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Organization**

REGIONAL OFFICE FOR **Africa**

INFORMATION, EDUCATION AND COMMUNICATION FOR CERVICAL CANCER PREVENTION AND CONTROL IN AFRICAN COUNTRIES



Training Guide

May 2015

World Health Organization

Regional Office for Africa

**Information, Education and
Communication for cervical cancer
prevention and control in
African countries**

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INFORMATION, EDUCATION AND COMMUNICATION FOR CERVICAL CANCER PREVENTION AND CONTROL IN AFRICAN COUNTRIES : TRAINING GUIDE

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Women's cancers are highly prevalent, specifically breast and cervical cancer. It is estimated that more than 266,000 women die of cervical cancer each year, and 87% of these deaths are happening in less developed regions of the world such as the WHO African region. This is a major economic and social burden from cancer directly affecting Africa. If nothing is done, the number of deaths will reach 416,000 in 2035.

Cervical cancer is the most common cancer and the leading cause of cancer mortality among women in developing countries. In sub-Saharan Africa, 34.8 new cases of cervical cancer are diagnosed per 100,000 women annually and 22.5 per 100,000 women die from the disease.

In many countries, several issues and challenges exist when developing strategies for cervical cancer prevention and control – lack of cancer policies, strategies and programmes; lack of recent and comprehensive data; heavy economic and psychosocial burden of the disease; insufficiency or lack of information and skills; high cost of immunization against HPV; unavailability of secondary prevention; unaffordability of therapeutic resources and neglect of palliative care; geographical inaccessibility of tertiary prevention; and lack of collaboration and coordination of interventions.

The burden of cervical cancer can be reduced by implementing evidence-based strategies in the areas of prevention, early detection, and management including diagnosis and treatment. The awareness that cervical cancer is a preventable and controllable disease has started to become established in the Region and need to be strengthened.

This work, presented through a series of books on a country capacity baseline report, advocacy, Information, Education and Communication, policies and strategic plans, Visual inspection and cryotherapy practice pursued in relation to cervical cancer.

I would like to thank my colleagues, the scientists and all our partners particularly the Bill and Melinda Gates Foundation, whose efforts contributed to create this invaluable work. We believe this book will serve as a comprehensive resource for many years to come.

Dr Tshidi Moeti
WHO Regional Director for Africa

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ACRONYMS AND ABBREVIATIONS

ADN	acquired immune deficiency syndrome
AIS	adenocarcinoma in situ
ASC-US	atypical squamous cells of undetermined significance
BCC	behavioural change communication
CC	cervical cancer
CIN	cervical intraepithelial neoplasia
CIN1	stage 1 or mild cervical intraepithelial neoplasia
CIN2	stage 2 or moderate cervical intraepithelial neoplasia
CIN2+	stage 2 or 3 cervical intraepithelial neoplasia
CIN3	stage 3 or severe cervical intraepithelial neoplasia
DES	diethylstilbestrol
DNA	deoxyribonucleic acid
HAS	Haute autorité de santé
hc2	Hybrid Capture® 2 test
HIV	human immunodeficiency virus
HPV testing	HPV testing screening test for human papillomavirus infection
HPV	human papillomavirus
HSV2	herpes simplex virus type 2
IEC	Information, education and communication
IUD	intrauterine device
IVA	visual inspection with acetic acid
LEEP	loop electrosurgical excision procedure
LSIL	low-grade squamous intraepithelial lesion
P1/PP	primary prevention
P2/SP	secondary prevention
P2/TP	tertiary prevention
Pap test	Papanicolaou test or smear
SHD	social determinants of health
STI	sexually transmitted infection
VILI	visual inspection with Lugol's iodine
WHO	World Health Organization

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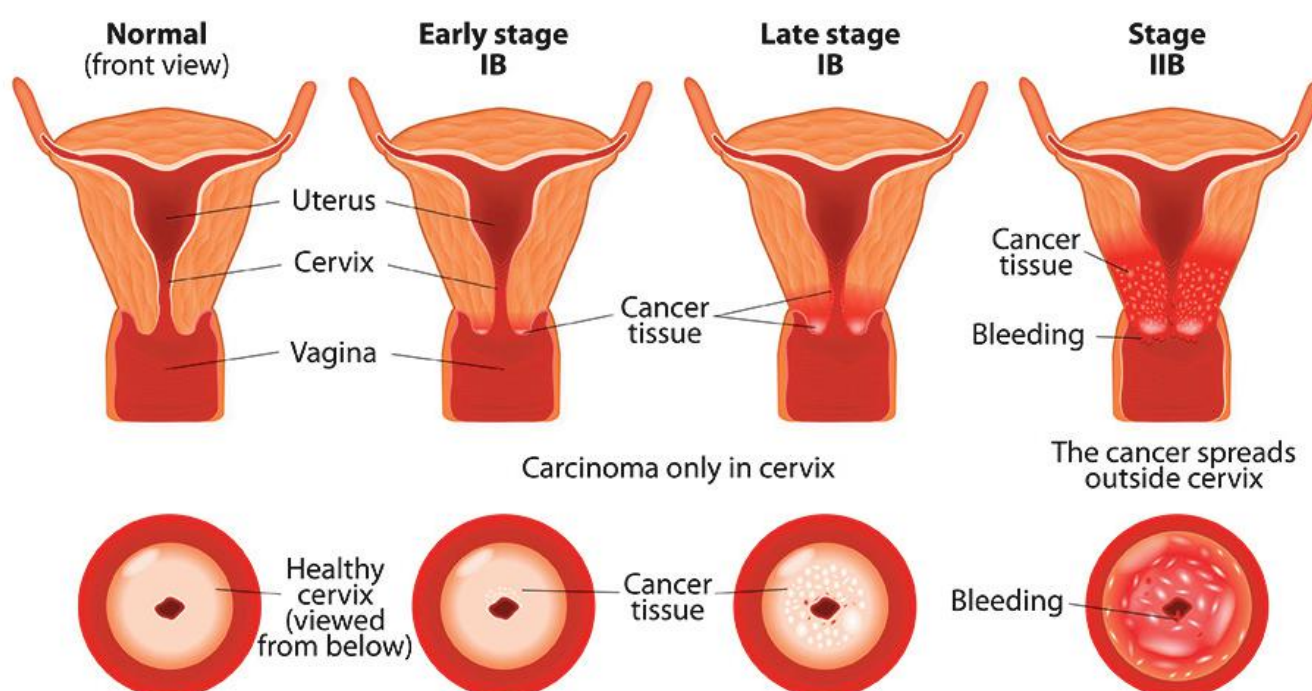
INTRODUCTION

Cervical cancer is the second most frequent cancer in women worldwide, with about 500 000 new cases and 250 000 deaths each year. Approximately 80% of cases occur in low-income countries, where cervical cancer is the most frequent cancer in women (Vaidya, 2006). Africa, which is already straining under the burden of communicable and socio-behavioural diseases, thus has to cope with the additional burden of noncommunicable diseases, including cervical cancer (WHO, 2014a).

What effective and sustainable methods can be used to control the burden of cervical cancer in the context of Africa which is already struggling with multiple health and disease priorities ?

This document seeks to answer that question, following an analysis of the burden of cervical cancer and its social determinants in the African Region. It also reviews the responses that already exist at national and African regional levels.

CERVICAL CANCER



1.1 The burden of cervical cancer in the African Region and its determinants

1.1.1 The burden of cervical cancer in the African Region

According to WHO (WHO, 2014a), the African Region bears the brunt of cervical cancer, with the highest incidence of all the world Regions at 30.7 per 100 000 inhabitants, displaying extremes ranging from 10 in Algeria to 56 in Guinea. Considering the epidemiological profile of the Region, with the highest incidences occurring mostly in the eastern, southern and western areas, the real causes of the cervical cancer situation are risk factors such as HIV infection and difficult living conditions underpinned by poverty (Safaeian & Solomon, 2007). See Annex 1 for details on rates in countries of the Region.

More specifically, cervical cancer is the eighth cause of mortality in the southern part of the African Region, which includes Botswana, Lesotho, Namibia, South Africa, Swaziland and Zimbabwe (WHO, 2014a).

The distribution of the burden of cervical cancer in the world in general and in Africa in particular seems to follow a social gradient, in other words, it is the poorest population groups that are the most affected (Katz & Hofer, 1994). Let us take a closer look at its determinants.

1.1.2 Determinants of cervical cancer in the African Region

A determinant is a physical, biological, psychological, behavioural or managerial factor that may explain the existence or contribute to the occurrence of a health event. Determinants of health include biological factors, which can be hereditary, as well as three other groups known as social determinants of health (SDH). These comprise living and behavioural habits, the physical and social environment and the health system. The Commission on social determinants of health defines them as “the conditions in which people are born, grow, live, work and age, including the health system” (WHO, 2008b).

The most obvious factors are linked to lack of health care coverage and low socioeconomic status. Such status is often based on income, level of education, occupation and other factors, such as social standing in the community. Studies have demonstrated that socioeconomic status, more than race or ethnic origin, predicts whether or not an individual or group will be educated or practise certain professions, whether or not they will have health insurance, their living conditions, including conditions in which exposure to environmental toxins are most frequent, all of which are associated with the risk of developing cancer and/or surviving it. More especially, socioeconomic status appears to play a major role in influencing the prevalence of behavioural risk factors (for example, smoking, physical inactivity, obesity and excessive alcohol consumption and health condition), and in following up cancer screening recommendations.¹

Research has also shown that individuals from groups that have poor access to medical care are more likely to be diagnosed at an advanced stage of diseases that could have been effectively treated or even cured if they had been diagnosed earlier².

Living conditions are closely linked to the risk of developing a disease. From the literature (Agurto et al., 2005; American Cancer Society, 2014; Barton et al., 1988; Bruni et al., 2010; Hernandez-Avila et al., 1998; Ho et al., 1998; International Collaboration of Epidemiological Studies of Cervical Cancer, 2007; James et al., 2011; Katz & Hofer, 1994; Moodley et al., 2003; Parkin et al., 2002; Safaeian et al., 2007; Sankaranarayanan et al., 1998; Schiffman & Brinton, 1995; Winkelstein, 1990), the following determinants can be cited in the case of cervical cancer :

- **Behaviours and lifestyle**

- Smoking
- Sexual behaviour
- Long-term use of the pill
- Diets low in fruits and vegetables
- Excess weight
- Sexually transmitted infections (HPV infection, chlamydia infection, HIV infection, HSV2 infection)
- Others.

- **Physical and social environments**

- Multiparity
- Early age at first sexual intercourse and first pregnancy (early marriage and early initiation of sexual activity)
- Low income (individual and community poverty)
- Illiteracy
- Non-empowerment of women
- Disenfranchisement of women

¹ <http://www.cancer.gov/cancertopics/disparities>

² <http://www.cancer.gov/cancertopics/disparities>

- Cultural inhibitions
 - Others.
- **The health system**
- DES (diethylstilbestrol)
 - Lack of organization of screening
 - Lack of HPV vaccination programmes
 - Others.
- **Biology**
- Degree of immunosuppression (for example, HIV/AIDS)
 - Family history
 - Others.

1.2 The response to cervical cancer at national and regional levels

Faced with the burden of cervical cancer, countries of the African Region have largely mobilized themselves both at country and regional level to formulate a response.

1.2.1 The response to the burden of cervical cancer in the African Region

Cervical cancer is a major concern for WHO African Region, which has embarked on a number of actions, including advocacy to make cervical cancer control a public health priority in the Region. Moreover, guides have been developed to help countries take the requisite decisions for action.

Other stakeholders, such as the First Ladies of the Region, have mobilized themselves over the past few years and conducted a cervical cancer control campaign.

1.2.2 The response to the burden of cervical cancer in countries of the African Region

Countries have organized themselves in varying degrees to respond to the disease. However, not all of them have a comprehensive screening programme. HPV vaccination is still not a reality in all countries of the Region. Its cost could constitute a deterrent to its use (Blumenthal et al., 2007).

Moreover, cultural factors, as well as the living conditions of women in the Region constitute real obstacles to the efficient organization of cervical cancer control programmes (Katz & Hofer, 1994).

There are indeed, many obstacles to cervical cancer screening in resource-constrained countries, generally attributed to a lack of infrastructure and resources – technical, medical, and financial - and a lack of awareness and education about cervical cancer among women and health-care providers. Moreover, in Africa which bears the biggest cervical cancer burden, there are competing health care needs such as HIV/AIDS, infectious diseases such as malaria, tuberculosis, and high infant and maternal mortality rates. In addition, trained clinicians are scarce, and there is a lack of adequate laboratory supplies and personnel, and treatment facilities (Solomon & Schiffman, 2000; Denny et al., 2006).

