



# Monitoring national cervical cancer prevention and control programmes: quality control and quality assurance for visual inspection with acetic acid (VIA)-based programmes



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# Contents

|                                                                            |     |
|----------------------------------------------------------------------------|-----|
| Abbreviations                                                              | vii |
| Introduction                                                               | 1   |
| 1. Framework for quality control and quality assurance                     | 3   |
| 1.1. Factors influencing the performance of VIA-based programmes           | 3   |
| 1.2. Defining standards and selecting indicators of performance and impact | 4   |
| 1.2.1. Scope of the standards and indicators                               | 5   |
| 1.2.2. Set of core indicators                                              | 6   |
| 1.2.3. Sources of information for indicators                               | 6   |
| 2. Operationalizing quality control and quality assurance                  | 8   |
| 2.1. Setting up supervision and monitoring systems                         | 9   |
| 2.2. Strategies for monitoring and evaluation                              | 10  |
| 2.2.1. Site visits for supervision and monitoring                          | 10  |
| 2.2.2. Peer assessment                                                     | 14  |
| 2.2.3. Client assessments/community perspective                            | 14  |
| 2.2.4. Use of computers and/or mobile technologies to conduct supervision  | 14  |
| 2.3. Developing an action plan                                             | 15  |
| References                                                                 | 15  |
| Annexes                                                                    | 16  |
| Annex 1. Visual inspection with acetic acid (VIA) test procedure           | 16  |
| Annex 2. Cryotherapy procedure                                             | 17  |
| Annex 3. Summary of proposed core indicators                               | 19  |
| Annex 4. Additional indicators                                             | 24  |
| Annex 5. Sample data use poster                                            | 26  |
| Annex 6. Sample supervisory visit report template                          | 27  |
| Annex 7. Example of an action plan to introduce corrective measures        | 28  |
| Annex 8. List of most commonly used training materials                     | 30  |

## Figures

|                                                                                                    |    |
|----------------------------------------------------------------------------------------------------|----|
| Figure 1. Modified Donabedian conceptual framework for health care quality                         | 4  |
| Figure 2. Front and side view of female internal organs                                            | 13 |
| Figure 3. The transformation zone of the cervix of a parous woman of reproductive age              | 13 |
| Figure 4. Uterus of a woman of reproductive age                                                    | 13 |
| Figure 5. Position of cryoprobe on the cervix and ice forming                                      | 17 |
| Figure 6. Prevalence of HPV infection, precancerous lesions and cervical cancer<br>by age of women | 23 |

## Tables

|                                                                               |    |
|-------------------------------------------------------------------------------|----|
| Table 1. Planning for quality control and quality assurance                   | 9  |
| Table 2. Roles and responsibilities in the supervision and monitoring systems | 10 |
| Table 3. Supervisory visit planning checklist                                 | 11 |

# Abbreviations

|      |                                         |
|------|-----------------------------------------|
| CKC  | Cold knife conization                   |
| CQI  | Continuous quality improvement          |
| DHS  | Demographic and Health Survey(s)        |
| FP   | Family planning                         |
| HIS  | Health information system               |
| HPV  | Human papillomavirus                    |
| LEEP | Loop electrosurgical excision procedure |
| QA   | Quality assurance                       |
| QC   | Quality control                         |
| RH   | Reproductive health                     |
| PBCR | Population-based cancer registry        |
| SCJ  | Squamocolumnar junction                 |
| VIA  | Visual inspection with acetic acid      |
| VILI | Visual inspection with Lugol's iodine   |



# Introduction

## About the guide

This guide outlines quality control (QC) and quality assurance (QA) considerations to support introduction or scale-up of visual inspection with acetic acid (VIA) as a screening test for cervical cancer, within the context of national comprehensive cervical cancer prevention and control programmes. The guide proposes a framework for QC and QA including a core set of indicators, and provides examples for how the indicators can be set, measured and used to strengthen programme implementation.

The guide is intended primarily for programme managers, supervisors and other stakeholders working in public health programmes for cervical cancer prevention and control. When using this guide, the following general considerations should be taken into account.

- This guide should be used as a supplement to the World Health Organization (WHO) *Comprehensive cervical cancer control: a guide to essential practice* (1).
- Visual screening methods include VIA and visual inspection with Lugol's iodine (VILI). This guide will focus on QC and QA relating to VIA, given that VIA has been extensively evaluated through cross-sectional studies, prospective randomized trials and demonstration programmes, whereas the assessment of VILI is limited to a few cross-sectional studies.
- This guide also considers QC and QA related to cryotherapy, given the WHO recommendation to use this treatment modality in conjunction with VIA when possible. Therefore, this guide should be used together with WHO recommendations for the use of cryotherapy (2) and WHO's technical specifications for cryosurgical equipment (3).
- The recommendations provided in this document are broadly applicable and may need to be adapted to national policies, health systems, needs, languages and culture.

## Visual inspection with acetic acid

VIA involves naked-eye examination of the uterine cervix under bright light (such as a halogen focus lamp, if available, or a bright halogen flashlight/torch) one minute after application of 3–5% dilute acetic acid. When diluted acetic acid is applied to abnormal cervical tissue, it temporarily turns white (acetowhite), allowing the provider to make an immediate assessment of a positive (abnormal) or negative (normal) result. Use of magnification does not improve the performance of VIA (4).

VIA has many advantages. It is easy to perform, safe and affordable. Results are available immediately, thus enabling clinical diagnosis and/or treatment for screen-positive women to be carried out at the same visit, where feasible (or referral for treatment if not available on site). VIA can be provided by a wide range of health professionals including doctors, nurses, midwives and primary health-care workers, after a short period of training. The equipment required to conduct these tests is minimal, and the consumables are universally available. All these characteristics make VIA an attractive screening option for low-resource settings (1,2).

A detailed description on how to perform a VIA procedure is provided in Annex 1.

## Cryotherapy

Cryotherapy eliminates precancerous areas on the cervix 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 metal disc (cryoprobe) to the cervix, and freezing its surface using carbon dioxide (CO<sub>2</sub>) or nitrous oxide (N<sub>2</sub>O) gas. The cryoprobe is applied to the cervix twice, for three minutes each time, with a 5-minute thaw in between (double-freeze technique). A continuous supply of carbon dioxide or nitrous oxide is required. 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 (1).

A detailed description on how to perform cryotherapy is provided in Annex 2.

## Rationale for quality control and quality assurance

Visual tests are subjective in nature and dependent on the provider, resulting in wide variability in their performance in different settings. Indeed, VIA is dependent on the full visibility of the transformation zone of the cervix, and the ability of the provider to accurately identify an acetowhite lesion as being positive. For this reason, particular attention must be paid to postmenopausal women, in whom the transformation zone often recedes into the cervical canal; other screening tests may be more appropriate for this age group (1).

Because repeated and frequent rounds of testing are unlikely in low- and medium-resource settings, the sensitivity of the screening test used in this context should be high in order for the programme to have the desirable impact on cervical cancer incidence and mortality.

On the other hand, the low specificity and suboptimal positive predictive value of VIA may result in unnecessary referrals and/or treatment, which can offset the perceived savings associated with the low cost of the test. QC and QA for visual screening are therefore crucial in maintaining uniform and reproducible criteria for test positivity, and ensuring that the provider conducting the screening test accurately differentiates true positive and true negative cases.

# 1. Framework for quality control and quality assurance

Monitoring quality in any health programme ensures that the processes and systems are developed and adhered to in such a way that the deliverables are of good quality and that they maximize the benefit to the target population. Quality assurance (QA) refers to an overall management plan (the ‘system’) that guarantees the provision for good quality service. Quality control (QC) refers to the application of a series of measurements (the ‘tools’) used to assess the quality of the services and facilities. QA of a screening programme involves the systematic monitoring and evaluation of the various aspects of screening services and facilities to maximize the probability that the programme is attaining the minimum standards of quality (5). QA of the cervical cancer screening programme requires a robust system of programme management and coordination, assuring that all aspects of the service are performing adequately. The expected benefits of a screening programme, in terms of significant reductions in morbidity and mortality from cervical cancer, can only be achieved if quality is optimal at every step in the screening process, from identification of the target population to ensuring appropriate follow-up and treatment of women with screen-detected abnormalities. A well-defined screening policy and a pragmatic protocol – conforming to evidence-based standards – provide the overall programmatic framework essential to implementation of QA in a cervical screening programme.

QC activities of a cervical cancer screening programme include the implementation of accuracy checks on the performance of screening tests and diagnostic tests, the use of standardized procedures for collecting data from different levels of service delivery, and the preparation of reports in an approved format at regular intervals. Besides the technical aspects, attention must also be paid to the qualifications of personnel involved, performance monitoring, coverage of the target population of women and, if possible, evaluation of the impact of screening and treatment on the burden of disease (6).

The QC and QA operational plan for a VIA-based screening programme should be based on the following principles and guidance.

- The purpose of QC and QA is to ensure sustained high quality of care.
- Measurable indicators must be clearly defined to facilitate assessment of programme performance towards achieving the stated targets and goals.
- A supportive supervision framework should be implemented. Supportive supervision focuses on improving performance of service delivery to meet expected standards.
- Practical guidance and tools must be developed for health-care providers and other stakeholders who play an active role in monitoring QC and QA.

Section 2 provides additional details on operationalizing these elements.

## 1.1 Factors influencing the performance of VIA-based programmes

The performance of a VIA-based screening programme is influenced by a number of elements that may vary among programmes. These include:

- programme structure;
- target population;
- access to and provision of services;
- recommendations on the screening interval;
- capacity building, in terms of standardization of the structure, content and duration of the training curricula, and evaluation of trained providers to assess skills and qualifications.

