cervical cancer is caused by the HPV virus. HPV is sexually transmitted; therefore, avoiding sexual exposure is a cornerstone to prevention of cervical cancer. The ABC strategy can help to reduce the risk of HPV infection.

Immunisation against HPV

Vaccination is an important tool in the prevention of immunisable diseases. UNEPI is responsible for all vaccinations in Uganda.

A school girl receiving an injection of HPV vaccine

HPV vaccines

Currently, there are two types of HPV vaccine: bivalent, which mainly protects against HPV genotypes 16 and 18, and quadrivalent, which protects against genotypes 6, 11, 16, and 18. The vaccines have shown to provide cross-protection against other oncogenic HPV genotypes as well. HPV genotypes 16 and 18 cause the majority of cervical cancer cases. Types 6 and 11 cause genital warts.

The vaccines are prepared from virus-like particles produced by recombinant technology. They do not contain a live biological product or DNA, so they are non-infectious.

Table 3. Vaccine types, schedules, and eligible ages for vaccination (WHO, 2007).

	Quadrivalent vaccine	Bivalent vaccine
Manufacturer: Trade name	Merck: Gardasil®	GlaxoSmithKline: Cervarix®
Virus-like particles of genotypes:	6, 11, 16, 18	16, 18
Three doses at intervals of:	0, 2, and 6 months	0, 1, and 6 months
Recommended age at first dose:	Females: 9–15 years	Females: 10–14 years

Eligibility for HPV Vacination

HPV vaccine is more effective for girls and young women before onset of sexual activity. In Uganda girls ages 10–14 years are eligible for vaccination. Catch-up vaccination is recommended for girls older than 14 years, provided they have not yet become sexually active (thus exposed to HPV infection). Currently, HPV vaccination is not recommended for adolescent boys because it is not cost effective.

HPV Vaccine management

HPV vaccines, like many other vaccines, are sensitive to freezing and high temperatures. It is recommended that HPV vaccine be stored at between 2 and 8 degrees Celsius. The HPV vaccine management protocol/health workers' field guide should be followed.

HPV Vaccine administration

HPV vaccine is given as a series of three 0.5 ml intra-muscular injections over a six-month period. In Uganda, HPV vaccine is given in the upper arm. HPV vaccine can be co-administered with other vaccines, like tetanus toxoid, but at different sites.

Protection offered by HPV vaccines

Current available data indicate that HPV vaccines offer protection against HPV infection for at least eight years, but they are likely to protect for a longer period of time. It is important to complete all three doses at the recommended intervals for maximum protection. The major basis of protection against infection is a neutralising antibody. HPV vaccines induce antibodies (which protect the body against HPV infection) in virtually all vaccinated individuals before exposure to HPV. Antibody levels after vaccination have been several times higher than those seen after natural HPV infection in all age groups evaluated (Schwarz & Leo 2008). Further, antibody levels after vaccination have been higher in young adolescents than in older people (Schwarz & Leo 2008).

The First Lady, Hon. Janet K.Museveni cutting a tape to open Mbarara Hopsital Cervical cancer screening clinic Behind the First Lady is Hon. James Kakooza, Minister of State for Primary Healthcare

HPV vaccine delivery mechanisms in Uganda

The Ministry of Health in collaboration with PATH implemented an HPV demonstration project in 2008-2009 to assess the feasibility and acceptability of HPV vaccination in Uganda. Nakasongola and Ibanda districts participated in the demonstration project, each testing a different delivery approach.

Nakasongola district situated in central Uganda tested the delivery of HPV vaccine through Child Health Days Plus, specifically identifying girls by age. Ibanda implemented the school-based approach, in which girls were identified based on their grade in primary school (Primary 5).

Results from this demonstration project will guide the HPV vaccine delivery mechanism in Uganda.

HPV vaccination roll-out strategy

HPV vaccination roll-out will be phased.

Phase 1 (ongoing): Continue the demonstration project to the bridging phase. Here, the districts involved in the demonstration project will continue HPV vaccination to facilitate lessons learnt and roll-out.

Phase 2: Introduce HPV vaccinations in ten new districts. The districts will be selected based on the following criteria:

- The population of girls ages 10-14 years
- Quantity of vaccines available
- Age at sexual debut amongst adolescents.
- Rate of unprotected sex or condom use
- Prevalence of HPV infection amongst adolescents.
- Prevalence of HIV infection amongst adolescents
- District's performance in routine immunisations.

Phase 2 is expected to be accomplished by 2013.

Phase 3: Introduce HPV vaccination in the entire country. This is expected to be accomplished by 2015.

Goal

- 80 percent of eligible girls ages 10–14 years will be vaccinated against HPV.

Objectives

- Launch routine HPV vaccination throughout Uganda.
- Strengthen the health system to accommodate and deliver HPV vaccine

within existing structures by 2015.

- Vaccinate at least 80 percent of eligible girls annually per district by 2015.