Furthermore, there are considerable cultural barriers to routine screening, especially in the absence of any symptoms, underscoring the profound need for an acceptable and reliable screening method that focuses on timely detection of early lesions, and treatment of the lesions so as to reduce cervical cancer burden. Although cytology has proven to be extremely effective in the detection of abnormal cervical cells in developed countries, it is still under-utilized in developing countries in general, and in Africa in particular (Blumenthal et al., 2007).

INTRODUCTION

An important aspect of the success of cytology screening in developed countries is attributed to repeated screening during the long natural history of cervical cancer development. The repeated nature of the screening makes it cost-prohibitive for low-resource countries such as those in Africa. Moreover, the need for multiple visits – one to perform the test, a second to obtain results, and a possible third for treatment – can lead to loss of follow-up of women who may be at greatest risk of cervical cancer, further compounding a complex issue. It would indeed be rare to find in African countries, for instance, a form of community organization where the number of target women and their exact location can be easily known. Screening programs in resource-constrained countries must consider these limitations and develop approaches that are sustainable and suitable for those settings, such as considering screening methods that target the etiologic agent HPV, appropriate age to initiate screening, and screening interval, and one designed to encompass screening and treatment at one time (Blumenthal et al., 2007).

In other words, the higher rates of cervical cancer incidence and mortality for women in developing countries are attributable mainly to financial and organizational shortfalls, lack of services and resources, cultural barriers to health care access and disenfranchisement of women. Owing to lack of infrastructure and the requisite spending, cervical cancer screening programmes are unavailable in most developing countries, and hence, declines in cervical cancer incidence have not been observed in low-resource countries. Additionally, a constraint to screening in many African countries is the cultural reticence to seek routine pelvic examination; even in some countries with established national screening protocols, women do not seek pelvic examinations and therefore often present with advanced disease (Sankaranarayanan et al., 1998; Hernandez-Avila et al., 1998; Safaeian et al., 2007).

1.2.3 Analysis of the African response to the burden of cervical cancer in light of its determinants – Challenges and prospects

According to several studies (Sankaranarayanan et al., 1998; Hernandez-Avila et al., 1998; Safaeian et al., 2007), an effective response to cervical cancer involves taking action on the social determinants of health as a whole. While it is a fact that organized screening programmes such as those in developed countries are crucial, women's adherence is nonetheless inextricably linked to a number of factors that lie outside the remit of the health sector, and which are indispensable for the success of those programmes (Blumenthal et al., 2007) and indeed for the success of other health problems such as malaria and tuberculosis (Hargreaves et al., 2011; Houéto, 2010; Teuscher et al., 2012). Such factors include the women's level of education, the level of community organization that provides information on the exact population of women who need to be followed up for screening, and women's general living conditions as poverty is a factor that limits access to screening programmes (Blumenthal et al., 2007).

Under these circumstances, a vaccine would be a valuable asset that could bolster the Region's efforts to establish cervical cancer control programmes. However, factors such as cost, as well as sociocultural considerations constitute considerable constraints (Jegede, 2007; Streefland, 2001; Streefland et al., 1999a; Streefland et al., 1999b).

It is therefore crucial that the responses developed so far by countries of the Region be reviewed to take into account the social determinants of health.

A photograph of a woman with dark hair, wearing a blue top, writing in a notebook. She is in a classroom or lecture hall, with other people blurred in the background. The image has a warm, orange-toned overlay.

SECTION

CONCEPTS ET
METHODES

2.1 Definitions and concepts

2.1.1 Cervical cancer control

In order to be effective, cervical cancer control should be underpinned by a number of concepts, which are essentially prevention (primary, secondary and tertiary) and action on the social determinants of health (health promotion³). These two components should be systematically taken into account in order to obtain conclusive results in cervical cancer control programmes. Any control programme that begins with prevention and does not accord the requisite importance to action on the social determinants of health will yield little or no results (OMS, 2008b). Figure 1 on page 15 illustrates how health services must be part of a pyramidal process where great importance is accorded to action on social determinants (health promotion). In an organized process, cervical cancer control would actually fall under the perspective of action on the determinants of the disease for effective control, as seen in many developed countries.

2.1.2 Cervical cancer prevention

Prevention refers to all the measures that are taken to prevent a situation from getting worse or to prevent the occurrence of an epidemic or disease. It consists of :

- Limiting the risk, which is primary prevention proper: measures that seek to prevent a risk by eliminating or reducing the probability of the occurrence of a dangerous phenomenon;
- Providing for control measures if the disease occurs, which is secondary or tertiary prevention: these are measures that seek to limit the scale and/or seriousness of the consequences of a dangerous phenomenon, without modifying the probability of its occurrence.

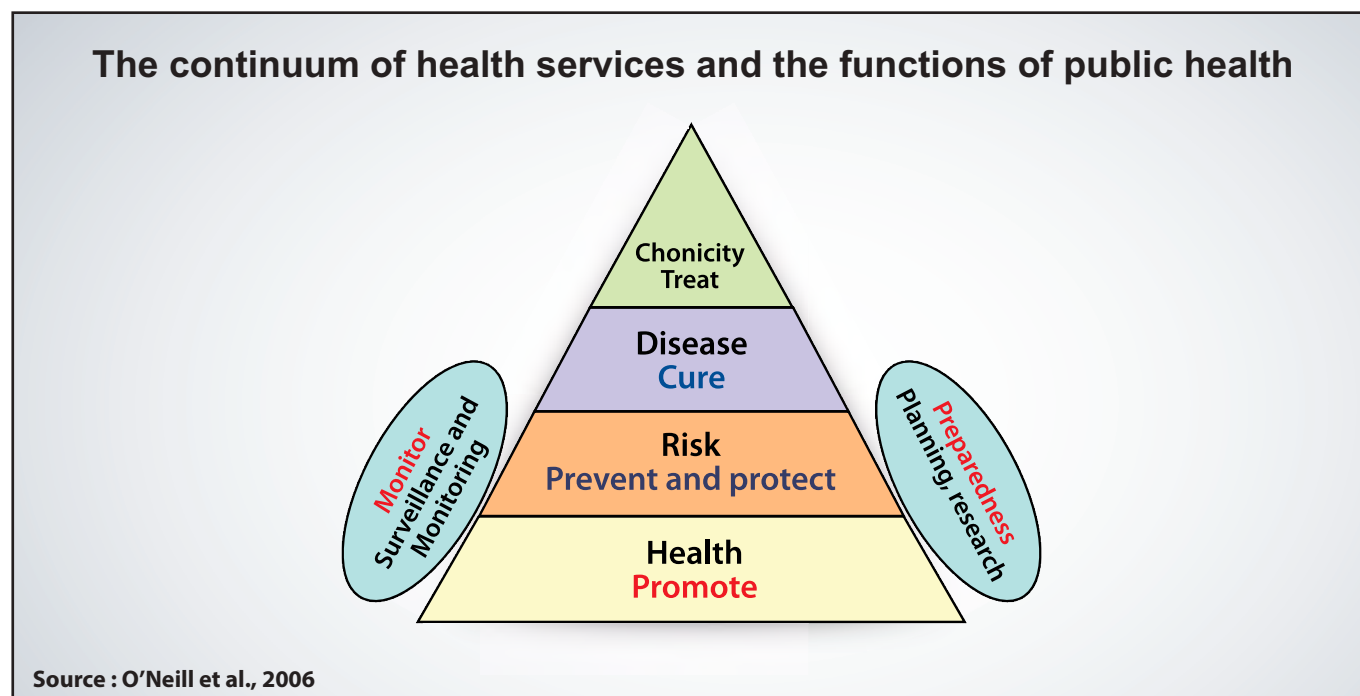


Figure 1 : The continuum of health services and the functions of public health

³ In simpler terms, health promotion refers to action on the social determinants of health (WHO, Ottawa Charter, 1986).

CONCEPTS AND METHODS

Primary prevention of cervical cancer is based on the three forms of prevention, namely, primary, secondary and tertiary prevention.

2.1.3 Primary prevention of cervical cancer

Primary prevention refers to a set of activities aimed at reducing the incidence of a disease or a health problem, that is, reducing the appearance of new cases in a healthy population by decreasing causes and risk factors. By intervening proactively, before the appearance of the disease and its symptoms, this form of prevention forestalls the occurrence of the disease. This is the best form of prevention. It uses methods such as education for health, public information, vaccination where vaccines are available for the disease, and above all, empowering the population by acting on the social determinants of this health situation. To be effective, and in the perspective of health promotion, it targets the population with the aim of improving living conditions, which in turn prevent the occurrence of the disease.

Clinical studies have demonstrated the effectiveness of vaccines against papillomavirus for the treatment of cervical cancer (The FUTURE II Study Group, 2007). The marketing of the first HPV vaccine in 2006 was an important step in the control of cervical squamous cell carcinoma.

Above all, the basis of cervical cancer control lies in taking action to enhance the living conditions of women, especially in Africa which bears the heaviest burden of cervical cancer, by combating poverty and empowering and educating women, to name only these (Katz & Hofer, 1994).

2.1.4 Secondary prevention of cervical cancer

The aim of secondary prevention is to detect in their early stages those diseases that could not be averted by primary prevention. It comprises all the activities aimed at reducing the prevalence of a disease within a population, that is, detecting a disease before its symptoms appear, so as to intervene to slow or stop its progression. It also helps to reduce the duration and gravity of the evolution of the disease. While primary prevention targets the population, secondary prevention specifically targets high-risk individuals and may require a clinical intervention to stop the progression of the disease and lesions.

Screening for pre-cancer lesions is possible through smear screening (Pap test). Secondary prevention



of cervical cancer is based on screening for pre-cancer lesions through the regular performance of a Pap test in order to treat them. The frequency of such tests depends on each country's recommendations. In the United States, the Pap test is recommended after every two years from the age of 21 years, while that interval can be extended to three years in case of three consecutive negative tests (American College of Obstetricians and Gynecologists, 2009).

There are other techniques such as the visual inspection method and HPV DNA testing among others, as described here below.

a. Pap smear

The Pap (Papanicolaou) smear is a cytology-based analysis of cells collected from the cervix with the aim of detecting a possible change in its structure, suggesting a tumorous abnormality. It begins with the collection of cells from the surface of the cervix by means of a spatula and a small brush or special broom. The sample is then sent to the laboratory for a cytopathological analysis. The Pap smear is uncomfortable but painless.

The Pap smear requires a series of repeat visits, at least two: the first for the test proper, and the second for the result, then a third and possibly more, for treatment.

While repeat cytology screening has led to an 80% reduction in cervical cancer mortality in developed countries, this form of cancer remains a major public health problem for adult women in developing countries. It is generally agreed that a cytology-based approach fulfils the requirements of an effective screening programme, which includes cost-effectiveness, incidence reduction as well as the reduction of morbidity and mortality related to the disease. However, such cytology-based cervical screening programmes have largely failed in the context of developing countries in general, and Africa in particular. The failure is partly explained by the inadequate health infrastructure, the lack of trained and skilled professionals, the poor information of women who are lost to follow up during the lengthy waiting period for the test result (Blumenthal et al., 2007).