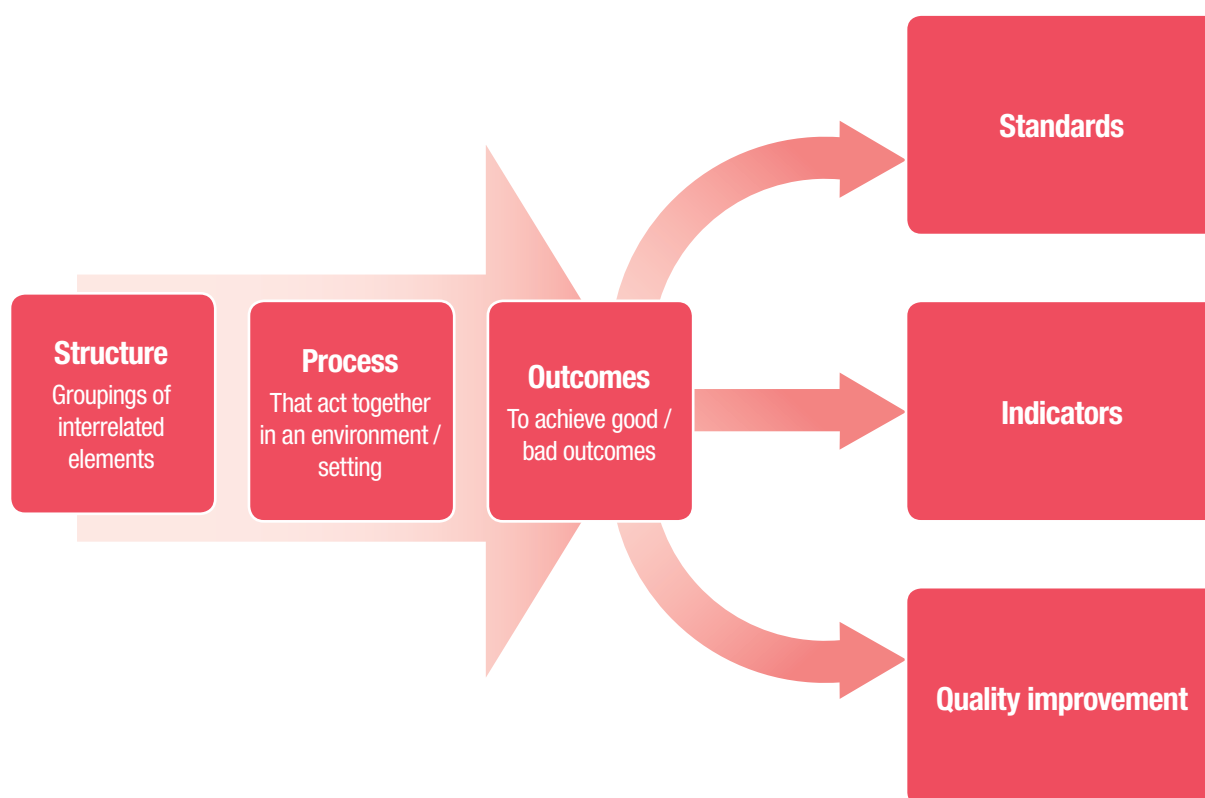
Additionally, the performance of the test depends on the following technical elements that can differ from client to client and from provider to provider, even within the same programme:

- coexisting inflammation
- adequacy of the light source
- concentration of acetic acid used
- training and experience of the test provider
- workload of the test provider.

## 1.2 Defining standards and selecting indicators of performance and impact

The model for assessing the quality of health care traces its evolution to Dr Avedis Donabedian, who in 1950 proposed the assessment of three key components of health care that are very closely inter-linked: structures, processes and outcomes. In the model (Fig. 1), structure is defined as the environment in which health care is provided, process as the method by which health care is provided, and outcome as the result of the health-care service provided. The model implies that improving the outcome (defined by performance standards and monitored and evaluated using indicators) using continuous quality improvement approaches requires not only managing the process but also addressing the fundamental environmental conditions (7,8,9).

**Figure 1: Modified Donabedian conceptual framework for health care quality**



Source: adapted from PharmAccess Foundation and COHSASA, 2010 (8).

## Key definitions

**Standard:** A performance standard defines, in the clearest and most objective terms, the agreed-upon level of performance desired for a specific service, based on scientific evidence and best practices. It is usually measurable in terms of timing and quantity. It states what the health-care service is expected to deliver.

**Indicator:** An indicator is a variable that measures one aspect of a programme that is directly linked to the programme's objectives. In the context of a health-care service, indicators tell us specifically what to measure to determine whether the objectives or the standards have been achieved.

**Quality improvement:** Quality improvement is a structured approach to analysing performance and applying systematic efforts to improve it. There are numerous models including continuous quality improvement (CQI).

### 1.2.1 Scope of the standards and indicators

The standards and indicators should take into consideration all the components of a VIA-based screening programme rather than focusing on screening tests only. Therefore, indicators should cover all levels of services: public education and outreach; screening facilities; colposcopy, cryo-therapy and other treatment facilities; pathology laboratories; and the training programme.

Some of the standards may not be universal and may vary from one programmatic setting to another. Over time, with regular monitoring and reporting of the various indicators, evidence will be generated that will permit the setting of targets for individual programmes. Data obtained from a well-designed pilot study prior to launching a population-based screening programme can serve as standards for future evaluation of the programme.

#### Box 1

#### Developing quality control indicators for VIA-based screening in Bangladesh

In Bangladesh, information obtained from pilot projects provided the basis for the development of quality control indicators for the subsequent VIA-based screening programme (10). The pilot project was conducted during 2004–2005 under the direct supervision of the National Coordinating Centre for Cervical Cancer Screening in Bangladesh (Bangabandhu Sheikh Mujib Medical University) prior to upscaling the programme to at least 44 of the country's 64 districts. The test providers and colposcopists involved in the pilot project were well trained by the national and the international faculty members of the university, almost all the colposcopy, treatment and histology procedures were performed at a single referral centre, and the entire project was closely supervised. Therefore, the values obtained for certain key quality control indicators during the pilot project (i.e. VIA positivity rate, positive predictive value for detection of CIN2+ lesions, compliance of screen-positive women with referrals for further investigations and treatment, etc.) set the benchmark for the future programme.

### 1.2.2 Set of core indicators

For QC and QA of VIA and cryotherapy, this guide proposes the use of five core indicators, comprising three performance indicators, one result indicator and one impact indicator (see Annex 3 for a detailed description of these core indicators). Core indicators are those that every country is strongly encouraged to adopt, as they provide fundamental information for basic VIA QC and QA. The proposed core indicators are as follows.

#### Performance indicators

- **Screening rate of the target population (women aged 30–49 years):** Percentage of women aged 30–49 years who have been screened for the first time with VIA in the previous 12-month period.
- **Positivity rate:** Percentage of screened women aged 30–49 years with a positive VIA test result in the previous 12-month period.
- **Treatment rate:** Percentage of VIA-positive women receiving treatment in the previous 12-month period.

#### Result indicator

- **Coverage rate indicator:** Percentage of women aged 30–49 years who have been screened with VIA or another screening test at least once between the ages of 30 and 49 years.

#### Impact indicator

- **Cervical cancer age-specific incidence.**

Annex 4 provides a list of additional indicators that have been identified as providing information useful for VIA QC and QA. Countries are encouraged to review the list of additional indicators and to implement collection of those deemed relevant and feasible within the programme and country context.

### 1.2.3 Sources of information for indicators

#### Sources of information for performance indicators

Critical information required to assess the above-mentioned indicators should be collected on a regular basis, generated in a timely manner, and analysed to inform ongoing programme implementation. It is crucial that the necessary denominators and numerators be as accurate as possible.

The initial denominator – the number of women in the target population who are in the selected age range for screening, e.g. 30–49 years – is recommended. This is already an established age range in census and other population-based studies, making it convenient to obtain the number from any recent population database. If census or population data are not available, then a random survey of households could be conducted. Countries should also explore information available from national health surveys such as National Family Health Survey, Demographic and Health Surveys (DHS), etc. For monitoring purposes we recommend use of the 30–49 years age range, as this is usually the age range used in the census and demographic surveys.

For the numerator, the ideal way to obtain the data needed to build performance and process indicators is by integrating collection of the required variables into the existing health information system (HIS). An HIS

can be used not only to monitor programme progress and identify indicators where improvement is needed, but also to monitor individual client management, ensuring adequate follow-up of test-positive women.

A fully computerized HIS is the most effective way to monitor and evaluate programmes. The ideal HIS uses unique patient identifiers as well as Call/Recall mechanisms, and it links with health facilities, laboratories and population-based cancer registries, if available. The Call/Recall mechanism is a system of notifying and recalling women for screening and treatment, as follows: (1) target women in the population are identified and invited for screening; (2) those found positive may be offered treatment during the same visit or may opt to schedule follow-up treatment (these women will be reminded or recalled for treatment). Countries with limited resources may need to rely initially on patient records and registers while gradually expanding their capability for computerized processing of patient and programme data.

Health information systems may be centralized or operate at the facility level, depending on available resources (5).

- **A facility-level HIS is based on different types of registries and maintained at the facility.** It provides information for monitoring and evaluation of the specific services provided at the facility. Examples of this type of HIS include screening attendance registers (logbook), laboratory registers and referral attendance registers. A facility-level HIS can provide aggregate data to compare performance on a monthly basis and detect marked changes in indicators at that facility.
- **In a centralized HIS, information gathered using patient forms at the facilities is fed into a centralized (regional-, state- or district-level) computer system.** It is vital that a centralized system has the mechanism to assign unique patient identifiers (numbers or codes) to enable the linkage of patient information from various facilities providing services to the same patient (e.g. from the screening facility, the treatment facility, and the laboratory). A centralized HIS allows tracking of patients in need of follow-up, efficient data analysis, and monitoring and evaluation of the programme.