Core interventions

- Development of appropriate policy/guidelines to facilitate introduction of HPV vaccination.
- Procurement and stocking of adequate quantities of HPV vaccine and supplies.
- Increase in cold chain space at facility, district, and national levels.
- Improvement in the capacity (transportation, computers, laboratory equipment, supportive supervision, etc.) of health workers to forecast, order, store, effectively use, and monitor HPV vaccine.
- Training of central-, district-, and operational-level health workers in HPV vaccination.
- Updating of the existing HMIS to include HPV vaccination data.
- Revisions of the health workers' field guide to include lessons learnt from the demonstration project.
- Development of appropriate micro-plans for HPV scale-up and roll-out nationally, by district and by health sub-district.
- Vaccination of eligible girls against HPV.
- Monitoring and evaluation of HPV vaccine scale-up and implementation.
- Mobilisation of resources to facilitate the scale-up of HPV vaccination to all districts in Uganda.
- Documentation and dissemination of best practices for HPV vaccination.

Inputs

- HPV vaccines.
- Refrigeration and Cold boxes.
- Ice packs.
- Thermometers.
- Vaccine injection supplies, including needles, syringes, cotton, absolute alcohol solution, and safety boxes.
- Data collection forms, including tally sheets, registers, immunisation cards, monthly summary sheets, supervision checklists, and Advanced

Events Following Immunizations (AEFI) forms.

- IEC mechanisms and materials, including radio and television messages, posters, and information booklets for health care providers and the community.
- Means of transportation to immunisation sites, such as motorcycles.
- Fuel for transportation to immunisation sites.
- Personnel: A minimum of one health worker and one community volunteer per vaccination session.

Output indicators

- Adequate supplies of HPV vaccine available for routine use in both the public and private health sectors.
- Increased government funding for HPV vaccine procurement.
- Health logistics and support systems strengthened to accommodate HPV vaccination.
- HPV vaccination gradually scaled up to all districts by 2015.
- 80 percent of operational-level health workers trained by 2015.
- 80 percent of eligible girls have access to HPV vaccines annually by 2015.
- Surveillance system established to monitor the trend of HPV infection.

Health Outcome Indicators

- Decreased incidence or prevalence of HPV infection by serotype in the general population, including vaccinated and non-vaccinated girls.
- Decreased incidence or prevalence of CIN among women aged 25-49 years including vaccinated and non-vaccinated women

Key assumptions

- The GAVI Alliance will subsidise the purchase of HPV vaccine.
- The government will increase funding for vaccine co-financing.
- Global supply will meet the demand for HPV vaccines.

CHAPTER 5

DIAGNOSIS AND TREATMENT OF CERVICAL PRECANCEROUS LESIONS (SECONDARY PREVENTION)

Introduction

Secondary cervical cancer prevention refers to screening of women at risk of cervical cancer, most of whom are without symptoms, with the aim of detecting and treating precancerous changes, which may, if not treated, lead to cancer (WHO, 2006).

Invasive cervical cancer is usually preceded by a long phase of pre-invasive disease. This is characterised microscopically as a spectrum of events progressing from cellular atypia to various grades of dysplasia or cervical intra-epithelial neoplasia (CIN) before progressing to invasive carcinoma. The natural history of cervical squamous cell cancer precursors can be regression, persistence, or progression to cervical cancer. From the time that mild dysplasia is identified, it usually takes 10 to 20 years for invasive cancer to develop, which means that cervical cancer control is possible through screening and pre-cancer treatment (WHO, 2006).

This chapter outlines the strategies and actions adopted for cervical cancer prevention and control in Uganda in order to achieve coordinated support for delivery of secondary cervical cancer prevention services.

Goal

- 80 percent of eligible women ages 25–49 years will be screened and treated for cervical precancerous lesions
- 80 percent of eligible women with cervical precancerous lesions will be provided diagnostic services.

Objectives

- Decrease cervical cancer morbidity by 50 percent and mortality by 25 percent by 2014 through screening of all eligible women and treatment of cervical precancerous lesions.
- Provide timely, high-quality diagnostic and pre-cancer treatment services that are safe, acceptable, cost efficient, effective, and sensitive.

Strategy

- Scale up by integrating cervical pre-cancer screening and treatment services into existing services to ensure sustainability, using feasible approaches, methods, and resources ("screen and treat," VIA, cryotherapy

or LEEP, and nurse-midwives).

Core interventions

- Provision of training for health care providers in detection and treatment of precancerous lesions.
- Use of the "screen-and-treat" approach.
- Development of a plan to implement the appropriate activities for secondary cervical cancer prevention in a phased manner, beginning at the national referral hospital level and culminating at the health centre II level.

Activities

- Procure equipment.
- Conduct training of trainers.
- Train health care providers particularly nurse/midwives in screening techniques such as VIA including how to obtain samples for Pap smear, biopsy and treatment of cervical pre-cancerous lesions using cryotherapy and doctors will be trained in additional techniques such as colposcopy, and LEEP/LLETZ.
- Procure equipment and supplies for screening and treating precancerous lesions in screening centres.
- Screen all eligible women and treat precancerous lesions.

Screening methods

- HPV DNA testing.
- Cytology (conventional Pap smears, liquid-based cytology).
- Visual inspection (VIA, VILI).