Therefore, other screening techniques adapted to the specificities of resource-restricted countries, together with measures aimed at improving the living conditions of communities and empowering women, should be adopted. Several other techniques are thus available on the market.

b. Developments in cytology

A liquid-based cytology that preserves the cells collected from the cervix in a preservative solution and automates the process of preparing smears has been developed. This method is more efficient as it reduces such problems as poor fixation, uneven thickness of cell spread and debris and parasites that may obscure the presence of abnormal cells. Moreover, computers are now being used to detect the most abnormal cells on a Pap smear slide, thus reducing the subjectivity of assessments and increasing the sensitivity of the test, but this technology is quite expensive (Kitchener et al., 2006). In some countries, this technique makes the Pap test more costly without increasing its precision. This method requires additional equipment and is therefore not suited to low-resource settings (Kitchener et al., 2006; Sankaranarayanan et al., 2005; Sellors et al., 2003).

c. HPV DNA Testing

New tests can now detect DNA from high-risk HPV types in vaginal or cervical samples. A sample of cells is collected from the cervix or vagina using a small brush or swab, then the specimen is sent to a laboratory for identification of the virus type involved. The advantage of HPV DNA testing is that when conditions are ideal, it is not as subjective as visual and cytology screening. It can identify women who already have cervical disease in addition to those who are at increased risk for developing it (Villa & Denny, 2006). A review of 14 studies concluded that HPV DNA testing is particularly valuable in detecting precancerous lesions in women over the age of 30 years, since most HPV infections in women below the

age of 30 years largely resolve spontaneously (Crum et al., 2003; Villa & Denny, 2006; Cuzick et al., 2006; Franco et al., 2006; Franco et Harper, 2005; Arbyn et al., 2006; Pollack et al., 2006).

d. The Hybrid Capture® 2 test (hc2)

The Hybrid Capture® 2 HPV DNA screening test developed by Digene Corporation is presently the only test approved for clinical use by the United States Food and Drug Administration (FDA). The hc2 test can detect 13 types of HPV, and is more sensitive than the visual inspection methods and cytology, but it is expensive and presents some of the same challenges as cytological screening in low-resource settings. For instance, the test requires laboratory facilities, special equipment and trained personnel. It takes six to eight hours for results and requires follow-up visits for results and treatment (Sankaranarayanan et al., 2005; Howard et al., 2002; Sellors, 2005).

e. The FastHPV Test

The FastHPV test was developed specifically for use in low-resource settings. The test is able to detect DNA from 14 high-risk types of HPV, and test results are available in two to two and a half hours. If it proves indeed to be simple, rapid, accurate and affordable, it could become the most suitable screening tool for low-resource settings (Howard et al., 2002; Sellors, 2005). Presently, the FastHPV test and the hc2 test are sold in batches of 24, 48 and 96 tests, and this could affect the way in which programmes will use them. Other commercial HPV tests are under development and are likely to be approved soon for clinical use.

f. Direct visual inspection with acetic acid (VIA)

Direct visual inspection with acetic acid (VIA) or cervicoscopy consists in applying 3-5% dilute acetic acid (vinegar) to the cervix using a spray or a cotton swab and observing the cervix with the naked eye after one minute. If characteristic, well-defined, aceto-white areas are seen adjacent to the transformation zone, the test is considered positive for precancerous cell changes or early invasive cancer. VIA does not require a laboratory or intensive staff training. The results are immediately available, allowing treatment during a single visit and thus reducing loss to patient follow-up. An additional advantage of VIA not offered by Pap or HPV DNA tests is that it allows providers to identify the positive lesions, thus making it accessible to treatment by cryotherapy, a mode of treatment that is well suited to low-resource settings. In comparison with the Pap smear or HPV DNA testing, the decision not to treat with cryotherapy can be made only with VIA (Blumenthal et al., 2005).

However, VIA also presents disadvantages. First of all, it is subjective, and providers must interpret what they see on the cervix; this may be a problem for nurses who are trained never to provide treatment without certainty. Furthermore, a long period of training (about two weeks) must be envisaged for providers so they can be able to perform VIA, as well as refresher courses to strengthen skills, and all these reduce the cost-effectiveness of this approach. Recent studies have underscored the fact that without proper training of providers as well as continuous quality assurance and strict follow-up, VIA programmes can end in failure (Sankaranarayanan et al., 2007).

g. Visual Inspection with Lugol's Iodine (VILI)

VILI is similar to VIA. Lugol's iodine is applied to the cervix, which is then examined for mustard-yellow areas. VILI results are immediately available, which offers the advantage of follow-up care without delay. The accuracy of VILI testing was evaluated in India and Africa by colposcopy and biopsies with good results (Sankaranarayanan et al., 2005; Denny et al., 2006; Blumenthal et al., 2005; Carr and Sellors, 2004). In Latin America, four centres (three in Brazil and one in Argentina) evaluated the accuracy of VIA and VILI in 11 834 women. The findings did not match previous results, but they did show that these visual methods could be combined with the Pap test or the Hybrid Capture® 2 test for improved accuracy (Sarian et al., 2005). However, data on the sensitivity and specificity of VILI remain limited, and further studies of its accuracy are warranted.

By and large, it is important to understand that no screening test is 100% effective in detecting all cervical cancer cases. Secondary prevention of cervical cancer, as is practised in high-resource regions, includes cytology-based screening, the triage of equivocal lesions, colposcopically-guided biopsy of abnormal results, treatment and follow-up post-treatment, and return to routine screening. These types of screening programmes are too expensive (for instance, they cost over US\$ 6 billion annually in the United States), thus underscoring the need for tests with better characteristics, less visits per screening cycle and fewer screening cycles per lifetime.

Whichever screening method is validated and chosen, the key to success of cervical cancer screening programmes (that is, reducing the incidence of cervical cancer) is to ensure broad coverage of the services and follow-up of the abnormalities.

Many of these technologies are well beyond the financial capabilities of developing countries that are seeking to establish or improve screening programmes. However, cost-effectiveness analyses will assist in developing a more rationally based screening programme that can improve sensitivity at little or no additional cost.

2.1.5 Tertiary prevention of cervical cancer

Tertiary prevention refers to the set of measures that are implemented to prevent the onset of complications and the recurrence of diseases. It comprises:

- All activities aimed at reducing the prevalence of chronic disabilities or impairments and the incidence of recurrence,
- All clinical activities performed after diagnosis of the disease and aimed at preventing the worsening of the patient's condition or the onset of complications.

The detection of precancerous lesions and notably severe dysplasia or carcinoma in situ upon screening allows for treatment that will cure the patient with a very low recurrence rate.

a. Treatment of precancerous lesions

Women who are treated for pre-invasive lesions have a survival rate of almost 100%. Currently, the usual treatment of women with cervical lesions involves colposcopically-controlled excisions using loop electrosurgical excision procedure (LEEP) or ablation (destruction) of abnormal epithelium by cryotherapy, both of which are outpatient procedures. If cryotherapy is limited to small lesions (for instance, ≤ 19 mm), efficacy is nearly 100%. Both cryotherapy and LEEP are less radical than the previous standard treatment, namely biopsy and cold knife conization. Although no longer the standard, it is still used for precancerous lesions that cannot be otherwise treated, or for rigorous evaluation of the cervix and cervical canal when squamous carcinoma or adenocarcinoma is suspected.

b. Invasive cervical cancer

Preclinical invasive cancer refers to cervical cancer in its early phase, when it has just begun to penetrate the underlying cervical stroma and which quite often does not display any symptom or obvious clinical characteristics. When the invasion reaches the stroma, the disease presents a clinical manifestation with the appearance of several tumours that are visible with a speculum (see annex 1).

From a histology standpoint, 90% to 95% of invasive cervical cancers are squamous cancers. Adenocarcinoma represents less than 5% of cervical cancers in developing countries. The staging system, which is the most widely used for invasive cervical cancer, is based on the size of the tumour and the extent of the spread of the disease to the vagina, the pelvic wall, the parametria, the bladder, the rectum and distant organs.

The clinical stage of invasive cervical cancer at the time of detection is the only important criterion for predicting survival.

c. Cervical cancer treatment

If detected early, invasive cervical cancer can also be treated successfully; five-year survival for women with cancer in the earliest stage (stage 1A, in which the cancer has had minimal spread to the inside of the cervix) is estimated at 92%. Hysterectomy and radiotherapy are the recommended primary treatments for cervical cancer but should not be used to treat precancerous lesions.

For advanced disease, radiotherapy is frequently used for palliation of symptoms, but in developing countries, it is not widely available or accessible. Radiotherapy aims to destroy cancer cells while preserving the normal cells insofar as possible. Adverse effects include vaginal bleeding and discharge, diarrhoea and nausea.

Its effectiveness depends on the extent of the cancer, that is, whether it has spread beyond the cervix. Chemotherapy may also be used with hysterectomy and radiotherapy.

Adjunctive non-medical care can include traditional or cultural practices provided they do not cause harm (massage, prayer, counselling and emotional support).

2.1.6 Cervical cancer prevention and social determinants

As can be observed from the prevalence of cervical cancer and the outcomes of cervical cancer control practices, people's living conditions play an extremely important role. The heaviest burden of cervical cancer in terms of incidence, morbidity and mortality is borne by low-resource countries and particularly African countries (WHO, 2014a). This underscores the importance of prevention programmes that take full account of the improvement of the living conditions of the population as a whole, and those of women in particular. Therefore, any effective cervical cancer prevention intervention must target the population at large, in terms of improving living conditions, including the reduction of social inequalities relating to this disease as documented for example, in the United States of America and Canada (Katz & Hofer, 1994). At the same time, another important dimension, but which should not be the only one as is often the case in many low-resource countries, is education for health and public information. These two aspects are well integrated in the overall process of health promotion.

Health promotion is based mainly on interventions that focus on the social determinants of health; this would invariably lead to a cross-sectoral cervical cancer control programme which therefore, should not be the concern of the health sector alone. Obviously, the "health in all policies" approach applies here and allows the health sector to work with other sectors to integrate the health dimension in their policies in order to enhance health in general and to control factors that contribute to the problem of cervical cancer in particular (WHO, 2014b).

As shown in Figure 2 below, cervical cancer control interventions must take account of the continuum between the absence of cervical cancer (a normal state of health, which in this case is the absence of cancer) and the occurrence of the disease. Interventions that focus on the social determinants of the absence of cervical cancer, that is, the improvement of women's living conditions, are the only ones that can keep women safe from the risk of contracting the disease, as demonstrated by the literature (Katz & Hofer, 1994; American Cancer Society, 2007; Parkin et al., 2005).

This means that the health system must engage with the other sectors to provide living conditions that enhance the protection of women against cervical cancer. Primary prevention (P1 or PP in the Figure) will contribute thereto by means of actions that seek to provide women with the information they need to take meaningful measures to protect themselves from the disease, including vaccination against

HPV. As Katz and Hofer (1994) have reported, the socio-economic conditions of women determine the occurrence of cervical cancer, but also their willingness to be vaccinated or tested as part of primary or secondary prevention.

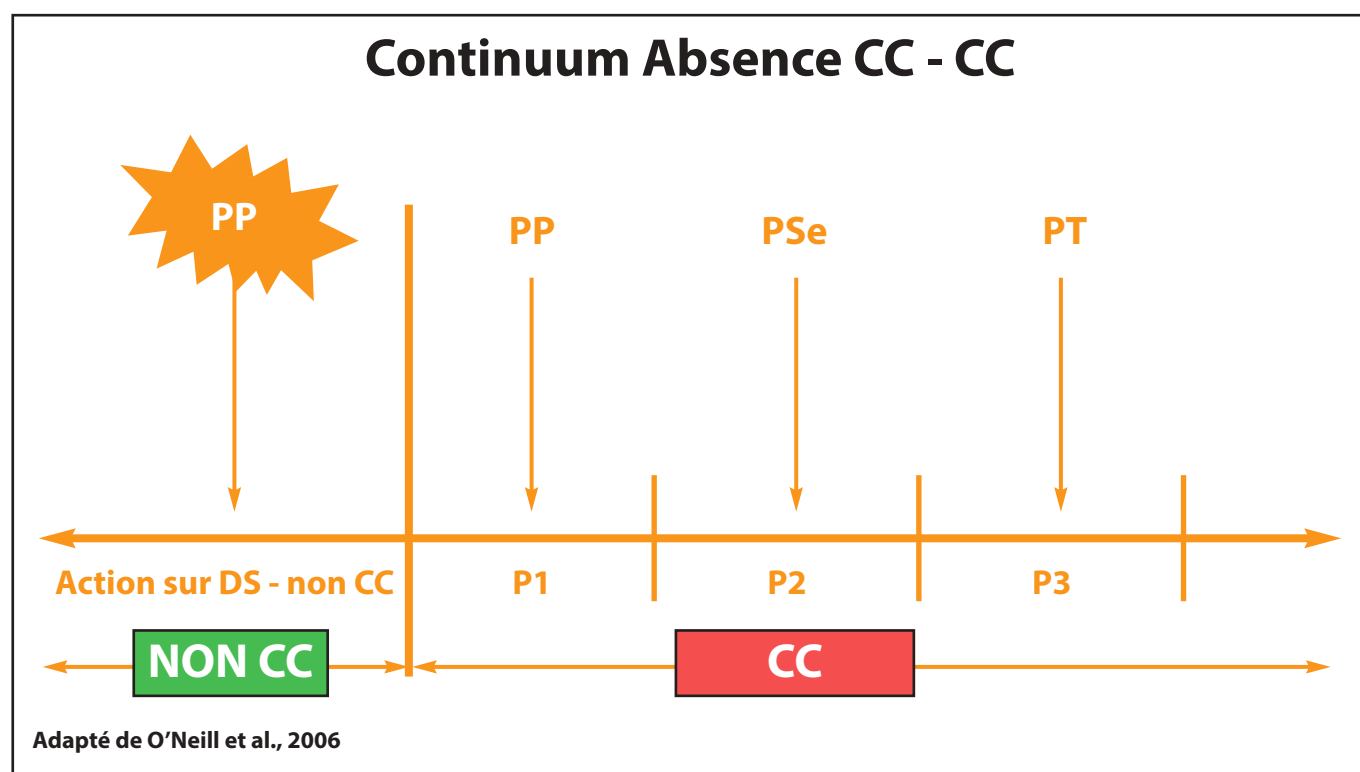


Figure 2 : Health-disease continuum applied to cervical cancer
 CC = Cervical cancer; P1 = PP = Primary prevention; P2 = SP = Secondary prevention; P3 = TP =Tertiary prevention;
 SD = Social Determinants (of cervical cancer); HP = Health promotion.