In the absence of any form of HIS, coverage rates can be approximated using available health survey data. But there are limitations to survey data that need to be considered, including representativeness of the sample, formulation of the survey questions and potential survey bias. For example, data for the result indicator on coverage – the number of women aged 30–49 years who have been screened with VIA at least once between 30 and 49 years of age – will be collected via health survey, as this type of information is difficult to get from health services.

### Sources of information for impact indicators

The ideal way to assess cervical cancer incidence and mortality in the screened population is to have a population-based cancer registry (PBCR) that covers the screened population. Trends in incidence and mortality can be linked to the information about screening uptake and outcome to evaluate the effectiveness of the screening programme. However, in many of the settings where VIA will be used for screening there may not be a PBCR. In the absence of a PBCR, or while working to establish one, countries can use hospital-based registries as an interim measure.

When developing sentinel hospital-based cancer registers, sentinel hospitals (one or more in a country) should be selected on the basis of evidence that they treat a representative sample and/or a substantial proportion of the population being screened. Women who have been treated for cervical cancer will have been staged as accurately as possible so that the treatment they receive is appropriate for their cancer. Sentinel hospitals will detect any down-staging of cervical cancer among patients in the screened population who are receiving treatment, and this is likely to be the first indicator that the screening programme is working. These sentinel hospital-based registers can also serve as the foundation on which to build a PBCR to monitor incidence and mortality.

## 2. Operationalizing quality control and quality assurance

Using the framework and performance indicators outlined in section 1, programme managers should develop systems and processes to operationalize supervision, monitoring and evaluation, in order to ensure that data required to improve programme performance are routinely collected, analysed, disseminated and used to inform decision-making. From the outset, programme managers and other key stakeholders may need to come to an agreement and set the minimum targets or benchmarks for QA in the performance of VIA screening. When setting a minimum performance target, programme managers will need to consider the characteristics of VIA as a screening tool, its effectiveness as a screening test and the feasibility of meeting the target. With regard to programme objectives, it is recommended that each country should aim for 100% coverage of women in a specified age group, as per national policy.

Supervision and monitoring should be a continuous process, and should combine information gathered from a variety of sources. The available resources will depend on the country context and may include:

- service data collected at the health-facility level and subsequently aggregated and compiled in a centralized HIS;
- data obtained during supervision, either by direct visits from a trained supervisor or by use of virtual methods, such as computer or mobile-phone technology;
- self-assessment data reported by health-care workers through a participatory quality improvement process;
- information obtained from client feedback or client satisfaction surveys.

Preparation for implementation of QC processes should occur as part of the overall initial planning of the screening programme. During planning, stakeholders should develop and finalize the following requirements:

- indicators and tools to monitor and assess programme performance and service quality;
- human resources and assigned roles (including supervisors, programme managers and health-care providers);
- financial resources.

Table 1 describes how and when each stakeholder can be involved in the planning process.

Planning for supervision and monitoring should result in a clearly defined quality control (QC) and quality assurance (QA) plan, which should be disseminated to all stakeholders. As far as possible, the supervision process should be integrated with supervision for other health services at all levels (facility, district and regional) in order to optimize the use of resources.

The QC and QA plan should:

- describe the purpose of the supervision and monitoring activities, including expected deliverables;
- describe the data sources and forms to be used at each level of supervision and monitoring;
- describe the flow of information from the health-facility level to the national level, and identify who is responsible at each level of the health system for collecting this information;
- describe the strategies that will be used to conduct supervision, based on the country context and resources available (this may include routine visits to each health facility by a supervisor or the transfer of facility-level data by the heads of health facilities to a supervisor using computers or mobile technologies);
- identify who is responsible for coordinating the process at each level of the health system;
- describe the human resources and budget required at each level, and identify financial resources to cover the costs.

**Table 1: Planning for quality control and quality assurance**

|                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Programme planning</b>                      | <b>Stakeholders</b> (Ministry of Health, local professional associations, pre-service education institutions, etc.) define and agree on programme indicators and performance standards, and develop a plan outlining how these will be incorporated into existing supervision systems.                                                                                                                                                                                                                                                                                           |
| <b>Before training</b>                         | <b>Trainers and supervisors</b> review national plans and guidelines for programme implementation and supervision, including any existing tools to be used.                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>During training</b>                         | <b>Trainers</b> ensure that providers and supervisors have the knowledge and skills to provide quality services to meet the standards in the national plans and guidelines. Trainers also review the plan for post-training supervision.                                                                                                                                                                                                                                                                                                                                         |
| <b>Immediately after training</b>              | <b>Trainers and supervisors</b> visit programme sites to provide coaching and mentorship to newly trained providers, and assist them with setting up services.                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Operationalization of quality assurance</b> | <b>Supervisors</b> conduct periodic quality assurance visits (or obtain data from computer or mobile health technologies), identify gaps in quality of service provision, and work with providers to develop action plans to address gaps. The supervisors' skills in VIA and cryotherapy should be brought up to standard as needed prior to conducting supervision visits. <b>Health-care providers</b> conduct self- and/or peer assessments as part of an established process, as appropriate. Feedback from <b>clients/community</b> is obtained periodically, if feasible. |

Source: Jhpiego, 2005 (6).

## 2.1 Setting up supervision and monitoring systems

In countries where supervision mechanisms and systems are already in place, it may be feasible to build on these systems with plans for trained supervisors to make routine site visits for direct observation of health-care providers as they provide VIA and cryotherapy services. Through such observation, supervisors can identify gaps in performance and support the providers by developing action plans to address these gaps.

When direct site visits are not feasible, either because of remote location or a scarcity of human resources, other mechanisms can be used to provide data to a regional- or district-level supervisor, such as computers or mobile technologies.

When setting up a supervision and monitoring system, it is critical to clearly define the roles and responsibilities of each person involved in the process. Table 2 provides a sample of common roles within supervision and monitoring systems. These should be adapted to the country context.

In addition to identifying roles and responsibilities, the supervision system should outline how often supervision will be conducted. The frequency of supervisory contacts should be planned on the basis of available resources, provider experience (sites employing less-experienced providers should be monitored more often than those with experienced providers) and client load (sites screening large numbers of women may require more intensive supervision). Supervision frequency can also be adjusted on the basis of the results of previous assessments during supervision; sites where major weaknesses were identified should be prioritized for future supervision.

A supervision system should also clearly define how the data resulting from the supervision process will be shared with facility-based health-care providers and how it will be used to strengthen programme performance at each level. This can be done by supporting health-care providers to develop simple tools – such as graphs – that can be used to monitor performance at the site level (Annex 5).

**Table 2: Roles and responsibilities in the supervision and monitoring systems**

| Position                  | Role                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Facility-level supervisor | <ul style="list-style-type: none"> <li>– Monitor quality of VIA and cryotherapy services</li> <li>– Review site-level data to ensure that health-care providers are maintaining good quality records</li> <li>– Mentor and coach health-care providers</li> <li>– Ensure that required supplies and equipment are available, including data collection tools</li> <li>– Facilitate communication with the district-level supervisor</li> <li>– Work with health-care providers to use feedback from external supervision to improve programme performance</li> </ul>                                                                                         |
| District-level supervisor | <ul style="list-style-type: none"> <li>– Provide external supervision of quality of VIA and cryotherapy services (i.e. review of coverage, positivity rates, etc.), with regards to nationally agreed-upon indicators</li> <li>– Review site-level or aggregated data to ensure that health-care providers are collecting good quality data</li> <li>– Provide evidence-based feedback and recommendations for strengthening programmes</li> <li>– Mentor and coach health-care providers</li> <li>– Support additional training as needed to bring skills up to standard</li> <li>– Facilitate communications with the national-level supervisor</li> </ul> |
| National-level supervisor | <ul style="list-style-type: none"> <li>– Review aggregated data to ensure that health facilities are collecting good quality data</li> <li>– Provide evidence-based feedback and recommendations for strengthening programmes</li> <li>– Support additional training as needed to bring skills up to standard</li> <li>– Advocate at the national level for resources and activities required to strengthen programme performance</li> </ul>                                                                                                                                                                                                                 |

## 2.2 Strategies for monitoring and evaluation

Different approaches can be used for monitoring and evaluation depending on the country context and resources. The present section provides more detail on how the use of different tools can be planned and implemented, including: (1) site visits; (2) peer assessment; (3) client and community assessment; and (4) the use of new information and communications technologies.

### 2.2.1 Site visits for supervision and monitoring

If the programme has opted to conduct routine site visits, the information below can be used as a guide for planning these visits (6).

Sufficient time should be allocated for each supervisory site visit. Observing all aspects of service provision – client registration, counselling, screening, treatment, infection prevention and documentation – as well as reviewing client records and facility registers will enable the supervisor to determine whether client management meets the standard and whether documentation is complete. Supervisors need to ascertain that functioning equipment and adequate supplies are (and have been) available at the facility. They should also review site-level data with facility-based staff, including recruitment and rates of coverage, abnormal screen results and treatment. Above all, supervisors should use this opportunity to mentor and update providers and work with them to jointly resolve any issues (5).

The checklist in Table 3 should be used when planning a supervisory site visit. Responsibilities for this visit fall on both the assigned supervisor and the staff of the facility receiving the visit.