HPV DNA testing

Currently, screening by HPV DNA testing is limited to research in low-resource settings. However, an accurate, affordable HPV DNA test, QIAGEN's *care*HPV, will be commercially available in the near future, and may be a good alternative to Pap screening and visual inspection in developing countries.

Cytology

Cytology is the most well-established method of screening for cervical precancerous lesions. It can be used for post-menopausal women and women in whom the squamocolumnar junction cannot be identified. This method

can be used in teaching hospitals and other facilities where resources are available; however, it is labour intensive and requires technical support, supplies, and equipment that are not readily available in all hospitals, and its sensitivity is only moderately good. Cytology is also associated with loss to follow-up and treatment.

Visual inspection

Recent data indicate that VIA is as effective as the Pap smear in detecting disease, and may be associated with fewer logistical and technical constraints. In 1994, a study was conducted in South Africa in which VIA and Pap smear were performed in a mobile unit that was equipped to process smears on site. In this study, either immediately after or within a few days of screening, a gynaecologist performed cervical biopsy (histopathology) to confirm disease. The positive predictive value for VIA was found to be similar to that of Pap smears, and the authors concluded that "naked-eye visualization of the cervix after application of diluted acetic acid warrants consideration as an alternative to cytologic screening" (Megavand et al., 1996).

Women eligible for screening using visual inspection

- Women between the ages of 25 and 49 years.
- Women younger than 25 years though may have both oncogenic and non-oncogenic HPV types. they tend to have lesions predominantly caused by non-oncogenic HPV, which regresses with time.
- If a woman 50 years old or older cannot be visually identified as suspicious for cancer, she can be screened by Pap smear.
- Age-eligible women who have not given birth in at least the previous six months.
- Pre-menopausal women. VIA is not suitable for post-menopausal women because by this time, the squamocolumnar junction has receded into the endocervical canal, and it is not easy to see the transformation zone.

Women eligible for screening using Pap smear

- Women aged 25-50 years or older
- If a woman 50 years old or older cannot be visually identified as suspicious for cancer, she can be screened by Pap smear.
- Post-memopausal women

Frequency of screening

- HIV-negative clients will be screened every three years.

- HIV-positive clients will be screened annually.

Treatment methods for cervical precancerous lesions

- Ablative methods: destroying abnormal tissue by heating or freezing (e.g., cryotherapy).
- Excision methods: surgically removing abnormal tissue (e.g., LEEP, cold knife conization).

Cryotherapy and LEEP are the recommended outpatient treatment options. Cryotherapy is the easiest and least costly treatment method for cervical precancerous lesions. However, LEEP is the treatment of choice when the lesion is too large for the cryoprobe or involves the endocervical canal, or when a histological specimen is needed. The two methods have comparable effectiveness. Cold knife conization should be done when the eligibility criteria for outpatient methods are not fulfilled, or when such methods are not available (WHO, 2006).

Cryotherapy

Cryotherapy eliminates precancerous lesions by freezing them. This relatively simple procedure takes about 15 minutes and can be performed on an outpatient basis. It involves applying a highly cooled metallic disc (cryoprobe) to the cervix and freezing its surface using carbon dioxide or nitrous oxide gas. The cryoprobe is applied to the cervix twice, for three minutes each time, with a five-minute thaw time in between (double-freeze technique). The more expensive, bone-dry, medical-grade gas is preferred, but industrial-grade gas can be used if that is what is available and affordable (WHO, 2006). If excellent contact is achieved between the cryotip and the ectocervix, cryotherapy will achieve temperatures low enough to cause cryonecrosis of precancerous lesions.

Providers

Cryotherapy can be performed at all levels of the health care system by a variety of trained providers (doctors, nurses, midwives) skilled in pelvic examination and trained in cryotherapy as an outpatient procedure (WHO, 2006).

Table 4. Eligibility and exclusion criteria for cryotherapy (WHO, 2006; Sellors and Sankarayaranan, 2003).

Eligibility criteria	Exclusion criteria
• Positive screening test for cervical pre-cancer. • Lesion small enough to be covered by the cryoprobe, with no more than 2 mm beyond its edges. • The lesion and all edges are fully visible, with no extension into the endocervix or to the vaginal walls. • If the woman has recently delivered, she is at least six months postpartum.	• Evidence or suspicion of invasive disease or glandular dysplasia. • The lesion extends more than 2 mm beyond the cryoprobe edges. • The lesion extends into the endocervix. • Pregnancy. • Pelvic inflammatory disease (until treated). • Active menstruation.

Loop Electrosurgical Excision Procedure

Loop Electrosurgical Excision Procedure (LEEP), or Long Loop Excision of Transformation Zone (LLETZ), is the removal of abnormal areas from the cervix using a thin, heated wire. It requires an electrosurgical unit that produces a constant low voltage and transmits it to a wire loop device that is used to remove the abnormal tissue. Electricity flows to a ground along the path of the least electrical resistance. The electrical energy used in electrosurgery is transformed into heat and light energy. The heat from a high-voltage electrical arc between the operating electrode and the tissue allows the practitioner to cut by vaporizing tissue at 100 degrees Celsius, or to coagulate by dehydrating tissue at greater than 100 degrees Celsius.