2.2 Priority areas and organization of control

2.2.1 Priority areas

The priority areas of intervention in cervical cancer control will depend on the specific context of each country or setting. In all cases, the most important thing is to focus action on the determinants that ensure that women live in conditions that protects them from contracting cervical cancer. Most of these factors are under the responsibility of non-health sectors, and thus there is need for collaboration among all the sectors in order to ensure the integral development of women.

In addition, priority should be accorded to vaccination against HPV, which is responsible for 80% of cervical cancer cases.

It is only after all this that measures relating to information, public awareness, education and communication will come into play, to enable women know where to go for such services as vaccination and screening.

2.2.2 Organizing cervical cancer control

Figure 3 shows the components of the organization of cervical cancer control, in line with the social determinants of health approach.

The approach adopted here will be the “Whole-government-approach” or even the “Whole-society-approach”, which enables the health sector to rely on all public or private non-health sectors to improve women’s living conditions.

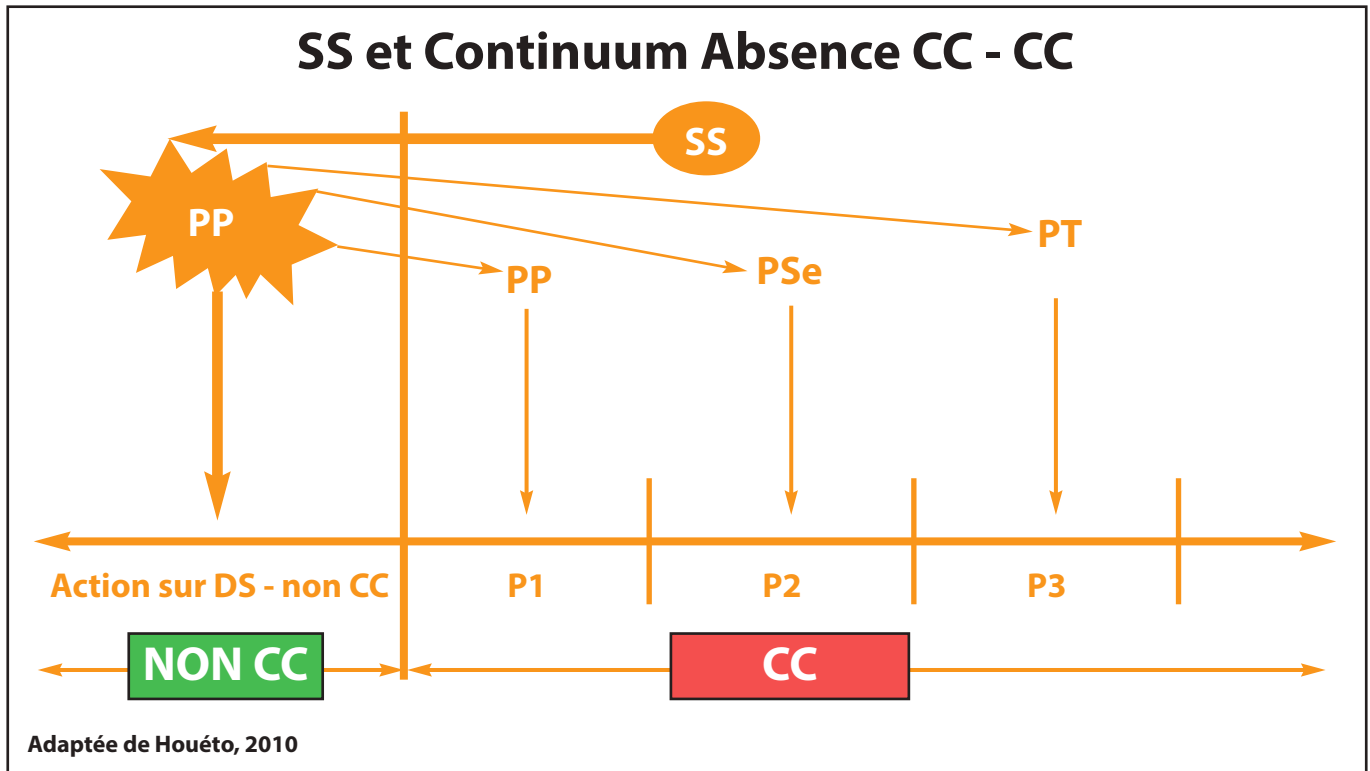


Figure 3 : Organization of cervical cancer control
 HS = Health system; CC = Cervical cancer; P1 = PP = Primary prevention; P2 = SP = Secondary prevention; P3 = TP =Tertiary prevention; SD = Social Determinants (of cervical cancer); HP = Health promotion.

The process seeks to empower women through sustainable interventions as proposed in the report of the WHO Commission on social determinants of health, which has been largely adopted by countries of the Region (WHO, 2008b):

- *Employment.* This is a term with connotations that could frighten leaders, but it is indeed achievable in a process that enhances school curricula that seek both to train an elite and to place on the market practitioners of various trades that are necessary for the smooth functioning of the society. Once again, this should be a process that is properly implemented in a context of effective decentralization that confers responsibility on municipal authorities.
- *Income.* As vocational training is geared towards the trades that are needed for the smooth functioning of society in the context of effective decentralization, it is the duty of municipal authorities to roll out programmes to assist young graduates to set up on their own. That would guarantee employment and an income for each person.

- *Local development.* The health sector must assume an active role in local development in relation to population settlement patterns, to ensure that each household can be easily reached within a community through the numbering of streets and houses and the process of systematically registering births and deaths; through such a system, the precise number of inhabitants in each community as well as their characteristics would be known to the health system at all times. The number of women eligible for cervical cancer screening and their home addresses would also be well known, for efficient planning of the control programme, as is the case in developed countries.
- All other interventions that target the development of women in particular and the family and society in general, including living conditions, working conditions, social relations and others.
- IEC, BCC and Communication for health in the context of cervical cancer control. Where the health system is able to include these communication methods to the context described above, it is very likely that the outcomes would be a lot better than what they are now. This is what emerges from the epidemiological profile of the burden of cervical cancer worldwide (WHO, 2014a).

Organizing interventions in such a manner requires properly strengthened health systems, in accordance with the solemn commitment that countries of the African Region made in the Ougadougou Declaration of 2008 (WHO, 2008a); in other words, it amounts to a reaffirmation of the political will of countries to make health promotion the main approach for the management of health systems, as adopted at the Mexico Conference of 2000 (WHO, 2000).

While it develops new approaches to cervical cancer screening and management, the health sector should also seek to broaden its scope of action and strengthen linkages with other sectors so as to help them contribute to the attainment of health goals, even as it seeks to attain its own goals.

A woman with dark hair is shown in profile, focused on writing in a notebook. The background is softly blurred, showing other people in a classroom or meeting setting. The entire image has a warm, orange-toned overlay.

SECTION III

REQUIREMENTS FOR A
SUCCESSFUL IEC

The foregoing considerations clearly demonstrate that for IEC programmes to succeed, it is important to undertake a number of processes to get the population to hear and understand the health-improvement messages addressed to them.

This section lays out the requirements for a successful IEC in the prevention of cervical cancer, the trainer's guide and the participant's handbook. For purposes of clarity in the layout of the text, the last two sub-chapters will appear under two separate sections.

3.1 Requirements

A number of requirements must be met to ensure that cervical cancer screening and IEC programmes contribute to sustainable prevention and by extension, to the reduction of the burden of the disease. Such requirements include taking action on social determinants of health, in other words, improving the living conditions of women through cross-sectoral collaboration to ensure that health is fully and comprehensively taken into account in all countrywide policies.

As has been demonstrated in other contexts (Working Group on guidelines for cervical cancer screening, Québec, 2011), the organization of screening itself is really possible only when communities attain a level of organization that makes it possible to routinely identify target population groups.

In the trainer's guide and the participant's handbook, the various aspects of the specific requirements to be met shall be addressed.

3.2 The Trainer's Guide

See section IV of this guide.

3.3 The Participant's Handbook

See section V of this guide.



A woman with short dark hair is shown in profile, focused on writing in a notebook. She is wearing a light blue top. The background is softly blurred, showing other people in a classroom or training environment. The entire image has a warm, orange-toned overlay.

SECTION IV

THE TRAINER'S
GUIDE

4.1 Educational practices and social determinants of health

To be able to deliver an educational practice that leads to behavioural change, the programme must be part of a package of interventions whose main priority is to act on the social determinants of health. This means that for every action that seeks to change behaviours, as in the present context of cervical cancer prevention and control, the priority should be to define the social determinants of health and act on them. Such an approach facilitates the educational action and positively backstops interventions that seek to improve the living conditions of the target populations. Changes would then follow much more easily.

The systematic registration of births and deaths in a community, as well as the marking of streets and homes as part of a process of comprehensive and permanent access, for example, would be very useful in determining the number of women required to undergo a cervical cancer screening programme and also in organizing their inclusion or exclusion.

In the context of countries of the African Region where the majority of the population does not meet these community organization standards, organizing screening becomes a difficult task.

Likewise, embarking on the HPV vaccination component, even with the exclusion of cost considerations, could be a difficult endeavour as the target population is not well known, not to mention other sociocultural aspects which already constitute major obstacles to vaccination in the Region. Moreover, experiences at Regional level (Blumenthal et al., 2007) have shown that the gains of the expanded programmes on immunization (for tetanus, for instance) may not be of great use in the case of cervical cancer, which largely touches on the intimacy of women, in a sociocultural context where women depend on their husbands for decision-making.

Therefore, to roll out successful educational practices, a comprehensive community development process must be undertaken, through action on the social determinants of health with the extensive involvement of the communities.

4.2 Action mechanisms for behavioural change toward cervical cancer

4.2.1 Information/public awareness for cervical cancer control

4.2.1.1 *Epidemiology and risks factors of cervical cancer*

A number of conditions contribute to the occurrence of cervical cancer and determine its distribution within the population as well as the age at which it occurs in women and consequently, its geographical distribution. These conditions are referred to as risk factors. A risk factor affects a person's chances of contracting a disease such as cancer. Certain risk factors, such as smoking, can be controlled. Others, such as a person's race, cannot be changed. However, the fact that an individual has one or several risk factors does not mean that they will contract the disease.

Women with no known risk factors will exceptionally develop cervical cancer. Conversely, while the risk may increase, there is no proportional increase in the probability of developing cervical cancer, and many women with risk factors do not develop the disease.

Various types of risk factors have been described; some can be modified, while others cannot (sex). Those that cannot be changed also help to remind women of the importance of undergoing cervical cancer screening.