The performance support visit (supervisory visit) will require at least half a day, sometimes as much as a full day, to conduct. It is not necessary to assess every indicator or every provider at every visit. The supervisor should review the indicators for which an action plan was developed at a previous visit or those indicators that have not been reviewed for some time. During or after the meeting with the staff of the facility, the supervisor should develop an action plan to address areas where improvement is needed. After the visit, the supervisor should write up the performance support evaluation report. A sample visit report template can be found in Annex 6.

A number of tools and checklists can be used to support supervisory visits for QC and QA of screening programmes. The supervisors and health-care providers should be oriented to these tools during training (a list of training materials is provided in Annex 7). Performance standards tools should be used to assess individual performance and to make recommendations for improvement where gaps are identified. Using the tools as a guide, the supervisor should observe the individual

**Table 3: Supervisory visit planning checklist**

| Activity                                                     | Checklist                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Person responsible  |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Schedule visit with staff at facility to be visited          | Scheduling includes consulting with the staff of the facility to establish an agreeable date for the visit, determining the amount of time the visit will take, and ensuring that the schedule of the visiting (external) supervisor is cleared for the visit. The visiting supervisor should also inform staff at the facility of the aspects of the programme that will be reviewed (e.g. counselling, VIA, infection prevention). Ensure that the day of the visit is a screening day and that women are scheduled to receive services. | External supervisor |
| Ensure availability of all materials required                | Print copies of the agreed programme monitoring tools, including: <ul style="list-style-type: none"> <li>– Data collection tools</li> <li>– Performance standards</li> <li>– QC and QA plans and checklists.</li> </ul>                                                                                                                                                                                                                                                                                                                    | External supervisor |
| Review previous supervisory visit reports prior to the visit | The visiting (external) supervisor should be familiar with the strengths and weaknesses in service provision previously identified at the facility.                                                                                                                                                                                                                                                                                                                                                                                        | External supervisor |
| Schedule adequate time for the visit                         | There should be enough time to discuss the findings of the supervisory visit with the staff of the facility as well as time to review the facility's logbooks and/or computer database (to check whether they are available and up to date). Time should also be set aside to discuss steps needed to address any identified gaps.                                                                                                                                                                                                         | External supervisor |
| Communication with facility staff regarding the visit        | Prepare staff for the visit and let them know what will be reviewed that day. Schedule time at the end of the day for a discussion of the findings with the visiting supervisor.                                                                                                                                                                                                                                                                                                                                                           | On-site supervisor  |
| Update logbooks and/or computer databases                    | The person conducting the visit will want to review the data collected in the logbooks and/or computer databases. Ensure that these are up-to-date and, if possible, calculate the necessary indicators.                                                                                                                                                                                                                                                                                                                                   | On-site supervisor  |

health-care provider implementing each skill or practice outlined in the tools. For example, one item listed is: “The provider uses effective counselling skills to provide accurate information about cervical cancer prevention prior to the VIA test”. The supervisor should mark down whether the provider has completed each step in a satisfactory manner and, if not, make a note of the mistakes. At the end of the visit, the supervisor should review the results with the providers, commend them on services that were provided according to standard, and discuss ideas on how to improve areas of weakness or inaccuracy.

The assessment activity, when appropriate, would include co-assessment of VIA cases. The purpose of a co-assessment is to evaluate the service provider’s skills in assessing the cervix during VIA and in making decisions regarding the client’s care. This evaluation is based on a comparison of the provider’s assessment and the assessment of the visiting supervisor, for every VIA test observed.

During a supervisory site visit, the provider independently performs the VIA test procedure, interprets the test and documents the test results. The visiting supervisor also separately interprets the test and documents the test results. Depending on the client load and the time available, the supervisor should then meet with the provider to review the percentage of the provider’s test findings that agree with the ‘gold standard’ as represented by the supervisor’s findings. In addition, the supervisor and the provider should each draw a diagram of the cervix showing the location of the os, the squamocolumnar junction (SCJ) and the lesion, if there is one (see Figs 2, 3 and 4).

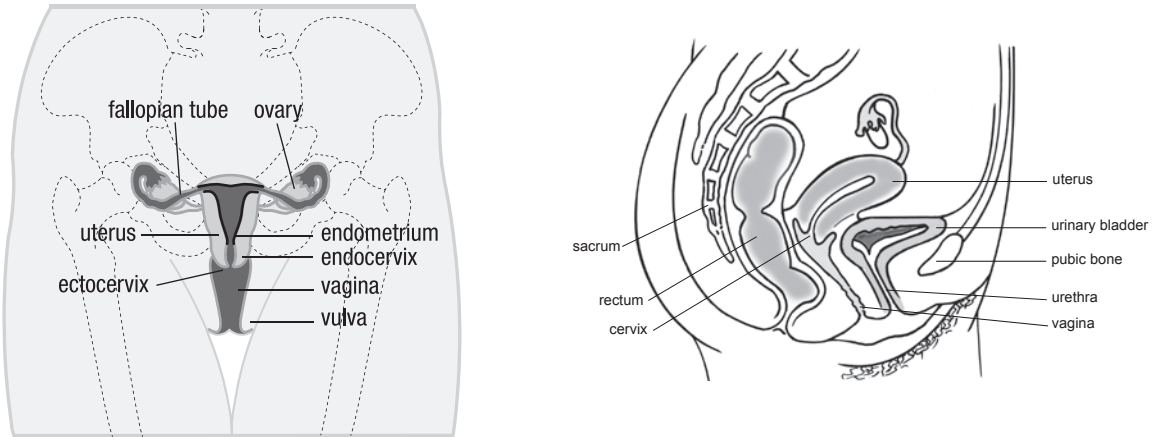
The indicator for judging the results of co-assessment is the rate of agreement between the findings and management recommendations made by the service provider and those made by the visiting supervisor. Screening programmes using VIA will need to define the performance target by setting the minimum level of concurrence between the provider’s and the supervisor’s findings. For example, some programmes have set their cut-off at 70% for VIA positives and negatives and 90% for suspected cancer. This means that the service provider’s test findings should agree with the supervisor’s test findings in at least 7 out of 10 negative VIA tests and at least 7 out of 10 positive VIA tests. For cancerous lesions, the service provider’s findings should agree with the gold standard in at least 9 out of every 10 cases. Mapping of the SCJ should agree in 90% of cases, and mapping of the lesion should agree in 90% of cases in which a lesion is observed (6).

Using this model, if the service provider and the supervisor agree on at least 70% of all negative and positive test results and at least 90% of all cancerous lesions, the supervisor should congratulate the service provider and encourage her/him to continue to perform the procedure in the same way. If the percentage of agreement is lower than these standards, the supervisor may take the following steps, as needed:

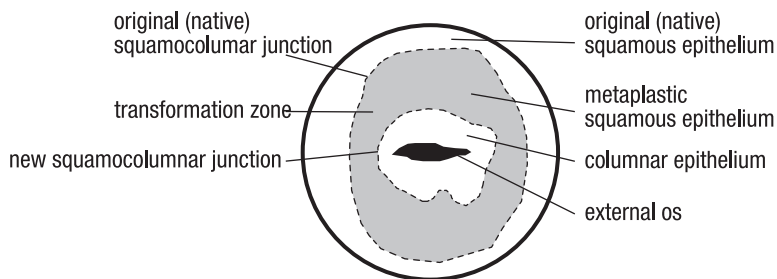
- provide feedback to the service provider and help her/him with interventions to improve performance;
- review the VIA procedure and test interpretation methods;
- arrange for on-site orientation or retraining as needed.

Any errors identified during screening with actual clinical cases should be corrected while the client is still in the health facility.

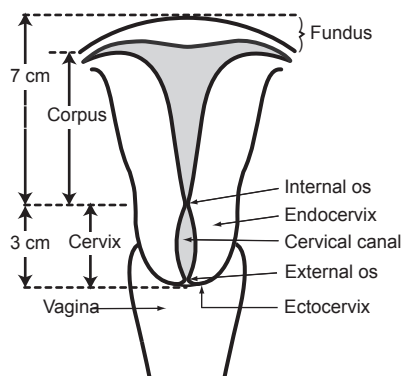
Over time, the rate of agreement between the provider and the supervisor on clinical cases is expected to increase, as the provider gains more experience.

**Figure 2: Front and side view of female internal organs**

Source: WHO, 2006 (1).

**Figure 3: The transformation zone of the cervix of a parous woman of reproductive age**

Source: Sellors and Sankaranarayanan, 2002 (11).

**Figure 4: Uterus of a woman of reproductive age**

Source: WHO, 2006 (1).

If a co-assessment exercise cannot be carried out during a supervisory visit, digital cameras or mobile phones may be used to take pictures of the cervix and send them to a supervisor in a remote location who can then make a clinical determination based on the image.

Alternatively, self-assessment is another option for performance improvement. Self-assessment is an effective way for health-care providers to evaluate their own clinical skills against the standards. Providers should be encouraged to review their own performance using the self-assessment tools and checklists available. Visiting supervisors should meet with individual staff to discuss their findings, review the areas in which they perform well and those where improvement is needed, and identify ways to help them improve their performance. Comparing self-assessed performance levels with the ideal standard helps individuals to improve their performance.

### 2.2.2 Peer assessment

Peer assessment is another effective method of performance assessment. The tools used during peer assessment are the same as those used by the supervisor for assessment of clinical practices, client-provider interactions, and other areas (co-assessment, performance standards, etc.). Health-care providers should help one another by conducting assessments and providing feedback in the way that is most comfortable for them. A trusting environment is needed for this method to be successful.