The loop is of very fine stainless steel or tungsten wire and comes in different sizes and shapes. The loop cuts and coagulates at the same time. LEEP aims to remove both the lesion and the entire transformation zone. The tissue removed can be sent for examination to a histopathology laboratory, allowing the extent of the lesion to be assessed; thus, LEEP serves a double purpose: it treats the lesion, and at the same time, produces a specimen for pathological examination. The procedure also has the advantage that it can be performed under local anaesthesia on an outpatient basis. It is successful in eradicating pre-cancer in more than 90 percent of cases. Treatment failure after 6 or 12 months is seen in less than 10 percent of women.

Providers

Loop Electrosurgical Excision Procedure (LEEP) is a relatively simple surgical procedure, but it should be performed only by a well-trained provider with demonstrated competence in the procedure, and in recognising and managing intra-operative and post-operative complications, such as

haemorrhage. LEEP is best carried out in facilities where back-up is available for management of potential problems. In most resource-poor countries, this will limit LEEP to second-level (district hospital) facilities.

Table 5. Eligibility and exclusion criteria for LEEP (WHO, 2006).

Eligibility criteria	Exclusion criteria
• A positive diagnostic test for pre-cancer. • Lesions extending less than 1 cm into the endocervical canal.	• Suspicion of invasive cancer or glandular dysplasia. • Lesion extending more than 1 cm into the endocervical canal, or whose distal or upper extent is not visible (these lesions are treated by cold knife conization). • Lesion extending to the vaginal wall. • Cervical infection or pelvic inflammatory disease (until treated or resolved). • Pregnancy or delivery within the previous 12 weeks. • Bleeding disorders.

Table 6. Advantages and disadvantages of cryotherapy and LEEP (WHO, 2006).

	Cryotherapy	LEEP
Advantages	• High cure rate (86–95%) for small lesions. • Equipment is simple and relatively inexpensive. • Can be performed by a trained and competent physician or non-physician. Training takes a few days. • Can be performed as an outpatient procedure in a primary care setting. • Fast (about 15 minutes for the double-freeze method). • Anaesthesia is not required. • Electricity is not required. • Complications and side effects are rare.	• High cure rate (91–98%). • Reliable histology specimen obtained, which allows for invasive disease to be ruled out. • Few complications. • Can be performed on an outpatient basis at a secondary level. • Fast (5–10 minutes), and technically simple to perform. • In a "screen-and-treat" approach, diagnosis and treatment can be offered at the same time, maximizing treatment coverage.

	Cryotherapy	LEEP
Disadvantages	• Less effective for larger lesions (cure rate <80% at one year). • No tissue sample available for histological examination. • Needs a continuous supply of carbon dioxide or nitrous oxide. • Causes prolonged and profuse watery discharge.	• Requires intensive training. • Post-operative bleeding occurs in less than 2% of treated women. • More sophisticated equipment is needed. • Requires electricity. • Requires local anaesthesia.

The screen-and-treat approach

If there is no capacity for tissue diagnosis with colposcopy and histology, treatment based on screening alone may be appropriate, especially in limited-resource settings. Screening for the screen-and-treat approach can include visual tests. With screening tests that provide immediate results, such as VIA and VILI, screening and treatment can be provided during a single hospital visit. Studies and pilot projects using the screen-and-treat approach have mainly focused on the use of visual tests for screening and cryotherapy for treatment because of the advantages of a single-visit approach that can be decentralized to a primary health care level.

Table 7. Advantages and limitations of the screen-and-treat approach (WHO, 2006).

Advantages	Limitations
• Infrastructure and equipment are more simple and less costly, and the provider level can be lower. • The single-visit approach reduces loss to follow-up and treatment, resulting in a reduced burden of tracking and contacting women. • Lessens the burden for women by reducing the number of visits. • Highly acceptable to women and providers.	• Impact on cervical cancer incidence and mortality is not yet known. • There are important ethical and resource use concerns, including over-treatment. • No specimen is available.

Supportive supervision and monitoring and evaluation

New sites will be supervised monthly for the first three months, then quarterly for one year, and semi-annually thereafter. This will be done by the National Technical Advisory Committee.

The outputs and outcomes will be as indicators in the evaluation of the secondary prevention of cervical cancer programme in Uganda.

Inputs

- Acetic acid.
- Lugol's iodine.
- Cusco vaginal speculum.
- Sponge-holding forceps.
- Cryotherapy equipment.
- Colposcopy equipment.
- LEEP equipment.
- Nitrous oxide gas.
- Gas cylinder.
- Medical supplies, including gloves, cotton, chlorhexidine, absolute alcohol solution, Monsel's solution, and glyceraldehyde 2 percent solution.
- Medical equipment, including an examination bed, a light source, and punch biopsy forceps.
- Nursing tools/equipment, including an instrument trolley, medicine trolley, kidney dishes, galipots, sterilising drum, instrument tray, thermometer, stethoscope, scale, sphygmomanometer, and linens.
- IEC strategies and materials, including televisions, DVD players, Video CD, DVDs, posters, flyers, counselling flipcharts, and information booklets for health care providers and the community.
- Data collection tools/forms, including patient registers, clinical note forms, monthly summary forms, monitoring tools, appointment cards, HMIS forms, and referral forms.
- Personnel: For health centre IV up to referral hospitals, a minimum of three health care providers, preferably two nurse-midwives and one doctor, will be required to routinely operate the cervical cancer screening and treatment clinic at any one time. For back-up purposes, at least six health workers will be trained in cervical cancer prevention and control per health facility. For health centre III, a minimum of three health care providers preferably two nurse-midwives and one clinical officer would suffice to operate the cervical cancer screening clinic. For health centre II, a minimum of two health care providers, preferably one nurse-midwife and one nursing assistant will suffice to implement community mobilization and sensitization for cervical cancer prevention programmes.