The following are modifiable risk factors of cervical cancer :

- *Human papillomavirus infections* (notably HPV16 and HPV18): They play a major epidemiological (and probably growing) role (Schiffman & Brinton, 1995; Walboomers et al., 1999; Rohan et al., 1991) in the disease and are present in 80% of cervical cancers and high-grade *in situ lesions*. The discovery of the role of these viruses in cancer by Harald zur Hausen⁴ earned him the Nobel Prize for medicine in 2008. In November 2010, the journal, *Lancet Oncology*, published the findings of a study showing that eight types of papillomavirus were responsible for 90% of cervical cancer cases (de Sanjose, 2010).
- *The pill (oestro-progestative contraception)*. It causes a moderate increase in the risk of developing cervical cancer (increases the risk by less than 1%) (International Collaboration of Epidemiological Studies of Cervical Cancer, 2007; Moodley et al., 2003).
- *Immunosuppression*. HIV (human immunodeficiency virus) is the virus that causes AIDS, and is not the same as HPV. Women infected with HIV are more likely to have cervical cancer. HIV apparently reduces the capacity of the woman's immune system to combat HPV and early cancers. Cervical cancer in an HIV-positive patient could be more aggressive and less sensitive to treatment. Another group of women at risk of cervical cancer is that of women using immunosuppressive medication. That group includes women who are receiving treatment for an autoimmune disease and those who have undergone an organ transplant.
- *The coil*. The use of an intrauterine device (IUD) could increase the risk of developing cervical cancer (squamous carcinomas, adenosquamous or adenocarcinoma). This notion is presently controversial. Conversely, the risk of cancer does not appear to be related to the duration of the use of the coil. Moreover, its use does not modify the prevalence of HPV infection. A number of explanatory, non-exclusive hypotheses have been put forward: lesions caused by the insertion, use and/or removal of an IUD could trigger a low-grade inflammatory reaction and/or a cellular immune reaction that stops the cancerization process (Castellsagué et al., 2011).
- *Smoking*. Several studies have shown that smoking very significantly increases the risk of a number of cancers (Baron & Rohan, 1996), including certain types of cervical cancer (Winkelstein, 1990; Ho et al., 1998). About 18% of cervical adenocarcinomas and 43% of squamous carcinomas were found in smokers (22% of the control cases). However, depending on the type of cancer involved, smoking does not produce the same effect; smoking increases the risk of squamous carcinomas, while slightly reducing that of cervical adenocarcinoma (this analysis is likewise limited to cancers associated with HPV), which confirms the fact that etiological cofactors vary according to the type of cancer (James et al., 2011); the toxic compounds released in smoking could reduce the immunity of the uterine lining and contribute to infection from human papillomavirus and the ensuing neoplasia (Barton et al., 1988).
- *Chlamydia infection*. This is a common variety of bacteria that can infect women's sexual organs. The infection is transmitted through sexual contact. A woman may not realize that she is infected until when she is tested for chlamydia infection during a pelvic examination. Some studies suggest that women who have a prior or ongoing infection may have a greater risk of cervical cancer.
- *Diet*. Women whose diet is low in fruits and vegetables may have an increased risk of contracting cervical cancer.
- *Excess weight*. Overweight women are more likely to develop cervical adenocarcinoma.
- *Parity*. Women who have had three or more full-term pregnancies have an increased risk of contracting cancer. The reason for this is not well known.

⁴ German physician and virologist.

- *Early age at first full-term pregnancy.* Women who were less than 17 years of age when they had their first full-term pregnancy are almost twice likely to develop cervical cancer later in life than women who delayed their first full-term pregnancy until they were 25 years old or above.
- *Low income.* Low-income women have a higher risk of cervical cancer. This may be explained by the fact that they cannot afford health care services such as screening tests (Pap smear) on a regular basis. More broadly, however, difficult living conditions brought on by poverty may constitute the underlying causes of this risk factor (Katz & Hofer, 1994; American Cancer Society, 2007; Parkin et al., 2005).
- *DES (diethylstilbestrol).* DES is a hormonal drug that was prescribed between 1940 and 1971 to high-risk women during pregnancy to prevent miscarriages. Girls whose mothers took the drug have a slightly higher risk of vaginal and cervical cancer (American Cancer Society, 2014).
- *Family history.* Cervical cancer may run in some families. If one's mother or sister had cervical cancer, one's chances of contracting the disease are two to three times higher than if no member of one's family had been affected by the disease. This may be explained by the fact that the women in question are less able to fight off HPV than others (American Cancer Society, 2014).

NB: Cervical cancer may occur during pregnancy.

4.2.1.2 Vaccination against human papillomavirus (HPV)

Clinical studies have established the efficacy of vaccines against papillomaviruses in the prevention of cervical cancer (The FUTURE II Study Group, 2007). The marketing of the first HPV vaccine in 2006 was an important stage in the prevention and control of cervical squamous carcinoma.

Vaccination constitutes one of the important pillars of the cervical cancer prevention and control effort, considering the substantial contribution of HPV (80%) to the incidence of the disease. In other words, it constitutes one of the important components of primary prevention of cervical cancer.

Above all, action that seeks to improve the living conditions of women, particularly in Africa which bears the heaviest burden of cervical cancer, through poverty eradication, empowerment, education and other activities, constitutes the mainstay of the effort to prevent and control this scourge. The explanation is that, notwithstanding the importance of vaccination in the prevention and control of cervical cancer, living conditions and especially cultural factors constitute a significant impediment to women's access to such services in the context of developing countries in general and Africa in particular (Jegede, 2007; Streefland, 2011; Streefland et al., 1999a; Streefland et al., 1999b; Nichter, 1995).

4.2.1.3 Screening for cervical cancer

One of the prevention methods that has proved effective in reducing the incidence of advanced forms of cervical cancer in developed countries is screening (Safaeian & Solomon, 2007). Screening is the main method of secondary prevention of cervical cancer. The goal of cervical cancer screening is to detect potentially cancerous lesions and prevent them from progressing to invasive cancer by eliminating them. Nowadays, a number of screening methods are available with several practical organization arrangements for taking on board the target women (Brown, 1996). The success of screening depends above all on the rate of participation of the target population, the quality of the screening test and the effectiveness of the treatment of lesions identified during screening.

Various studies conducted to date reveal that screening performed every three to five years on women aged between 35 and 60 years using a conventional cervical smear reduces the incidence of cervical

cancer by at least 80%. That is why the European Scientific Committee recommends a screening test every three years (European Union, 1999).

In general terms, there are two forms of cervical cancer screening; opportunistic and organized screening.

a. Opportunistic versus organized screening

Opportunistic screening refers to the one that is performed at the sole initiative of the attending physician and the women concerned. It is known as voluntary screening. In this form of screening, it has been observed that certain women undergo too many tests, while others undergo few or no tests at all.

Therefore, while it is possible in theory to prevent almost all forms of cervical cancer through screening, there are a number of reasons why screening programmes in Africa are failing to do so. The main reasons relate to the low participation of some women in screening, the limited sensitivity of the cytology test to detect all the precursor states of cervical cancer and lapses in the follow up of women who have had an abnormal result (Spence et al., 2007). It has also been observed that opportunistic screening approaches are less efficient because they do not cover the entire target population and are often accompanied by over-screening of women who present the lowest risk. Overtreatment of lesions that would otherwise disappear spontaneously may trigger significant morbidity. Furthermore, over-screening creates substantial additional costs for the community.

On the basis of current data and the burden of cervical cancer, **organized screening** is recommended for optimizing detection of precancerous lesions and reducing the incidence, morbidity and mortality of cervical cancer (Walton et al., 1976; Canadian Task Force on Cervical Screening Programs, 1982; Miller et al, 1991; Canadian Strategy for Cancer Control, 2002; Parboosingh et al., 1996; Stuart et al., 2004; GTIRD and RPCCCU, 2009). Organized screening for cervical cancer produces better results than individual screening : it has a higher coverage rate and greater efficiency in terms of the number of cancers prevented. However, although the authors of the HAS (2010) report underscore the importance of "organization", they point out that "it cannot, on its own, guarantee a high coverage rate, and must imperatively be accompanied by the establishment of quality control" [Translation]

The added value of organized screening obviously depends on its own qualities, but also on the local context that underpins the screening programme and the individual screening situation in the country. The Swedish experiment has produced tangible results. Swedish women are invited by mail on a very regular basis to come for free screening: every three years for women aged between 23 and 50 years and every five years for women aged between 51 and 60 years.

These various aspects highlight the importance of having a population with the requisite level of education that will help in locating them in the society. Again, this brings up the issue of registering births and deaths, which will provide a constantly updated list, and facilitates the follow-up of the population for various activities, including cervical cancer screening for women. All of this will not function normally without a well-structured decentralized system.

b. Referral systems

WHO proposes a referral system in the cervical cancer screening and treatment process (WHO, 2014). It is a decision-making flowchart or algorithm, which consists of a decision tree to be used as a simple referral tool in the choice of a "screen-and-treat" strategy within a programme (see annex 2). The referral and counter-referral system is organized in line with the levels of the health system pyramid.

c. Screening methods

A number of methods exist for screening for cervical cancer, including the Pap smear, visual inspection methods, HPV DNA testing, and others.

✓ *Developments in cytology*

A liquid-based cytology that preserves the cervical swab in a preservative solution and automates the process of preparing smears has been developed. This method is more efficient in the laboratory as it reduces such problems as poor fixation, uneven thickness of cell spread and debris and parasites that may obscure the presence of abnormal cells. Moreover, computers are now being used to detect the most abnormal cells on a Pap smear slide, thus reducing the subjectivity of assessments and increasing the sensitivity of the test, but this technology is quite expensive (Kitchener et al., 2006). In some countries, this technique makes the Pap test more costly without increasing its precision. This method requires additional equipment and is therefore not suited to low-resource settings (Kitchener et al., 2006; Sankaranarayanan et al., 2005; Sellors et al., 2003).

✓ *Visual inspection with acetic acid (VIA) or cervicospoty.*

Direct visual inspection with acetic acid (VIA) or cervicospoty consists in applying 3-5% dilute acetic acid (vinegar) to the cervix using a spray or a cotton swab and observing the cervix with the naked eye after one minute. If characteristic, well-defined, aceto-white areas are seen adjacent to the transformation zone, the test is considered positive for precancerous cell changes or early invasive cancer. VIA does not require a laboratory or intensive staff training. The results are immediately available, allowing treatment during a single visit and thus reducing loss to patient follow-up. An additional advantage of VIA not offered by Pap or HPV DNA tests is that it allows providers to identify the small proportion of positive lesions, thus making it accessible to treatment by cryotherapy, a mode of treatment that is well suited to low-resource settings. In comparison with the Pap smear or HPV DNA testing, the decision not to treat with cryotherapy can be made only with VIA (Blumenthal et al., 2005).

However, VIA also presents disadvantages. First of all, it is subjective, and providers must interpret what they see on the cervix; this may be a problem for nurses who are trained never to provide treatment without certainty. Furthermore, a long period of training (about two weeks) must be envisaged for providers so they can be able to perform VIA, as well as refresher courses to strengthen skills, and all these reduce the cost-effectiveness of this approach. Recent studies have underscored the fact that without proper training of providers as well as continuous quality assurance and strict follow-up, VIA programmes can end in failure (Sankaranarayanan et al., 2007).

✓ *Visual inspection with Lugol's iodine (VILI)*

VILI is similar to VIA. Lugol's iodine is applied to the cervix, which is then examined for mustard-yellow areas. VILI results are immediately available, which offers the advantage of follow-up care without delay. The accuracy of VILI testing was evaluated in India and Africa by colposcopy and biopsies with good results (Sankaranarayanan et al., 2005; Denny et al., 2006; Blumenthal et al., 2005; Carr and Sellors, 2004). As part of the screening study in Latin America, four centres (three in Brazil and one in Argentina) evaluated the accuracy of VIA and VILI in 11 834 women. The findings did not match previous results, but they did show that these visual methods could be combined with the Pap test or the Hybrid Capture® 2 test for improved accuracy (Sarian et al., 2005). However, data on the sensitivity and specificity of VILI remain limited, and further studies of its accuracy are warranted.

✓ *HPV DNA testing*

New tests can now detect DNA from high-risk HPV types in vaginal or cervical samples. A sample of cells is collected from the cervix or vagina using a small brush or swab, then the specimen is sent to a laboratory for identification of the virus type involved. The advantage of HPV DNA testing is that when conditions are ideal, it is not as subjective as visual and cytology screening. It can identify women who already have cervical disease in addition to those who are at increased risk for developing it (Villa & Denny, 2006). A

review of 14 studies concluded that HPV DNA testing is particularly valuable in detecting precancerous lesions in women over the age of 30 years, since most HPV infections in women below the age of 30 years largely resolve spontaneously (Crum et al., 2003; Villa & Denny, 2006; Cuzick et al., 2006; Franco et al., 2006; Franco et Harper, 2005; Arbyn et al., 2006; Pollack et al., 2006).

✓ *The Hybrid Capture® 2 (hc2) test*

The Hybrid Capture® 2 HPV DNA screening test developed by Digene Corporation is presently the only test approved for clinical use by the United States Food and Drug Administration (FDA). The hc2 test can detect 13 types of HPV, and is more sensitive than the visual inspection methods and cytology, but it is expensive and presents some of the same challenges as cytological screening in low-resource regions. For instance, the test requires laboratory facilities, special equipment and trained personnel. It takes six to eight hours for results and requires follow-up visits for results and treatment (Sankaranarayanan et al., 2005; Howard et al., 2002; Sellors, 2005).

✓ *The Fast HPV test*

The FastHPV test was developed specifically for use in low-resource settings. The test is able to detect DNA from 14 high-risk types of HPV, and test results are available in two to two and a half hours. If it proves indeed to be simple, rapid, accurate and affordable, it could become the most suitable screening tool for low-resource settings (Howard et al., 2002; Sellors, 2005). Presently, the FastHPV test and the hc2 test are sold in batches of 24, 48 and 96 tests, and this could affect the way in which programmes will use them. Other commercial HPV tests are under development and are likely to be approved soon for clinical use.