### 2.2.3 Client assessments/community perspective

Client feedback is a powerful way of finding out how services at a given site are perceived by clients. Feedback can be obtained by interviewing clients, keeping a suggestion box in the clinic, and/or having a notebook in the waiting area. Exit interviews can be conducted as clients leave the clinic, or interviews can be conducted by visiting clients at their homes to listen to their ideas on how to improve services.

Another effective way to assess the performance of the site is by meeting with community members, formally or informally, to ask about their perceptions of site performance. Encouraging site staff to initiate the suggested changes to improve services is also important. Involving clinic staff and having honest and open discussion between the staff and the community are vital in implementing this method.

### 2.2.4 Use of computers and/or mobile technologies to conduct supervision

In many low-resource settings, resources required for routine supervisory site visits may not be readily available, particularly if health facilities are located in remote and hard-to-reach areas. Supervisors can liaise directly with providers to conduct supervision using alternative strategies, such as the following.

**Digital photography (cervicography):** After application of acetic acid during a VIA test procedure, an on-site health-care provider can use a camera to photograph the cervix and send the digital image electronically to a supervisor. The supervisor's diagnosis can then be compared to that of the on-site provider, approximating the co-assessment procedure used during supervisory visits. This can be a useful way of providing coaching for providers, and ensuring the quality of the VIA services being provided.

**Virtual training tools and courses:** Programme managers and supervisors can develop electronic tools – such as VIA image banks – that can be used to examine providers on a regular basis. Providers who are unable to respond accurately can be prioritized for follow-up and for actual visits if needed. The virtual tools can also be used to provide refresher training. For example, the Ministry of Health of Colombia has developed a virtual VIA and cryotherapy course for health-care professionals selected for training from different regions. The course includes a theoretical and practical evaluation, which participants must pass. The virtual course is extremely useful for ensuring that members of a group of

health-care providers have a similar level of knowledge before attending a training course in person. Once providers have been trained and have started practising at the regional level, they need to pass a monthly virtual exam based on responding to images selected at random for the evaluation. Providers need to score at least 85% on these evaluations, otherwise they will automatically receive a direct supervisory visit by a gynaecologist. These virtual tools have facilitated effective follow-up and have also provided documentation of the health-care providers' learning curves.

## 2.3 Developing an action plan

After the supervisor has evaluated individual performance levels against the standards and reviewed the quantitative programmatic performance indicators, the areas of service provision that still need improvement should be evident. To support the facility in improving its service performance, the supervisor should work with the facility staff to jointly develop an action plan for them to follow, which should be as sensitive as possible to the conditions at the site (6). Annex 8 provides an example of an action plan.

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## Annex 1. Visual inspection with acetic acid (VIA) test procedure

In a VIA test, the provider applies acetic acid to the cervix, and then looks to see if there is any staining. A VIA test is positive if there are raised and thickened white plaques or acetowhite epithelium. The test is suspicious for cancer if a cauliflower-like fungating mass or ulcer is noted on the cervix. Visual screening results are negative if the cervical lining is smooth, uniform, pink with acetic acid and featureless.

Note: Visual methods are not recommended for use in postmenopausal women, because their transition zone is usually inside the endocervical canal and not visible on speculum inspection.

### Materials and equipment needed

- soap and water for washing hands
- a bright light source to examine the cervix
- a speculum, high-level disinfected (it need not be sterile)
- disposable or high-level disinfected examination gloves (need not be sterile)
- examination table covered by clean paper or cloth
- cotton-tipped swabs
- dilute acetic acid solution (3–5%) or white vinegar
- 0.5% chlorine solution for decontaminating instruments and gloves
- recording form.

### Preparation

1. Explain the procedure, how it is done and what a positive test means. Ensure that the woman has understood and obtain informed consent.
2. Do a speculum examination.

### Procedure

3. Adjust the light source to get the best view of the cervix.
4. Use a cotton swab to remove any discharge, blood or mucus from the cervix.
5. Identify the SCJ, and the area around it.
6. Apply acetic acid to the cervix; wait a minute or two to allow colour changes to develop. Observe any changes in the appearance of the cervix. Give special attention to abnormalities close to the transformation zone.
7. Inspect the SCJ carefully and be sure you can see all of it. Report if the cervix bleeds easily. Look for any raised and thickened white plaques or acetowhite epithelium. Remove any blood or debris appearing during the inspection.
8. Use a fresh swab to remove any remaining acetic acid solution from the cervix and vagina.
9. Gently remove the speculum.

### After screening

10. Record your observations and the test result. Draw a map of any abnormal findings on the record form.
11. Discuss the results of the screening test with the patient. If the test is negative, tell her that she should have another test in three years. If the test is positive or cancer is suspected, tell her what the recommended next steps are. If she needs to be referred for further testing or treatment, make arrangements and provide her with all necessary forms and instructions before she leaves. If you can make the appointment immediately, do so.

## Annex 2. Cryotherapy procedure

Cryotherapy is the freezing of the abnormal areas of the cervix by the application of a very cold disc to them. It takes only a few minutes and usually only causes some cramping.

### Materials and equipment needed

- a speculum, high-level disinfected (it need not be sterile)
- disposable or high-level disinfected examination gloves (need not be sterile)
- cotton swabs for wiping the cervix
- normal saline solution
- colposcope, if used in the particular venue
- cryosurgery unit with adequate gas supply.

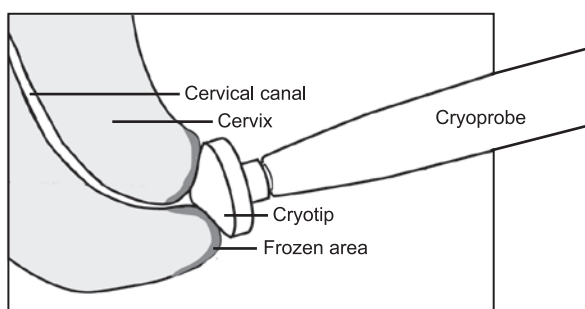
### Before the procedure

1. Explain the procedure, and why it is important to return for further management as requested. Ensure that the woman has understood and obtain informed consent.
2. Show her the cryotherapy equipment and explain how you will use it to freeze the abnormal areas on the cervix.
3. Prepare the patient for a gynaecological examination and perform a speculum examination.
4. If there is no evidence of infection, proceed with cryotherapy.
5. If there is a cervical infection, provide treatment. You may proceed with the cryotherapy, or you may give the patient an appointment to return once the infection is cured.

### Procedure

6. Wipe the cervix with a saline-soaked cotton swab and wait a few minutes.
7. Apply acetic acid to outline the abnormality and wait a further few minutes.
8. Tell the woman she might feel some discomfort or cramping while you are freezing the cervix.<sup>1</sup>
9. Wipe the cryoprobe surface with saline to ensure optimum effectiveness.
10. Apply the cryoprobe tip in the centre of the os and make sure the probe adequately covers the lesion (Figure 5). If the lesion extends more than 2 mm beyond the probe, discontinue the procedure. Explain to the woman why you are doing this and what needs to be done for her as an alternative.
11. Ensure that the vaginal wall is not in contact with the cryoprobe or you may cause a freezing injury to the vagina.

**Figure 5: Position of cryoprobe on the cervix and ice forming**



<sup>1</sup> In some cases, the patient may have a vasovagal reaction, with fainting and plummeting blood pressure. If this happens, stop the treatment immediately and raise the patient's legs as much as possible.

12. Set the timer and release the gas trigger to cool the probe.
13. You will observe the ice forming on the tip of the cryoprobe and on the cervix (Fig. 5). When the frozen area extends 4–5 mm beyond the edge of the cryoprobe, freezing is adequate.
14. Allow two cycles of freezing and thawing: 3 minutes freezing, followed by 5 minutes thawing, followed by a further 3 minutes freezing.
15. Once the second freezing is complete, allow time for thawing before attempting to remove the probe from the cervix. Removing it before it is fully thawed will pull tissue off the cervix.
16. Gently rotate the probe on the cervix to remove it. The area you have frozen will appear white.
17. Examine the cervix for bleeding. If bleeding is noted, apply Monsel's paste.
18. Do not pack the vagina.
19. Remove the speculum.

### After the procedure

20. Provide a sanitary pad.
21. Instruct the woman to abstain from intercourse and not to use vaginal tampons for 4 weeks, until the discharge stops completely. This is to avoid infection.
22. Provide condoms for use if she cannot abstain from intercourse as instructed. Teach her how to use them.
23. Invite the patient to return in 2–6 weeks to be checked for healing, and again in 6 months for a repeat VIA test and possible colposcopy.
24. Inform her of possible complications and ask her to return immediately if she notes:
  - a. fever with temperature higher than 38°C or shaking chills
  - b. severe lower abdominal pain
  - c. foul-smelling or pus-like discharge
  - d. bleeding for more than two days or bleeding with clots.
25. Clean and disinfect the cryoprobe and decontaminate the cryogun, tubing, pressure gauge and gas tank<sup>1</sup>:
  - a. Decontaminate the cryotherapy unit, hose and regulator by wiping them with alcohol.
  - b. Wash the cryotip and the plastic sleeve with soap and water until visibly clean.
  - c. Rinse the cryotip and plastic sleeve thoroughly with clean water.
  - d. High-level disinfect the cryotip and plastic sleeve by one of the following methods:
    - boil in water for 20 minutes; or
    - steam for 20 minutes; or
    - soak in chemical disinfectant (0.1% chlorine solution or 2–4% glutaral) for 20 minutes and then rinse with boiled water.
  - e. It is critical that the hollow part of the cryotip is completely dry when next used, otherwise the water will freeze and the probe could crack or the treatment not work.
  - f. Either use a rubber cap to seal off the hollow part of the cryoprobe during processing, or thoroughly dry the cryoprobe before it is reused.