Output indicators

- Percentage of eligible women screened.
- Percentage of screened-positive cases.
- Percentage of women with screened-positive results treated.
- Percentage of health workers trained in screening and treatment of cervical precancerous lesions.
- Proportion of health facilities equipped with trained personnel and screening and treatment equipment, and providing cervical cancer secondary prevention services.
- Number and percentage of women cured one year after treatment with cryotherapy or LEEP for cervical precancerous lesions.
- Number and percentage of women cured three-years after treatment with cryotherapy or LEEP for cervical precancerous lesions.

Health Outcome Indicators

- Decreased incidence of CIN in the general population including vaccinated and non-vaccinated women.
- Decreased incidence of invasive cervical cancer in the general population including screened and non-screened women.

Key Assumptions

- Visual inspections with acetic acid for screening cervical pre-cancerous lesions are sensitive, specific, safe and acceptable.
- Cryotherapy for treatment of cervical pre-cancerous lesions is effective, safe and acceptable.
- Cervical pre-cancer screening and treatment with VIA and Cryotherapy is feasible in Uganda health system.
- Trained nurses and midwives are the major health workforce for cervical pre-cancer screening and treatment.
- Government will support the scale-up plan for cervical cancer secondary prevention.

CHAPTER 6

SURGICAL TREATMENT FOR CERVICAL CANCER

Introduction

Surgery for invasive cancer is currently at a very minimal level in Uganda, and radical surgical procedures needed for some cases are not available. Even at the regional and national referral hospitals, where there are specialist gynaecologists, mainly only simple surgery is done, which may not be appropriate for most of the cases of cervical cancer.

At Mulago National Referral and Teaching Hospital in Uganda, the gynaecological oncology ward is run by only five gynaecologists, and the hospital admits an average of 15 cervical cancer patients per week. Of these, three or four will qualify for surgery. There is no trained gynaecological oncologist in the country at present.

Radical curative surgery for early-stage disease is complex, with an average theatre time per patient of six to seven hours. The surgery calls for special expertise and a well-equipped facility with a high level of intra- and post-operative care. Therefore, the strategic plan will focus on capacity-building for establishment of a gynaecological oncology unit.

Goal

- 10 percent of eligible cervical cancer patients will be provided surgical treatment for invasive cervical cancer.

Objectives

- Build institutional and technical capacity at the regional and national referral levels in order to perform appropriate surgery for cervical cancer.
- Develop a reliable database on the results of surgical management, patient follow-up, and survival.

Core intervention

- Build a partnership of all stakeholders to secure resources to:
    - Identify trainers and trainees.
    - Train specialist gynaecologists at the regional and national referral levels to perform radical surgical procedures for treatment of cervical cancer.
    - Equip hospitals with standard theatre equipment and necessary personnel.
    - Provide computers and install appropriate software for recordkeeping.

Activities

- Provide on-the-job training in gynaecological oncology to interested gynaecologists at the national referral level and from selected regional referral hospitals by 2011.
- Provide training abroad to at least two gynaecologists every two years in gynaecological oncology.
- Hire nurses to increase both operating theatre and post-operative nursing capacity at regional and national referral hospitals.
- Procure standard theatre equipment and supplies, and provide adequate staffing at all levels.

Inputs

- Provision of four working sets of standard equipment for radical hysterectomy per year so that there is one set at each regional referral hospital by 2010.
- Provision of one computer for each national referral gynaecological oncology ward, and one computer for each regional referral hospital.

Output indicators

- 100 percent of all gynaecologists in gynaecological oncology wards trained by 2011.
- 50 percent of all gynaecologists at the regional referral hospital level trained by 2011.
- Two gynaecologists trained abroad every two years in gynaecological oncology by 2013.
- Increased number of patients accessing appropriate surgery by 2015.
- Greater proportion of health facilities providing surgical treatment for cervical cancer.
- Increased cure rates from surgical treatment of cervical cancer

Health Outcome Indicators

- Increased one-year survival rate amongst cervical cancer patients.
- Increased five-year survival rate amongst cervical cancer patients.

Key Assumptions

- Surgical theatres in regional referral hospitals are functional

- Radical hysterectomy for treatment of cervical cancer is effective, safe and acceptable.
- Government renovates and equip gynaecological theatres in regional referral hospitals throughout the Country.
- Trained Gynaecologists are retained to work in Uganda.
- Regular supplies, theatre equipments and gadgets are available.