4.2.1.4 Effectiveness of cervical cancer screening and treatment

By and large, it is important to understand that no screening test is 100% effective in detecting all cervical cancer cases. Secondary prevention of cervical cancer, as is practised in high-resource regions, includes cytology-based screening, the triage of equivocal lesions, colposcopically-guided biopsy of abnormal results, treatment and follow-up post-treatment, and return to routine screening. These types of screening programmes are too expensive (for instance, they cost over US\$ 6 billion annually in the United States), thus underscoring the need for tests with better characteristics, less visits per screening cycle and fewer screening cycles per lifetime.

Whichever screening method is validated and chosen, the key to success of cervical cancer screening programmes (that is, reducing the incidence of cervical cancer) is to ensure broad coverage of the services and follow-up of the abnormalities.

Many of these technologies are well beyond the financial capabilities of developing countries that are seeking to establish or improve screening programmes. However, cost-effectiveness analyses will assist in developing a more rationally based screening programme that can improve sensitivity at little or no additional cost.

According to the HAS (2010), the literature based exclusively on modelling stresses that vaccination combined with organized screening makes it possible “to limit or even prevent an increase in the number of precancerous lesions diagnosed”, and “to decrease the incidence of cervical cancer and its related mortality beyond the impact of each intervention implemented in isolation”. [Translation]

It is therefore necessary to combine these two methods to achieve the optimal result in cervical cancer prevention. In terms of screening, preference should be given to organized screening that is adapted to the local context, with strict observance of quality control.

4.2.1.5 Assessment of the technologies in use in the African Region for screening and treatment of precancerous conditions

Cervical cancer incidence and mortality rates decreased significantly in developed countries after the establishment of organized screening programmes. However, screening programmes in Africa are often rudimentary and are therefore unorganized or even non-existent.

The great majority of women who suffer from cervical cancer in sub-Saharan Africa present at an advanced stage of the disease, when it is well beyond the capacities of surgery or other treatment modalities to provide a cure. With the poorly developed palliative care services, these women are condemned to a miserable end, with the cancer penetrating deep into their pelvic tissues and causing pain, bleeding, fistulas and obstruction of the intestine and urethra.

Nonetheless, cervical cancer is one of the most easily preventable cancers through primary and secondary prevention, namely prophylactic vaccination against the human papillomavirus (HPV) and screening tests such as the Pap smear and VIA.

Vaccines against HPV help prevent 70% of all known cervical cancers within a generation, saving close to 200 000 lives yearly, the great majority of them in developing countries. Data from major international clinical trials indicate that vaccination against HPV can provide almost 100% protection from infection from HPV types included in a given vaccine.

In Africa, HPV vaccination programmes face significant challenges. They need to adopt innovative and multidisciplinary approaches for communication, while local infrastructure and service delivery need to be strengthened. HPV vaccines have a number of practicalities that require special attention; their use entails new approaches within vaccination service delivery programmes. In the specific case of cervical cancer, the target population is different from the customary target population in national immunization programmes. Moreover, a number of stakeholders must be involved in public awareness and social communication. Thus, there is need for an enhanced combination of cervical cancer vaccination and screening, which is currently non-existent, and which should be geared more toward health promotion. Sexual and reproductive health providers will be working with a vaccine targeting a sexually transmitted infection that is linked to a common but under-evaluated genital cancer, thereby raising issues that are different from the experience with other vaccines such as those for rubella and tetanus. It will therefore be crucial for African countries to strengthen existing services and use them as entry points for new interventions in the quest for maximum synergy.

Vaccinating adolescents in developing countries in general and Africa in particular raises important issues, including obtaining parental consent, access to girls in schools, motivating teachers and heads of schools and securing the approval of religious leaders, notables and others.

Cervical cancer prevention with the use of the HPV vaccine can constitute an inexpensive means of decreasing the burden of cervical cancer and other ano-genital infections associated with HPV in African countries. While it has been difficult to establish and maintain efficient cervical cancer screening programmes in many countries of the Region, these same countries have often developed comprehensive immunization programmes which, with the right adjustments, could turn out to be a crucial asset in cervical cancer prevention.

HPV prophylactic vaccines require refrigeration and the maintenance of a cold chain. The shelf life of vaccines is estimated at three to four years from the date of production. Maintaining the cold chain constitutes a real problem for many African countries in terms of countrywide coverage, on account of the extremely high proportion of rural dwellers in the Region.

The Pap smear may appear simple to health professionals, but it has been observed, especially in countries with very high illiteracy rates as those in Africa, that some women do not realize the importance of the

test. They find it embarrassing and even traumatizing, and that may partly explain why screening could not reach at all-risk persons. Moreover, in many African countries, screening is irregular or virtually non-existent.

Even when screening programmes do exist in some countries of the Region, numerous difficulties still persist, namely, poor coordination of partner interventions on account of their disparity, the centralization of diagnostic and treatment instruments in urban centres, the lack of a budget for the management of cancer, and the fact that women ignore the disease and present at health centres only when it has become full-blown.

That explains why the cervical cancer mortality rate can be 10 times higher in East Africa than in some western European countries. The lack of screening makes access to a cervical cancer vaccine even more urgent (Blumenthal et al., 2007).

4.2.1.6 Practical performance of screening tests and treatment of precancerous lesions

This section deals with the various screening considerations such as the choice of technology, the age at which to begin and cease screening and the interval between tests.

a. The choice of technology

Laying down guidelines is essential, not only for maximizing the efficacy of the screening, but also to reduce unpleasant consequences and risks for the women.

Generally, the initial parameters for cervical cancer screening have been defined on an empirical basis. Numerous clinical and epidemiological studies conducted since the development of tests to detect oncogenic HPV types (or simply, HPV tests) have improved understanding of the natural evolution of the disease and allowed for a readjustment of the initial parameters. Data from countries that have established organized screening programmes accompanied by information systems to analyse their results, constitute another precious source of information in evaluating the benefits and risks of the different strategies.

The Pap smear may be performed using the conventional method (a sample spread on a slide) (Brouwers et al., 2010) or it may be liquid-based. The two techniques deliver similar performances in the detection of high-grade lesions (Arbyn et al., 2008). Another advantage of liquid-based cytology is that additional investigations can be performed on the fluid remnant after cytologic examination, such as testing for high-risk HPV types to triage women with equivocal ASC-US type results, but such results are not sufficiently frequent ($\leq 5\%$ of results) to justify its use on all women. Liquid-based cytology tests can also have certain benefits in terms of the organization of laboratories, but they are more expensive, so an exhaustive cost-effectiveness analysis of this method is warranted before its adoption.

Results of cytology tests could be expressed according to the Bethesda terminology, 2001 version (Solomon et al., 2002), presented in Annex 3. Where a biopsy is performed, the result is generally expressed in the following terms: Grade 1 or mild intraepithelial neoplasia (CIN1), Grade 2 or moderate intraepithelial neoplasia (CIN2), Grade 3 or severe intraepithelial neoplasia (CIN3), adenocarcinoma in situ (AIS) or invasive carcinoma (Arbyn et al., 2008).

However, given that cytology-based cervical screening is not feasible in most African countries, other screening modalities such as visual inspection with acetic acid (VIA), visual inspection with Lugol's iodine (VILI) and the HPV test, deserve to be considered.

b. Age at which to start and end screening

Generally, the literature reports that cervical cancer is virtually non-existent before the age of 20 years, and even very rare before the age of 25 years, and that initiating screening too early may also have disadvantages for young women (Kyrgiou et al., 2006). In fact, genital infections caused by HPV are frequent in the early years following the initiation of sexual activity, and the risk of presenting cytological abnormalities is quite high. Conversely, these are often low-grade lesions (LSIL) or atypical squamous cells of undetermined significance (ASC-US). The majority of these lesions ($\geq 90\%$) disappear spontaneously in less than 24 months. Therefore, any subsequent intervention (follow-up test, coloscopy, biopsy and sometimes, treatment), can have only disadvantages for the great majority of affected women. Studies have even demonstrated that some treatments produced negative obstetrical consequences, such as an increase in premature deliveries and a higher risk of neonatal mortality (Kyrgiou et al., 2006). Only a small minority will derive benefits from such interventions, in terms of slowing down the rapid progression to cervical cancer, since that evolution takes place over some 10 years or longer (Bosch et al., 2002).

Based on the foregoing, it would be important to consider a number of factors, depending on the specific context of each country, in setting the age for the beginning of screening; such factors include:

- The age of initiation of sexual activity for young girls in the country considered;
- The risk of contracting an infection caused by an oncogenic HPV over the period following the initiation of sexual activity;
- The risk of developing cervical cancer after contracting an infection caused by an oncogenic HPV and the risk of developing cervical cancer following a serious precursor (CIN3) diagnosis, depending on the time lapse;
- Ascertaining the risk through an analysis of statistical data on the incidence of cervical cancer by age;
- Recommendations from WHO African Region and elsewhere in the world.

Although it is recognized that the highest prevalence of HPV infections is found in women below 25 years (Franceschi et al., 2006; Bruni et al., 2010) and that the cumulative risk of contracting such an infection in the life course is very high (between 70 and 80% or more), not all women are infected in the first year following the initiation of sexual activity. The so-called "low risk" HPV infections are also part of this type of infection.

Given that the median age of initiation of sexual activity is between 15 and 17 years, that there is a high risk of contracting an HPV infection in the subsequent years (but not necessarily during the first two years) and the low probability of progression toward a cervical cancer precursor state (CIN3) or some other cancer before at least five or six years, it is reasonable to delay the age for commencement of screening. In North America, most health authorities that have reviewed their screening standards recommend that screening begin at the age of 21, whereas in Europe, the recommendations vary from 21 to 30 years.

However, owing to the massive proportion of out-of-school girls in most countries of the African Region, many girls initiate sexual activity very early on, before the age of 18 years, in the context of early marriages (WHO, 2014a, p. 99). It would be recommendable to consider 18 years as a reasonable age for commencement of screening for women in general in the African Region. However, screening could be delayed by a few years for women who have not initiated sexual activity, especially in light of the increasing school enrolment of girls. Conversely, the screening age could be brought forward by a few years in certain circumstances, such as for persons who initiate sexual activity at a very early age and those who are immunocompromised following HPV infection, organ transplant or certain chronic conditions. Nonetheless, the presence of condylomas does not in itself justify the commencement of early screening, because condylomas are related to some types of HPV (so-called low-risk types) that are different from the types that cause cancer.

Regarding the age of cessation of screening, it must be stated at the outset that this aspect has to do

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with women who have regularly undergone screening tests. Setting the optimal age for ending screening presents the same challenges as setting the age for commencement; there are no experimental studies, randomized or not, that have specifically addressed this issue, previous standards were determined on an empirical basis, and no African data exist to assess the risk of cervical cancer precursors according to age. Moreover, most studies around the world simply focused on the effect of age variation on the incidence of high-grade lesions (CIN2 or CIN3), which is a less precise target than the incidence of cancer, since some of those lesions are reversible or may not progress.

Any other situation must be individualized in line with the time lapse from the last test or the results of the last tests. The woman's life expectancy could also be a factor to be considered in the provision of services to elderly women.

As cervical cancer may evolve over several decades, the risk of contracting cervical cancer persists right into old age and even after menopause and after the cessation of sexual activity. Conversely, it is known that over half of cancers appear in women who had never undergone previous screening tests or whose screening intervals are longer than the recommended standard (Solomon and Schiffman, 2000). It is probable that older women are over-represented in this category. In the absence of high quality data, two other key factors (in addition to the risk of progression of serious precursors) have been studied to assess the age at which a woman who has been regularly undergoing tests, could safely end screening, namely, the risk of having a persistent infection from an oncogenic HPV and the outcome of screening tests after several negative results.

A recent review of prevalence analyses for all types of HPV infections covering over one million women worldwide who had normal cytological results indicates that the prevalence of these infections is highest in women below the age of 25 years, with an adjusted rate of 24% [CI at 95%: from 23.5% to 24.5%], then regularly decreases to 4.2% [CI at 95%: from 4.2% to 4.3%] in women aged between 45 and 54 years (Bruni et al., 2010). Although the number of older subjects included was rather small, a second prevalence peak of HPV infections was observed in women aged over 55 years in some countries (which was nonetheless lower than in women aged between 18 and 25 years). A number of hypotheses have been proposed to



explain this phenomenon, to wit, the reactivation of a latent infection following hormonal changes brought on by menopause, changes in the sexual habits of women of that age (or those of their partners) or a mere cohort effect.