### Follow-up

26. Perform a pelvic examination to check for healing 2–6 weeks after the cryotherapy.
27. At 6 and 12 months, do a VIA test and a colposcopy and take a biopsy if necessary.

Source: WHO, 2006 (1).

<sup>1</sup> Some cryoguns get blocked by ice. This can be avoided by pushing the defrost button every 20 seconds to clean the tube. Alternatively, use the cryotherapy gas conditioner developed by PATH.

## Annex 3. Summary of proposed core indicators

| Indicator 1 – Core | Screening rate                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| What it measures   | Percentage of women aged 30–49 years who have been screened for the first time with VIA in a 12-month period. This is a monitoring indicator that measures how many VIA screenings were performed in a 12-month period targeting women aged 30–49 years.                                                                                                                                                                                    |
| Rationale          | Programme managers should aim to achieve high screening rates in the age range in which women present the highest risk for precancerous lesions, that is, 30–49 years of age. Measuring screening rates annually will permit measurement of a cumulative incidence of women screened. Ideally a programme should aim for a cumulative incidence of 100% screening rate over a target time frame defined at the initiation of the programme. |
| Numerator          | Number of women aged 30–49 years who have been screened for the first time with VIA in a 12-month period                                                                                                                                                                                                                                                                                                                                    |
| Denominator        | Number of women aged 30–49 years in the population                                                                                                                                                                                                                                                                                                                                                                                          |
| Data source        | The numerator should be collected through the HIS (facility level or centralized); the denominator should come from the population census.                                                                                                                                                                                                                                                                                                  |
| Frequency          | Annually                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Proposed target    | Programme managers have to set realistic targets for the 12-month period based on the number of providers and the available hours of work at the screening centres, and should prioritize the age range recommended by the national programme and women who have never been screened.                                                                                                                                                       |

| Indicator 2 – Core | VIA test positivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| What it measures   | Percentage of VIA-screened women aged 30–49 years with a positive result                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Rationale          | VIA test positivity provides useful information for identifying health-care providers in need of retraining. If test positivity is too low there is the possibility of missing disease cases, and if it is too high, there is the possibility of a high number of false positives.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Numerator          | Number of women aged 30–49 years reported positive in a 12-month period                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Denominator        | Total number of women aged 30–49 years screened in a 12-month period                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Data source        | The numerator and denominator should be collected through the HIS (facility level or centralized).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Frequency          | Annually                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Comments           | The positivity rate of VIA depends on the age distribution of the screened women, the prevalence of cervical neoplasia in the target population, and the skill and experience of the VIA providers. VIA test positivity will be high in younger women, particularly those below 30 years, due to the metaplastic changes in the cervix and high prevalence of low-grade intraepithelial lesions. In various studies it has been observed that newly trained providers tend to report higher positivity rates initially. As they acquire skills and gain confidence, the test positivity tends to come down and stabilize at a rate appropriate for the population. The range of VIA test positivity is 5–10% in women aged 30–60 years. Some research studies have observed very high VIA positivity rates, but it is likely that was because no attempt was made to differentiate between the acetowhitening of neoplasias and that of non-neoplastic conditions like metaplasia, or because the screened populations had a high prevalence of HIV. |
| Proposed target    | It is important to consider the trends of VIA positivity when seeking to identify deviations that may require corrective action.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

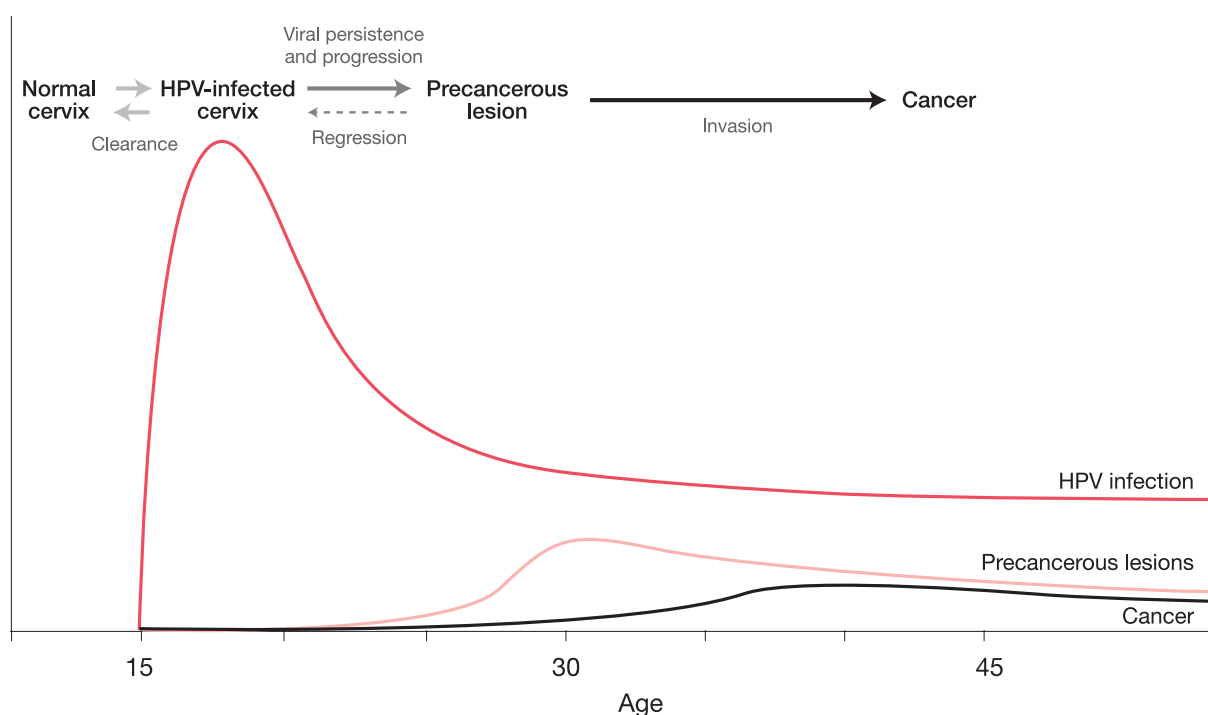
| Indicator 3 – Core | Treatment rate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| What it measures   | Percentage of VIA-positive women who have received treatment in a given year                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Rationale          | Screening alone will not be able to reduce the disease burden of cervical cancer unless screening is linked to treatment of the screen-detected neoplasias. Treatment options include cryotherapy, loop electrosurgical excision procedure (LEEP) and cold knife conization (CKC) for precancerous lesions, and surgery, chemotherapy and radiotherapy for invasive cancer. Collecting data on the proportion women with a positive result who have been treated will aid the programme manager to ensure that women have adequately completed their care for precancerous lesions or invasive cancers. |
| Numerator          | Number of VIA-positive women aged 30–49 years completing appropriate treatment in a 12-month period                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Denominator        | Number of VIA-positive women in a 12-month period                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Data source        | The numerator and denominator should be collected through the HIS (facility level or centralized).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Frequency          | Annually                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Comments           | Compliance with treatment can be improved if a 'screen and treat' approach is adopted where VIA is followed by cryotherapy for precancerous treatment (when eligible) during the same visit.                                                                                                                                                                                                                                                                                                                                                                                                            |
| Proposed target    | Programme managers will have to ensure that at least 90% of the VIA-positive lesions and invasive cancers receive treatment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Indicator 4 – Core | Coverage of the target population                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| What it measures   | Percentage of women aged 30–49 years who have been screened with VIA or another method at least once between the ages of 30 and 49 years. This indicator measures the effectiveness of the screening programme in reaching the target population at least once.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Rationale          | From a natural history perspective of cervical changes, the best time to catch cervical dysplasias that result from chronic persistent HPV infection is between the ages of 30 and 49 years (see Fig. 6). Ensuring the participation of the majority of the target population of women who are in the high-risk age group will lead to overall reduction in cervical cancer mortality. Evidence from some countries where screening programmes are in place shows that more than 50% of women diagnosed with cervical cancer have never been screened. Increasing coverage is generally more important than marginal increases in the frequency of screening or increases in the sensitivity of the screening test, particularly for countries with low screening coverage.                                                 |
| Numerator          | All women aged 30–49 that answered “YES” to the question in the survey                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Denominator        | All women aged 30–49 that answered the question in the survey                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Data source        | Specific health survey conducted on a representative sample of households.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Frequency          | WHO recommends that countries do surveys approximately every 5 years, in the context of the WHO STEPwise approach to Surveillance (STEPS). <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Comments           | The ages at which screening will be initiated and discontinued need to be predetermined depending on the capacity and resources available. Similarly, the interval between each round of screening may vary from programme to programme. The programme manager will have to ensure that all women within the specified age group have access to screening. In an opportunistic programme with low participation rates, low-risk women typically undergo unnecessarily frequent rounds of screening while those with significantly higher risk are left out. There can be a significant reduction in cervical cancer mortality if more than 70% of the target population of women has regular cervical screening. Screening of women outside of the target age range should be discouraged and should be as low as possible. |
| Proposed target    | This indicator refers to the comprehensive global monitoring framework, including indicators and a set of voluntary global targets for the prevention and control of noncommunicable diseases. It will be collected through specific surveys.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

<sup>1</sup> Information on STEPS is available at: <http://www.who.int/chp/steps/en/>

| Indicator 5 – Core | Age-specific cervical cancer incidence                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| What it measures   | Number of new cases of cervical cancer that occur in a defined population of disease-free individuals in a specified period of time <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Rationale          | Age-specific cervical cancer incidence supports the measurement of programme impact.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Numerator          | Number of cases in the age group                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Denominator        | Number of women in the age group (1 person-year per person, if it is an annual measure)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Data source        | Population-based cancer registry, sentinel hospital-based cancer registry                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Frequency          | Annually                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Comments           | The desired impact of a screening programme is the reduction of cervical cancer incidence and mortality rates. Initially, the programme is likely to detect many of the undiagnosed prevalent cancers, such that initial results may appear to show an increase in the incidence. Subsequently, there will be a stage-shift of the detected invasive cancers with more and more cases being diagnosed at earlier stages. As the cervical pre-cancers are detected and treated, there will be a gradual reduction in new cases of invasive disease detected. However, reduction in incidence and mortality as an impact of the screening programme may take a decade to become evident. |
| Proposed targets   | The target for this indicator will vary by country depending on baseline incidence and trends.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

**Figure 6: Prevalence of HPV infection, precancerous lesions and cervical cancer by age of women**



<sup>1</sup> Boyle P, Parkin DM. Statistical methods for registries. In: Jensen OM et al., eds. *Cancer registration: principles and methods*. Lyon, International Agency for Research on Cancer (IARC), 1991:126–158.