CHAPTER 7

TREATMENT OF INVASIVE CERVICAL CANCER USING CHEMOTHERAPY AND RADIOTHERAPY

Introduction

The incidence of invasive cervical cancer in Uganda is 45.6 per 100,000 women, which reflects an annual incidence of 7,200 new cases for a population of 32 million people (16 million females). The basic cobalt-60 machine is able to treat about 1,000 new cases a year. Concurrent administration of radio-sensitising chemotherapeutic drugs like cisplatin is now a standard of care for cervical cancer.

This chapter describes tertiary prevention using a combined treatment of radiotherapy and chemotherapy for the management of invasive cervical cancer.

Goal

- 65 percent of eligible women with cervical cancer will be provided radiotherapy and chemotherapy services.

Strategic objectives

- Increase access to treatment for patients with invasive cervical cancer.
- Provide affordable and accessible cervical cancer chemotherapy and radiation treatment services to 65 percent of newly diagnosed cervical cancer patients.
- By 2015, build capacity for referral and continued care for women with invasive cervical cancer requiring conventional radiotherapy.
- Increase health care provider knowledge and skills in early diagnosis and effective treatment of invasive cervical cancer to 80 percent by 2015.

Core interventions

- Provision of:
  - Equipment.
  - Bunkers (treatment rooms).
  - Chemotherapeutic drugs.
- Development of human resources.
- Establishment of proper referral systems.

- Regular follow-up of patients.
- Establishment of a database of cancer patient's bio-data, cancer stage, type of treatment, dose, frequency and duration and the treatment centre, survival status after 1 and 5 years.
- Continued medical education for health care providers from the health centre II level to the national referral hospital level.

Inputs

- Seven new basic cobalt-60 machines, with a total capacity to treat 7,000 new cases.
- There is a draft proposal to upgrade radiotherapy services in Uganda by providing three new machines for Mulago National Referral and Teaching Hospital, renovating the units in Lacor and Gulu, and building two new centres (in Mbarara and Mbale). In addition to treating cervical cancer, the machines would be used to treat other cancers, including endometrial, breast, head and neck, and others.
- Each centre requires an intra-cavity facility, in addition to the above teletherapy equipment, for effective radiotherapy treatment. The procurement process will follow normal government guidelines.
- Bunkers (treatment rooms): Each teletherapy and brachytherapy unit requires a specially built treatment room to minimise radiation exposure to patients, staff, and the general public.
- Radiation oncologists: To be able to adequately treat 7,000 new cases requires at least 15 radiation oncologists (WHO and the International Atomic Energy Agency recommend one radiation oncologist for every 250 to 300 new patients annually).
- Personnel per radiotherapy unit:
    - Two specialist radiation oncologists.
    - Three therapy radiographers.
    - Two medical physicists.
    - Three oncology nurses.
    - One maintenance technician.

How the intervention will be implemented

The diagnosis of invasive cervical cancer will be made in district hospitals and higher units.

Patients will be referred to the nearest regional or national referral hospital that offers radiotherapy services.

The curative treatment programme takes six to eight weeks. Treatment can be administered on an outpatient basis, which should be encouraged whenever feasible.

Mulago National Referral and Teaching Hospital

- Radiotherapy services are currently available only at the Mulago hospital. There is an urgent need to replace the cobalt treatment machine, which is old, with a weak radioactive source. Two new machines are required to provide adequate access for cancer patients. Linear accelerators would be preferred. The Mulago hospital has the capacity to run them, and they provide better dose distribution as compared to cobalt machines.
- Two LINAC bunkers would be required for the new machines, as well as one bunker for the high-dose-rate brachytherapy unit. These bunkers have to be purchased.
- Personnel per radiotherapy unit: Two specialist radiation oncologists, two medical physicists, three therapy radiographers, three oncology nurses, and one maintenance technician.
- Training is required for a minimum of one radiation oncologist and one medical physicist, as well as the three therapy radiographers, three oncology nurses, and the maintenance technician.

Lacor and Gulu Regional Referral Hospitals

- The radiotherapy unit at the hospital in Lacor should be renovated. The cobalt bunker is already in place. Additional requirements include a new cobalt machine, a low-dose-rate brachytherapy unit, and a bunker for the brachytherapy unit.
- The radiotherapy unit at the hospital in Gulu should be renovated.
- Personnel per radiotherapy unit: Two specialist radiation oncologists, two medical physicists, three therapy radiographers, three oncology nurses, and one maintenance technician.
- Per-unit training is required for a minimum of one radiation oncologist and one medical physicist, as well as the three therapy radiographers, three oncology nurses, and the maintenance technician.

Mbarara and Mbale Regional Referral Hospitals

- Each of these hospitals requires one cobalt machine and one low-dose-rate brachytherapy machine, with bunkers to house both machines.
- Personnel per radiotherapy unit: Two specialist radiation oncologists, two medical physicists, three therapy radiographers, three oncology nurses, and one maintenance technician.

- Per-unit training is required for a minimum of one radiation oncologist and one medical physicist, as well as the three therapy radiographers, three oncology nurses, and the maintenance technician.