Consequently, the age of cessation of screening could depend on each context, but women must be included in screening programmes until the age of 50 years at least. It could be necessary to stretch it to the age of 60 years, depending on the country's level of development and the life expectancy rate.

c. Interval between tests

According to the WHO (2014) guidelines, the screening interval for a woman who has screened negative with the VIA and Pap smear should be three to five years. However, a woman who has screened negative with the HPV test must undergo another test after at least five years. For a woman who has received treatment, post-screening follow-up must be provided after one year to ensure that the treatment was effective, before the woman returns to the process of the screening programme underway in the country.

4.2.1.7 Diagnosis and treatment of cervical precancerous lesions

According to the WHO (2014) guidelines, for all "screen-and-treat" recommendations, cryotherapy is the first-choice treatment for women who have screened positive and are eligible for cryotherapy. When women have been assessed as not eligible for cryotherapy, the loop electrosurgical excision procedure [LEEP] is the alternative treatment. Eligibility for cryotherapy follows the guidance provided in the update of the C4-GEP (WHO, 2006): "Screen-positive women are eligible for cryotherapy if the entire lesion is visible, the squamocolumnar junction is visible, and the lesion does not cover more than 75% of the ectocervix. If the lesion extends beyond the cryoprobe being used, or into the endocervical canal, the patient is not eligible for cryotherapy and LEEP is the alternative option".

Before treatment, all women who have screened positive with any test (but especially with an HPV test) should be visually inspected with acetic acid to determine eligibility for cryotherapy and to rule out large lesions or suspected cervical cancer. VIA should be performed by a trained provider.

Note that there is a distinction in these recommendations between (a) using VIA to determine eligibility for treatment (that is, cryotherapy versus LEEP), and (b) using VIA as a screening test to determine whether or not to treat.

- In the 'HPV test' screen-and-treat strategy, women who are HPV-negative are not treated. Women who are HPV-positive will all be treated, and VIA is used to determine eligibility for treatment with cryotherapy or LEEP.
- In the 'HPV test followed by VIA' strategy, women who are HPV-negative are not treated. Women who are HPV-positive all undergo VIA, which is used in this case as a second screening test to determine treatment. Women who are HPV-positive and VIA-positive will all be treated, while women who are HPV-positive and VIA-negative will not be treated.

4.2.1.8 Information and public awareness strategies

The cervical cancer information and public awareness strategy must lead to enhanced screening efficacy and efficiency. Various incentive strategies can be envisaged to improve and develop screening practices.

Communication and information activities must be organized and even bolstered (radio campaigns on the importance of prevention and screening, information tools directed at target groups but also intended for health professionals and others). Indeed, cervical cancer and especially screening practices are still relatively unknown to the general public in the African Region. There must be a special drive to inform disadvantaged population groups.

In principle, the routine invitation and reminder system has proved successful in Europe in terms of reaching the target groups (HAS, 2010). In fact, in this kind of invitation-reminder system, only women within the target group who have not undergone a recent cervical cancer screening test receive a personal letter of invitation. This system offers not only a clear financial benefit on account of the gradual inclusion of patients which allows for a better distribution of costs over time, but it also relies on ongoing individual screening and thus avoids duplications. However, establishing such a system in many African countries would be difficult without a population census and also because communities are largely rural in character.

This system often backstops the individual screening system that is based on access to women's health care services. Access to such health care services remains low in many countries of the Region. In the absence of such services, emphasis should be laid on opportunities of meetings with health professionals – physicians, nurses, midwives – as well as meetings with outreach health professionals (operators of clinical and anatomical-pathology laboratories and others).

An integrated strategy for screening of women's cancers (breast and cervical) during the provision of the various women's health care services could also be launched.

4.2.1.9 Screening programme and national cervical cancer control programme

In light of the foregoing, cervical cancer screening and control programmes should be built on propitious strategies that yield results. To that end, a number of factors must be taken into consideration in the practical organization of cancer control, all within the perspective of community development.



a. Practical organization of cervical cancer control in the African Region

The current situation in the African Region in terms of the burden of cervical cancer is characterized by ineffective or non-existent screening programmes (Alliance for Cervical Cancer Prevention (ACCP), 2004). This situation is attributed to the lack of resources (materials, trained personnel, equipment, quality control, health-care infrastructure and effective follow-up) that has held back developing countries which, as a whole have not experienced the same success as developed countries in cervical cancer prevention and control (Parkin et al., 2002). According to one estimate, about 75% of women in indus-

trialized countries have undergone one screening test in the past five years. Conversely, according to studies conducted in India and estimates from Kenya, only 1% of participants had undergone screening, in spite of the extensive efforts undertaken to improve screening programmes (Sankaranarayanan et al., 2005; Bingham et al., 2003). The problem is all the more serious as the women and health workers often lack information on the disease and the financial resources to prevent it (Franceschi, 2005; Sankaranarayanan et al., 2005; Bingham et al., 2003; American Cancer Society, 2006; Agurto et al., 2005; Bradley et al., 2005; Lazcano-Ponce et al., 2001; Denny et al., 2006).

This underscores the crucial importance of basing the organization of cervical cancer prevention and control in the African Region on an intersectoral strategy that contributes to the improvement of the living conditions of women in particular and the population in general. While providing the requisite information on the disease as well as preventive measures, national control programmes should also strive to act on social determinants of cervical cancer in a holistic process of health improvement, in conjunction with the other health and non-health sectors; broad involvement of the community in the process is an essential condition for its success.

b. Community-based intervention strategies

Community-based interventions refer to a development process in which the individual, the family and the community undertake and develop health-improvement activities for their own protection.

In the context of cervical cancer control, the idea is to ensure that communities are informed of the substantial burden they are facing through an appropriate participatory process. They will thus be able to take the necessary measures and make the requisite decisions at community level for effective prevention.

Such a process requires health professionals who are ready to work with the communities with the goal of granting them increased authority and allowing them to devise cervical cancer prevention and treatment strategies. Interventions could thus be based on local resources and build on that which the people already have.

c. Implementing interventions

Interventions that have been jointly identified and agreed upon with the communities should be implemented within a perspective that offers the communities the full opportunity of playing an active part in the activities. Health professionals should thus learn to adopt a supportive role in the process. This kind of implementation methodology is known to generate self-esteem within the community, which then strives to obtain results that would improve on the initial situation (Reaburn & Rootman, 1998).

d. Monitoring and evaluation

The monitoring and evaluation process falls within the same perspective of empowering the communities. The indicators are defined in agreement with the communities, and this facilitates their empowerment for the achievement of results. They thus master the language of the process and are able to defend the entire process in order to obtain the expected results.

All this requires a reorientation of professionals, who should rather facilitate the process than seek to steer it as in the past.

4.2.2 Community mobilization for action on social determinants of cervical cancer

The mechanism mentioned in the preceding sub-chapter leads to action on the social determinants of health by the communities themselves. The community mobilization process could then take the shape described here below.

4.2.2.1 Community diagnosis of the problem of cervical cancer

The process of the community's diagnosis of the problem of cervical cancer should give rise to an approach that elicits the full adherence of the community. At local level, each community should be approached for a discussion of the problem of cervical cancer through meetings organized on its own terms. As mentioned earlier, the health professionals responsible for these activities should be trained or reoriented on community collaboration so they can approach the problem of cervical cancer from the perspective of overall health. The following concerns should be clearly addressed by the community:

- Defining the main characteristics of cervical cancer;
- Knowing the age group that has the highest incidence of cervical cancer;
- Detecting the risk factors to which women are the most exposed;
- Identifying the barriers to primary and secondary prevention and especially barriers to cervical cancer screening and treatment of precancerous lesions (beliefs, fears, perceptions, representations and others);
- Designating the players who assume an important role (direct or indirect) in health promotion within each community (civil servants, civil society, community leaders);
- Conducting a cost-effectiveness analysis based on prevention rather than treatment of the disease;
- Find adequate, context-specific solutions for effective action against cervical cancer in each community;
- Plan the implementation of the actions agreed upon, with the distribution of roles and responsibilities.

4.2.2.2 Health services and cervical cancer control in the African Region

The cervical cancer problem is an opportunity for health systems in the African Region to confirm their commitment to the adoption of the approach based on health promotion and action on the social determinants of health. The reorganization that this requires should lead them to engage even more closely with non-health sectors and communities in order to improve the living conditions of the people in general and those of women in particular.

The engagement process should make it possible to identify and easily locate the target women all over the country. It would also entail reorganizing the system of registering births and deaths and house numbering, to cite just these examples, all under the responsibility of local administrative authorities within a genuine process of decentralization. Likewise, considerations such as geographical access to target groups at all times of the year are important in the cervical cancer control effort. As mentioned earlier, women's beliefs, sensibilities, fears and other concerns should be taken into consideration and properly discussed at the community level in the context of an empowerment process (Agurto et al., 2005).

It is only on that basis that the target groups can be expected to participate in vaccination and screening programmes, as has been reported in the literature (Blumenthal et al., 2007; Jegede, 2007).

4.2.2.3 Building the capacities of communities and health professionals for action on the social determinants of cervical cancer

There is a crucial need to strengthen the capacities of health professionals on the approach based on health promotion and action on the social determinants of health. They must learn to engage efficiently with non-health sectors whose involvement is indispensable in the organization of cervical cancer control in particular and disease in general. In other words, this is an opportunity for the health sector to take ownership of the approach proposed by WHO, of "health in all policies" (WHO, 2014b), which constitutes one of the pillars of health promotion.

Once the health sector is abreast of these concepts and owns them, it would be easy for it to approach communities in the perspective of empowerment, one in which interventions target health rather than

disease, with the latter becoming the gateway for community development. The problem of cervical cancer is an example of a disease that can be overcome in a context of community development, as has been demonstrated by the developed countries (Working Group on guidelines for the screening of cervical cancer in Québec, 2011; Katz & Hofer, 1994).

It is at this stage that a rather peculiar form of community capacity building could come into play, one that takes full account of community specificities, as they differ from one community to another (Reaburn & Corbett, 2001).

4.2.2.4 Community edification for cervical cancer control

One of the roles of the health sector will indeed, be community edification, with emphasis on social cohesion, community networking, knowledge sharing, community cooperation and all other actions that could enable the community to work in harmony for the development of its environment and its members (Reaburn & Corbett, 2001). Such a process leads to the empowerment of a community, which then understands the rationale of the actions that it needs to undertake by itself to prevent and control cervical cancer, with health professionals serving as guides.

4.3 Actors, roles and responsibilities in cervical cancer control in the African Region

4.3.1 Actors in cervical cancer control in the African Region

From all the foregoing, it is clear that the actors in cervical cancer control come from many, or even all local development sectors, including communities. In that connection, one can mention the education, vocational training and employment sectors, municipalities including communities, the town planning, environment, public works and transport, agriculture, trade, security, economy and finance and legislative sectors, etc.

4.3.2 Roles and responsibilities of the actors for effective cervical cancer control in the African Region

Cervical cancer control is not the concern of the health sector alone. Nonetheless, the health sector must play a special and important coordinating role to ensure that the issue of health in general and the problem of cervical cancer in particular are taken into account in the actions of other sectors.

For effective cervical cancer prevention and control, it is fundamental that each sector play its traditional role, while taking cognizance of the significant impact of its actions in health production in general and in cervical cancer prevention in particular. As experience has shown in other contexts, an organized screening programme, the type that yields the greatest results in cervical cancer prevention, needs to function properly and also needs the contribution of all these sectors (Agurto et al., 2005; Bingham et al., 2003; HAS, 2010).

4.4 Organizing an information, education and communication (IEC) session

The organization of an IEC in the context of cervical cancer control must take account of all the factors mentioned above if results are to be obtained in terms of behaviour change. In addition to organizing public awareness campaigns, it is necessary to work very closely and specifically with communities so as to act on the social determinants of cervical cancer through engagement with other non-health sectors.

Joint action is indispensable in combating any health problem and notably in the control of cervical cancer (HAS, 2010; WHO, 2014b). Disease in general is unquestionably intersectoral. The control effort

accordingly requires the joint action of all the sectors – with the health sector assuming the leading role of coordinator – whose concern should be to take action on the social determinants of health.

4.5 Evaluating IEC actions

Evaluation follows the same strategy, with strong community engagement in the definition of indicators and in the entire process of evaluating IEC actions.

A photograph of a woman with short dark hair, wearing a light blue shirt, writing in a notebook. She is looking down at her work. In the background, other people are visible but out of focus. The entire image has a warm, orange-toned overlay.

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A photograph of a woman with short dark hair, wearing a light blue shirt, writing in a notebook. She is looking down at her work. In the background, other people are visible but out of focus. The entire image has a warm, orange-toned overlay.