## Annex 4. Additional indicators

### 1. Percentage of VIA-positive women with lesions eligible for cryotherapy treated during the same visit.

- **Method of calculation:**

Numerator: Number of VIA-positive women with lesions eligible for cryotherapy treated during the same visit x 100

Denominator: Number of VIA-positive women with lesions eligible for cryotherapy.

### 2. Percentage of VIA-positive women with lesions not eligible for cryotherapy referred to colposcopy and who complete adequate treatment.

- **Method of calculation:**

Numerator: Number of VIA-positive women with lesions not eligible for cryotherapy referred to colposcopy and who complete adequate treatment x 100

Denominator: Number of VIA-positive women with lesions not eligible for cryotherapy.

Which lesions are eligible for cryotherapy? The table below lists both the eligibility and exclusion criteria.

| Eligibility criteria                                                                                                                                                                                                                                                           | Exclusion criteria                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>– Positive screening test for cervical pre-cancer</li> <li>– Lesion small enough to be covered by the cryoprobe</li> <li>– Lesion and all edges fully visible with no extension into the endocervix or onto the vaginal wall</li> </ul> | <ul style="list-style-type: none"> <li>– Evidence or suspicion of invasive disease or glandular dysplasia</li> <li>– Lesion extends beyond the cryoprobe edge</li> <li>– Pregnancy</li> <li>– Pelvic inflammatory disease (until treated)</li> <li>– Active menstruation</li> </ul> |

### 3. Percentage of women with suspected invasive cancer on VIA who complete appropriate treatment or appropriate follow-up.

- **Method of calculation:**

Numerator: Number of women with suspected invasive cancer on VIA who complete appropriate treatment or follow-up x 100

Denominator: Number of women with suspected invasive cancer on VIA.

- **Explanation:** Health-care providers conducting screening with VIA can visually identify cases of suspected invasive cancer. Visibly invasive cancer can have a variety of appearances. Most commonly, if the cancer is detected early, the cervix will appear densely white, with a thick, knobby mass extruding from some portion of the cervix. Such masses may have a cauliflower-like appearance and will bleed easily upon contact. Sometimes contact will cause fragments of the mass to break off, which can also cause bleeding. A bimanual exam will confirm the presence of an enlarged, hardened cervix, which may or may not be mobile (depending on the stage of progression)<sup>1</sup>. Other characteristics that may be observed visually include an extensive fungating growth, or a haemorrhagic tumour mass in the vagina. Health-care providers should be trained to refer all cases of suspected cancer for follow-up, including confirmation of diagnosis and further management as necessary.

---

<sup>1</sup> Blumenthal PD, McIntosh N. *Cervical cancer prevention guidelines for low-resource settings*. Baltimore, Jhpiego, 2005.

## Annex 5. Sample data use poster

## Results at a Glance

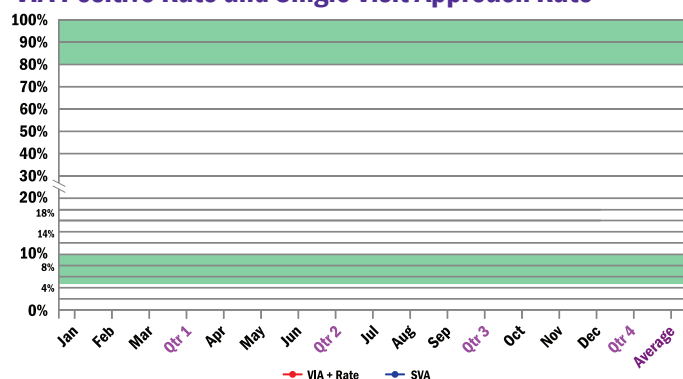
Country: Guyana Site: \_\_\_\_\_ Year: \_\_\_\_\_

## The Cervical Cancer Prevention and Treatment Programme

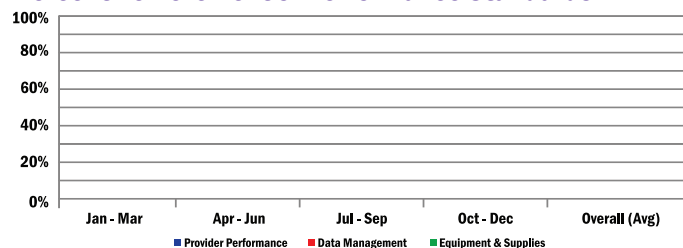
## Number of New Cervical Cancer Screenings



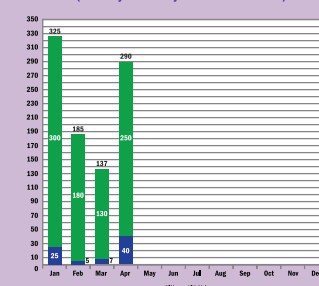
## VIA Positive Rate and Single Visit Approach Rate



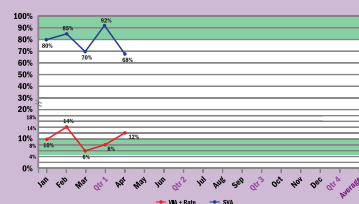
## Percent Achievement of Performance Standards



## Sample Data

Number of New Cervical Cancer Screenings  
(Monthly Summary Form: Indicator #4)

## VIA Positive Rate and SVA Rate



## VIA Positive Rate and SVA Rate: Calculations

## VIA Positive Rate

Total # of new women with VIA positive result (Ind. # 5) X 100  
Total # of new women screened (Ind. #4)

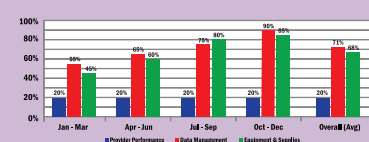
Example: 4 new VIA+ women / (40 total women screened) X 100 = 10 %

## SVA Rate for New Patients

Total # of VIA+ women receiving immediate cryotherapy (Ind. #11)  
Total # immediate cryotherapy + Total # postponed cryotherapy (Ind. #11)

Example: 3 women received immediate cryo / (3 women immediate cryo + 1 woman postponed cryo) X 100 = 75%

## Percent Achievement of Performance Standards



USAID  
FROM THE AMERICAN PEOPLE



iCHIP  
Maternal and Child Health  
Integrated Program



Jhpiego  
innovating to save lives  
an affiliate of Johns Hopkins University

## Annex 6. Sample supervisory visit report template

**Staff name:** Senior Nurse Supervisor

**Date of visit:** 1 June 2012

**Facility visited:** Urban Health Centre

**Date report submitted:** 7 June 2012

**Objective(s) of the visit:**

To follow up on the previous action plan for the Urban Health Centre, with specific attention to recruitment rates, infection prevention practices and client–provider interaction (in particular, counselling after VIA-positive test result). Nurse Agatha needed improvement at the time of the last supervisory visit.

**Activities carried out at the facility:**

Met with six providers to review monthly logbook to determine recruitment and screening rates. Observed two providers performing VIA and cryotherapy: Nurse Agatha and Nurse Elizabeth. Assessed performance of the two providers using performance standards checklist and co-assessment of VIA test and client management. Reviewed individual self-assessment of counselling for both providers.

**Findings:**

Nurse Agatha's VIA and client management recommendations were satisfactory and her counselling skills have improved. Nurse Elizabeth's co-assessment for VIA test was unsatisfactory. Review of monthly logbooks indicated 20% increase in recruitment over the previous period.

**Recommendations:**

Ship/send additional community outreach and educational materials to the Urban Health Centre for use during recruitment. Strongly encourage supervisor and service providers to regularly use peer and/or supervisor assessment for VIA test findings and client management. Send Nurse Elizabeth for follow-up training on VIA test and client management.

**Action plan attached:**

Yes

## Annex 7. Example of an action plan to introduce corrective measures

The purpose of this particular action plan is to improve performance of cervical cancer prevention services at Site C.