Output Indicators

- Number of cervical cancer patients treated annually, categorized by stage of disease.
- Proportion of women treated with chemotherapy, radiotherapy, and/or chemo-radiotherapy.
- Proportion of regional referral hospitals providing chemotherapy, radiotherapy, and/or chemo-radiotherapy.

Health Outcome Indicators

- Increased one-year survival rate for cervical cancer patients treated with chemotherapy, radiotherapy, and/or chemo-radiotherapy.
- Increased five-year survival rates for cervical cancer patients treated with chemotherapy, radiotherapy, and or chemo-radiotherapy.
- Improved quality of life of cervical cancer patients on chemotherapy and radiotherapy.

Key Assumptions

It is assumed that the hospitals equipped with radiotherapy services will adhere to internationally accepted quality control measures and radiation safety protocols, and will regularly check their equipment and safety of their bunkers, as prescribed in the International Atomic Energy Agency basic safety standards and the National Atomic Energy Agency laws and regulations.

CHAPTER 8

PALLIATIVE CARE FOR CERVICAL CANCER

Introduction

Palliative care is an approach that improves the quality of life of patients and their families facing the challenges associated with life-threatening illness through the prevention and relief of suffering by means of early identification and accurate assessment, and treatment of pain and other physical, psychosocial, and spiritual problems. Palliative care also offers bereavement support to families.

The majority (80 percent) of patients with cervical cancer in Uganda present with advanced disease, and it is at this time that they are referred for palliative care (Katahoire et al 2008). However, palliative care services can improve quality of life and help patients and their families cope with the disease from the time of diagnosis.

In Uganda, there are eight organizations involved in palliative care, delivering 154 hospice and palliative care services through 124 known branches (Clark et al 2007). Palliative care services are available in 32 of the 80 districts in Uganda, through 50 facilities, including regional and national referral hospitals, district hospitals, mission hospitals, and some nongovernmental organisations. Services range from patient pain and symptom management to family bereavement support.

Goal

- 25 percent of eligible cervical cancer patients will be provided palliative care services for improved quality of life.

Objectives

- Improve the quality of life of patients with cervical cancer and their families through pain management and other physical, psychosocial, and spiritual assistance.
- Ensure palliative care services are provided in an integrated, equitable, and sustainable way.

Core interventions

- Identification and training of a network of health care providers in palliative care at all levels of care, including community and family caregivers who want to become involved in the provision of services for cervical cancer patients.
- Provision of standards and guidelines on palliative care for cervical cancer and dissemination to all levels of care in both the public and

private sectors.

- Establishment of coordination and referral mechanisms amongst the different health care workers involved in both palliative and active care of cervical cancer.
- Ensuring the availability of essential drugs for palliative care of symptoms of cervical cancer and for complications of treatment.
- Design and implementation of sustained public education.

Inputs

- Palliative care facilities.
- Trainers of trainees.
- Essential drugs for palliative care, including analgesics and oral morphine solution.
- Health care providers, including palliative care nurses, doctors, and counsellors.
- Information, education and communication (IEC) mechanisms and materials, including radio and television messages, posters, and information booklets for health care providers and the community.

Output indicators

- Number of cervical cancer patients seeking palliative care services.
- Proportion of cervical cancer patients on palliative care services annually.
- Proportion of health facilities providing palliative care services.

Health Outcome Indicators

- Adequate pain and symptom control for patients with cervical cancer.
- Increased one-year survival rate for patients with cervical cancer on palliative care.
- Improved quality of life of cervical cancer patients and their families on palliative care.

Key Assumptions

- Health facilities will plan for procurement of medicines and supplies for palliative care services.
- Health facility will facilitate the training of at least two palliative care nurses per facility.
- Health facilities will provide for storage facilities for class A drugs.

CHAPTER 9

MONITORING AND EVALUATION OF THE CERVICAL CANCER PREVENTION AND CONTROL PROGRAMME

Introduction

Monitoring and evaluation activities around cervical cancer are currently minimal, consisting of a population-based cancer registry housed in the Makerere University College of Health Sciences' Pathology Department. The registry covers Kyaddondo county, which includes Kampala district and its surrounding area, up to Bombo to the north. A less-detailed cancer registry is housed in the Mbarara University College of Science and Technology Department of Pathology, which covers the districts of Mbarara and Bushenyi. Its data primarily include cancer statistics.

Some data on risk factors for development of cervical cancer, including characteristics of sexual behaviour, prevalence of STIs (e.g., HPV, herpes simplex virus, and HIV), figures on male circumcision, number of sexual partners, and high parity, exist, but the data are not used to assess risk of development of cervical cancer. It is therefore pertinent that relevant research be conducted as part of the strategic plan in order to monitor these risk factors and be in a position to influence policy.

In addition, operational research should be conducted to:

- Guide the scheduling for screening programmes, to ensure they are carried out in an efficient and cost-effective manner.
- Monitor women who have received HPV vaccination and/or screening for cervical cancer, for development of the disease.
- Monitor the outcome of treatment modalities, including surgery, radiotherapy, and palliative care.