### SAMPLE ACTION PLAN FOR SITE C

**Facility name: Site C – VIA and cryotherapy provided at a Family Planning/Reproductive Health clinic**

**Problems: a) Long waiting time for screening**

**b) Rate of same-visit treatment among eligible VIA-positive women is <50%  
(target is  $\geq 90\%$ )**

| Area/issue                                                                                                                                                                                                    | Person(s) responsible          | Resources needed             | Time frame | How to monitor the activity                                                                                                                                                             | Expected results and how to measure                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|------------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Overall service<br>Problem: Long waiting time for screening<br><br>Reason:<br>– High demand for screening<br>– VIA only available every 2 weeks<br>– Only 1 trained provider (who is also the FP/RH provider) | Clinic administrator / manager | Training for 1 more provider | 3 months   | – Additional provider identified and selected for training<br>– Budget available for training<br>– Training scheduled<br>– Training completed<br>– Revision of service schedule planned | – Name of additional provider<br>– Budget allocated for training<br>– Request for training submitted<br>– Training completed<br>– Practice started<br>– Service available every week |
| Counselling<br>No issues or problems identified                                                                                                                                                               |                                |                              |            |                                                                                                                                                                                         |                                                                                                                                                                                      |
| VIA testing<br>No issues or problems identified                                                                                                                                                               |                                |                              |            |                                                                                                                                                                                         |                                                                                                                                                                                      |

| Area/issue                                                                                                                                                                                                                                                                                                                                                                                                                                        | Person(s) responsible                                                                                                               | Resources needed                                                                                                                                                                       | Time frame | How to monitor the activity                                                                                                                                                                       | Expected results and how to measure                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Cryotherapy</p> <p>Problem: Patients asked to return because of</p> <ul style="list-style-type: none"> <li>– Inadequate gas supply</li> <li>– long wait for screening</li> <li>– not enough cryotips</li> </ul> <p>Reason:</p> <ul style="list-style-type: none"> <li>– Small gas tank needs refill after each patient</li> <li>– Only 1 provider doing both screening and treatment</li> <li>– Processing of cryotips takes 1 hour</li> </ul> | <ul style="list-style-type: none"> <li>– Clinic manager</li> <li>– Clinic manager</li> <li>– Clinic manager and provider</li> </ul> | <ul style="list-style-type: none"> <li>– Order larger gas cylinder</li> <li>– See training plan above</li> <li>– Work with supervisor to review instrument processing steps</li> </ul> | – 1 month  | <ul style="list-style-type: none"> <li>– Check for procurement of larger gas cylinder (&gt; 10 kg)</li> <li>– Plans for supervisory visit</li> <li>– Draft instrument processing steps</li> </ul> | <ul style="list-style-type: none"> <li>– New 10 kg gas cylinder at the facility</li> <li>– Supervisory visits completed</li> <li>– Job aid for cryotip processing</li> </ul> |
| Others                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                     |                                                                                                                                                                                        |            |                                                                                                                                                                                                   |                                                                                                                                                                              |

## Annex 8. List of most commonly used training materials

| Visual inspection |         |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                          |                                                   |
|-------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
|                   | Source  | Title, audience and user feedback                                                                                                                                                                                                                                           | Link                                                                                                                                                                                                     | Language                                          |
| 1                 | IARC    | <i>A practical manual on visual screening for cervical neoplasia</i> (2003) – Intended for doctors, clinicians, nurses and midwives. Reported to be useful for training and self-teaching course. Simple design with good coverage of the topic at an introductory level.   | Freely available:<br><a href="http://screening.iarc.fr/viavili.php?lang=1">http://screening.iarc.fr/viavili.php?lang=1</a>                                                                               | English, French, Spanish, Turkish, Bengali, Hindi |
| 2                 | IARC    | <i>A training course in visual inspection with 5% acetic acid (VIA)</i> (2005) – Intended for midwife training courses. Reported to have good coverage of the topic, with a high level of complexity.                                                                       | Freely available:<br><a href="http://screening.iarc.fr/digitallearningserie.php">http://screening.iarc.fr/digitallearningserie.php</a>                                                                   | English, French                                   |
| 3                 | Jhpiego | <i>Cervical cancer prevention guidelines for low-resource settings (Reference manual)</i> (2005) – Intended for self-teaching and training courses for doctors, clinicians, nurses and midwives. Good coverage of the topic. May not be detailed enough for some audiences. | PDF freely available:<br><a href="http://www.jhpiego.org/en/node/47">http://www.jhpiego.org/en/node/47</a><br>Hard copies available for purchase: <a href="mailto:info@jhpiego.net">info@jhpiego.net</a> | English, French, Spanish, Portuguese              |
| 3a                | Jhpiego | <i>Cervical cancer prevention guidelines for low-resource settings (Guide for participants)</i> (2005) – Intended for self-teaching and training courses for doctors, clinicians, nurses and midwives.                                                                      | PDF freely available:<br><a href="http://www.jhpiego.org/en/node/48">http://www.jhpiego.org/en/node/48</a><br>Hard copies available for purchase: <a href="mailto:info@jhpiego.net">info@jhpiego.net</a> | English, French, Spanish, Portuguese              |
| 3b                | Jhpiego | <i>Cervical cancer prevention guidelines for low-resource settings (Guide for trainers)</i> (2005) – Intended for self-teaching and training courses for doctors, clinicians, nurses and midwives.                                                                          | PDF freely available:<br><a href="http://www.jhpiego.org/">http://www.jhpiego.org/</a><br>Hard copies available for purchase: <a href="mailto:info@jhpiego.net">info@jhpiego.net</a>                     | English, French, Spanish, Portuguese              |
| 4                 | Jhpiego | <i>Atlas of visual inspection of the cervix with acetic acid (VIA)</i> (2005) – Intended for self-teaching and training courses for doctors, clinicians, nurses and midwives.<br>Good coverage of the topic and useful as an on-site reference.                             | Available for purchase:<br><a href="mailto:info@jhpiego.net">info@jhpiego.net</a>                                                                                                                        | English                                           |
| 5                 | Jhpiego | <i>Visual inspection for cervical cancer prevention: an interactive training tool</i> (2005) – Intended for midwife training courses. Reported to have good coverage of the topic, with a high level of complexity.                                                         | Available for purchase:<br><a href="mailto:info@jhpiego.net">info@jhpiego.net</a>                                                                                                                        | English                                           |
| 6                 | Jhpiego | <i>Visual inspection of the cervix flash card set</i> (2005) – Intended for self-teaching and training courses for doctors, clinicians, nurses and midwives. Good images and adequate coverage of the topic.                                                                | Available for purchase:<br><a href="mailto:info@jhpiego.net">info@jhpiego.net</a>                                                                                                                        | English                                           |

| Visual inspection (continued) |                        |                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                            |                                                   |
|-------------------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| 7                             | PATH                   | <i>Course in visual methods for cervical cancer screening: visual inspection with acetic acid and Lugol's iodine</i> (2004) – Intended for training courses and self-teaching for nurses, midwives, doctors, clinicians and interns. Well-structured and easy to understand. | Online preview available: <a href="http://www.rho.org/training.htm">http://www.rho.org/training.htm</a><br><br>The complete CD-ROM may be ordered: <a href="mailto:rho@path.org">rho@path.org</a>                                          | English                                           |
| 8                             | WHO                    | <i>Comprehensive cervical cancer control: a guide to essential practice</i> (2006) – Intended for training courses and self-teaching for nurses, midwives, doctors, clinicians, interns and public health organizations. Good coverage of the topic.                         | PDF freely available and hard copies may be ordered: <a href="http://www.who.int/reproductivehealth/publications/cancers/9241547006/en/index.html">http://www.who.int/reproductivehealth/publications/cancers/9241547006/en/index.html</a> | Arabic, English, French, Russian, Spanish         |
| Cryotherapy                   |                        |                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                            |                                                   |
| 1                             | IARC                   | <i>A practical manual on visual screening for cervical neoplasia</i> (2003) – Intended for use in training courses for nurses, midwives, doctors and clinicians. Incomplete coverage of the topic.                                                                           | PDF freely available and hard copies may be ordered: <a href="http://screening.iarc.fr/viavili.php?lang=1">http://screening.iarc.fr/viavili.php?lang=1</a>                                                                                 | English, French, Spanish, Turkish, Bengali, Hindi |
| 2                             | Jhpiego                | <i>Cervical cancer prevention guidelines for low-resource settings (Reference manual, guide for participants, guide for trainers)</i> (2005)                                                                                                                                 | PDF freely available and hard copies available for purchase: <a href="mailto:info@jhpigo.net">info@jhpigo.net</a>                                                                                                                          | English                                           |
| 3                             | PATH                   | <i>Course in visual methods for cervical cancer screening: visual inspection with acetic acid and Lugol's iodine</i> (2004) – Intended for use in training courses and self-teaching for nurses, midwives, doctors, clinicians and interns. Good coverage of the topic.      | Online preview available: <a href="http://www.rho.org/training.htm">http://www.rho.org/training.htm</a><br><br>The complete CD-ROM may be ordered: <a href="mailto:rho@path.org">rho@path.org</a>                                          | English                                           |
| 4                             | UICC, WHO, IARC, INCTR | <i>Colposcopy and treatment of cervical intraepithelial neoplasia: a beginner's manual</i> (2004) – Intended for self-teaching for midwives. Good coverage of the topic.                                                                                                     | PDF freely available and hard copies may be ordered: <a href="http://screening.iarc.fr/colpo.php?lang=1">http://screening.iarc.fr/colpo.php?lang=1</a>                                                                                     | English, French, Spanish, Portuguese, Chinese     |
| 5                             | WHO                    | <i>Comprehensive cervical cancer control: a guide to essential practice</i> (2006) – Intended for training and self-teaching for nurses, midwives, doctors, clinicians and interns. Good coverage of the topic.                                                              | PDF freely available and hard copies may be ordered: <a href="http://www.who.int/reproductivehealth/publications/cancers/9241547006/en/index.html">http://www.who.int/reproductivehealth/publications/cancers/9241547006/en/index.html</a> | Arabic, English, French, Russian, Spanish         |

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