Goal

- 90 percent of the districts involved in cervical cancer prevention and control activities will on monthly basis submit a report containing the performance indicators of their health facilities to the Department of Health Management Information System at Ministry of Health by 2015.

Objective

- Create a cervical cancer prevention information system for measuring the extent to which the Uganda cervical cancer prevention and control programme has met the reproductive health outcome.

Strategies

- Build capacity for monitoring and evaluation.
- Integrate cervical cancer data into the existing HMIS.
- Conduct operational and epidemiological research projects.
- Establish population-based cancer registries at the regional referral hospital level.
- Conduct special surveys at 5-year intervals including cervical cancer KAP survey, HPV immunization coverage survey and screening participation surveys

Core interventions

Data related to cervical cancer will be gathered at all levels of the health care delivery system, including from private practices; health centres II, III, and IV; general hospitals; regional referral hospitals; and Mulago National Referral and Teaching Hospital. The following data will be included and will require data management tools:

- Primary prevention and risk data:
  - HPV-vaccinated girls.
  - Individuals counselled for cancer prevention.
  - Females with STIs (HPV, herpes simplex virus, HIV).
- Screening and pre-cancer treatment (secondary prevention):
  - Women screened by Pap smear, VIA, or HPV DNA detection.
  - Women who tested positive
  - Women treated by cryotherapy LEEP, cone biopsy & Hysterectomy
- Diagnosis and management of invasive cervical cancer:
  - Women with cervical cancer, categorized by stage of the disease.
  - Patients of cervical cancer treated with surgery, radiotherapy, or chemotherapy and radiation treatment.
  - Survivors of cervical cancer.
  - Patients on palliative treatment.
  - Deaths from cervical cancer.

In order to ascertain the quality of data collected on cancers, there will be a need to provide for auditing or quality assurance by partnering with other histology laboratories and to review data recorded in cancer registries, and there will be a need for standard operating procedures on data management.

A baseline survey will be conducted as a starting point for monitoring and surveillance. However, overall monitoring will be guided by a set of agreed-upon indicators. Suggested indicators are as follows.

Output Indicators

- Number and percentage of service delivery points supervised.
- Number and percentage of eligible girls vaccinated against HPV.
- Number and percentage of eligible women screened for cervical cancer at least once.
- Number and percentage of screened-positive cases.
- Number and percentage of women with screened-positive cases treated.
- Number and percentage of sites providing cervical cancer screening services.
- Number and percentage of regional referral hospitals providing cervical cancer treatment services.
- Number and percentage of regional referral hospitals appropriately equipped for provision of cervical cancer screening and treatment services.
- Budget allocation for cervical cancer prevention, early detection, and control.
- Number and percentage of health workers trained in screening, treatment of pre-cancers, and invasive cancer management.
- Number and percentage of cancer patients receiving cancer treatment according to the established standards.
- Number and percentage of district teams, health workers, district leaders, community leaders, parents, girls and women groups sensitized about cervical cancer prevention and treatment.
- Number and percentage of women cured one year after treatment with cryotherapy or LEEP for cervical precancerous lesions.
- Number and percentage of women cured three-years after treatment with cryotherapy or LEEP for cervical precancerous lesions.

Impact indicators

- Cervical cancer incidence.
- Cervical cancer survival rate.

Health Outcome indicators

- Prevalence and or incidence of HPV infections by serotype in the general population, including vaccinated and non-vaccinated girls.
- Prevalence and or incidence of CIN, categorized by stage.

- Incidence and or prevalence of cervical cancer.
- One-year survival rates amongst cervical cancer patients, stratified by type of treatment (e.g., surgery, radiotherapy, chemotherapy, and/or palliative care).
- Five-year survival rates amongst cervical cancer patients, stratified by type of treatment (e.g., surgery, radiotherapy, chemotherapy, and/or palliative care).
- Quality of life of cervical cancer patients, stratified by type of treatment (e.g., surgery, radiotherapy, and chemotherapy).
- Mortality rates for cervical cancer.

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ANNEXES

SCALE-UP COSTS

Intervention	No. Facility	Cost/ Facility (USD)	Total Start-up cost (USD)
HPV vaccinations	83 districts	17,242	1,431,086
Cervical pre-cancer screening by VIA at HCIIIs	948	32,349	30,666,852
Cervical pre-cancer screening by VIA and treatment by cryotherapy at HCIVs	163	33,700	5,493,1000
Cervical pre-cancer screening by VIA and treatment by cryotherapy at hospitals	93	35,872	3,336,096
Cervical pre-cancer screening by VIA, colposcopy and treatment by cryotherapy and or LEEP at regional referral hospitals	9	45,804	412,236
Cancer diagnosis and staging by cytology and histology at all regional referral hospitals	12	25,000	300,000
Surgical treatment of cervical cancer at all regional referral hospitals	12	50,000	600,000
Chemotherapy and radiotherapy units in 4 regions	4	2,772,500	11,090,000
Palliative care services at district and regional referral hospitals	105	10,000	1,050,000
TOTAL			**103,817,270**

Note: The recurrent costs should be integrated into health facility budgetary allocation.

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