ANNEXES

ANNEXES

Annexe 1 : Cervical cancer incidence in WHO African Region

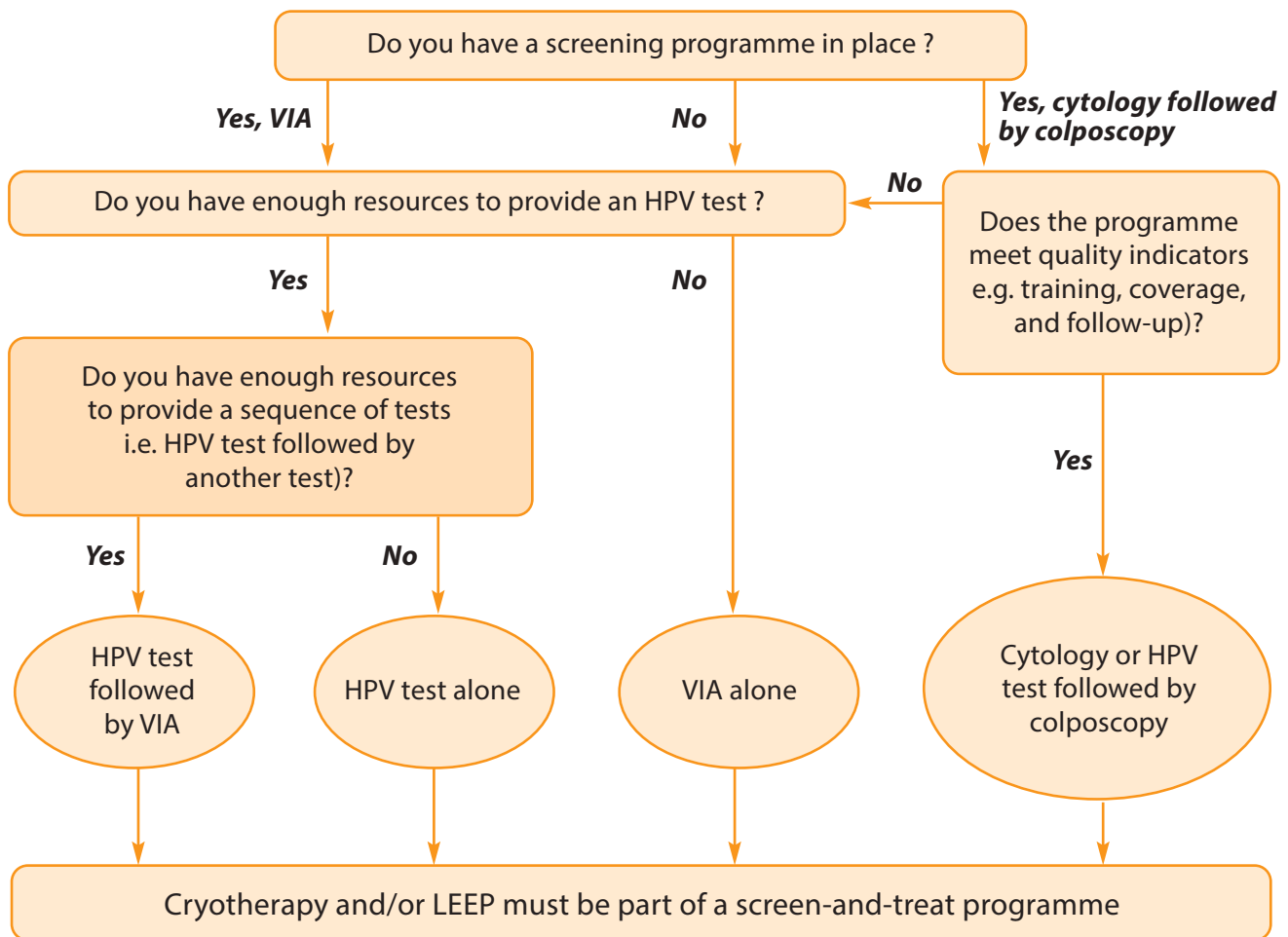
Tableau 1 : Age standardized incidence rate of cervical cancer (per 100 000 population) in the African Region, 2008.

#	# ≥ 40		> 31 < 40		< 31	
	Country	Rate	Country	Rate	Country	Rate
1	Guinea	56	Mali	38	Angola	30
2	Zambia	53	Guinea-Bissau	35	Togo	30
3	Comoros	52	Mauritania	35	Burkina Faso	29
4	Tanzania	51	Benin	35	Congo	27
5	Malawi	51	Lesotho	35	Madagascar	27
6	Mozambique	51	Cabo Verde	35	Côte d'Ivoire	27
7	Swaziland	50	Senegal	35	South Africa	27
8	Burundi	49	Rwanda	35	Equatorial Guinea	25
9	Uganda	48	Nigeria	33	Gabon	24
10	Zimbabwe	47	Gambia	32	Cameroon	24
11	Sierra Leone	42			Kenya	23
12	Liberia	42			Botswana	22
13	Ghana	40			D R Congo	21
14					Chad	20
15					Central Afr. Rep.	19
16					Ethiopia	19
17					Namibia	16
18					Niger	16
19					Eritrea	13
20					Mauritius	13
21					Algeria	10

31 = Regional average

Source : WHO, 2014a

Annexe 2 : Decision-making flowchart for screen-and-treat strategies



Source : WHO, 2014, p. 25.

Annexe 3 : Bethesda terminology for presentation of cytology results (2001)

Tableau 2 : Correlation between dysplasia/carcinoma in situ, cervical intraepithelial neoplasia (CIN) and the Bethesda terminology

Dysplasia Terminology	Initial CIN Terminology	Modified CIN Terminology	The Bethesda system (SIL) terminology
Normal	Normal	Normal	Within normal limits Benign cellular changes (infection or repair)
Atypia			ASCUS/AGUS
	Koilocytic atypia, flat condyloma, without epithelial changes	Low-grade CIN	LSIL
Severe dysplasia or severe dyskaryosis	CIN 1	Low-grade CIN	LSIL
Severe dysplasia or severe dyskaryosis	CIN 2	High-grade CIN	LSIL
Severe dysplasia or severe dyskaryosis	CIN 3	High-grade CIN	LSIL
Carcinoma <i>in situ</i>	CIN 3	High-grade CIN	LSIL
Invasive carcinoma	Invasive carcinoma	Invasive carcinoma	Invasive carcinoma

Source : Blumenthal et al., 2007

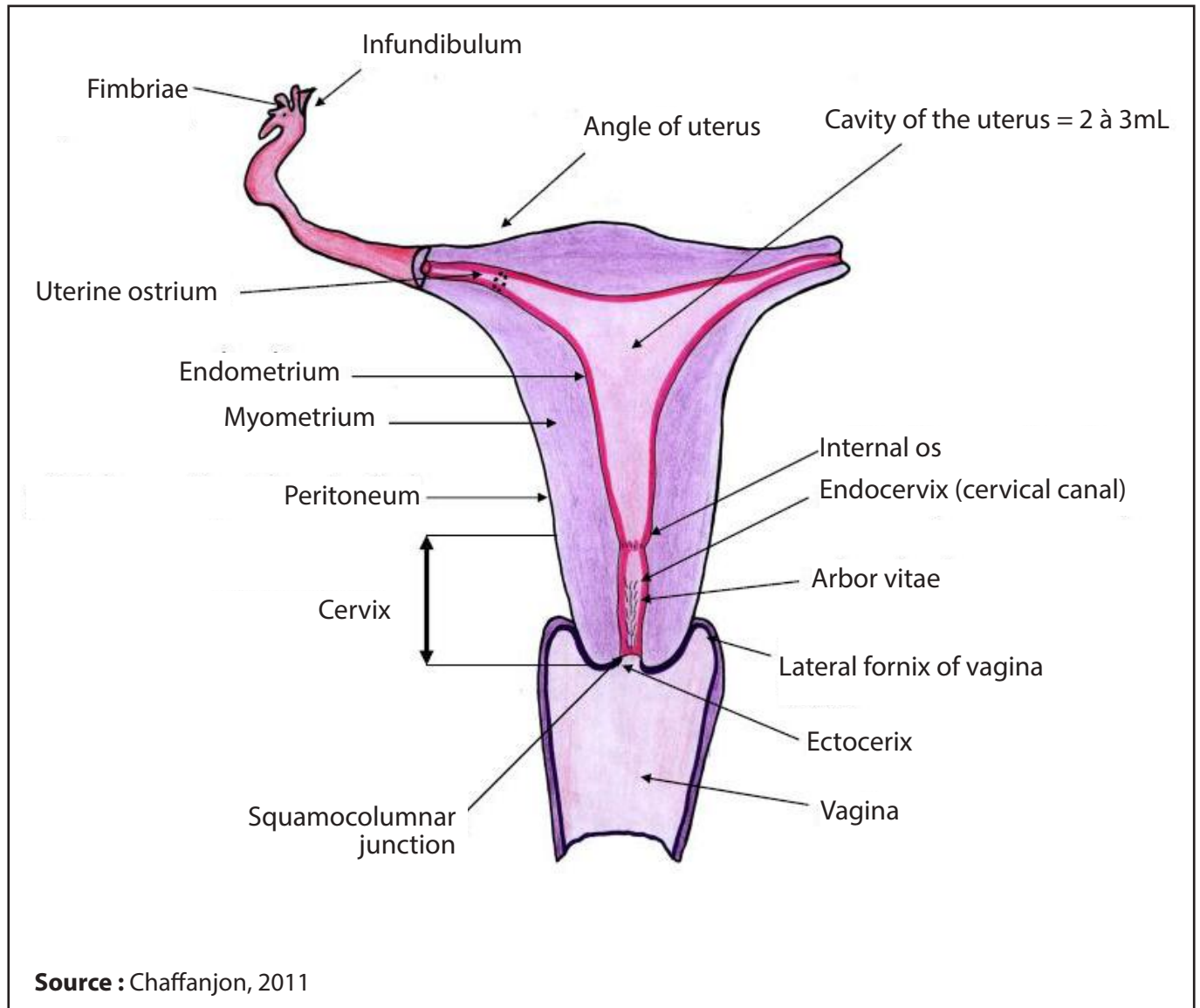
A photograph of a woman with dark hair, wearing a blue top, writing in a notebook. The image is overlaid with a semi-transparent orange rectangle. The text 'SECTION V' is written in white, with the 'V' being significantly larger than the other letters. A thin white horizontal line is positioned above the word 'SECTION'.

SECTION V

PARTICIPANT'S
HANDBOOK

5.1 What is cervical cancer?

5.1.1 The cervix



The cervix connects the lower part of the uterus that protrudes into the vagina. The internal os refers to its opening into the uterus and the external os refers to its opening into the vagina.

5.1.2 What is cancer?

A cancer (or malignant tumour) is a disease characterized by abnormally high cell growth (tumour) within a normal body tissue to the extent that the survival of the body tissue is threatened. The cells all come from the same clone, the cancer cell that has acquired certain characteristics that enable it to divide endlessly. During the evolution of the disease, some cells can migrate from their place of production and metastasize. For these two reasons, cancer must be detected as early as possible.

5.1.3 Cervical cancer

Cervical cancer is the second most frequent cancer in women worldwide, with about 500 000 new cases and 250 000 deaths each year. Approximately 80% of cases occur in low-income countries, where cervical cancer is the most frequent female cancer. Let us take a closer look at it from the description below.

Cervical cancer is a cancer that develops from the cervical epithelium.⁵ It is the second most frequent female cancer after breast cancer. It occurs in women most often before menopause.

5.1.4 Risk factors of cervical cancer – Who is at risk?

A risk factor affect one's chances of contracting a disease such as cancer. Certain risk factors, such as smoking, can be controlled. Others, such as a person's race, cannot be changed. However, having one or several risk factors does not mean that one will contract the disease.

Women without risk factors rarely develop cervical cancer. However, although risk factors increase the likelihood of having cervical cancer, many women with these risks still do not develop the disease.

Looking at risk factors, it is possible to focus on those that can be changed. However, those that cannot be changed are useful in reminding women of the importance of undergoing cervical cancer screening.

- *Human papillomavirus infections (notably HPV16 and HPV18).* They play a major epidemiological (and possibly growing) role in the disease and are present in 80% of cervical cancers and high-grade in situ lesions.
- *The pill (oestro-progestative contraception).* It causes a moderate increase in the risk of developing cervical cancer (increases the risk by less than 1%).
- *Immunosuppression.* HIV (human immunodeficiency virus) is the virus that causes AIDS, and is not the same as HPV. Women infected with HIV are more likely to have cervical cancer. HIV apparently reduces the capacity of the woman's immune system to combat HPV and early cancers. Cervical cancer in an HIV-positive patient could be more aggressive and less sensitive to treatment. Another group of women at risk of cervical cancer is that of women using immunosuppressive medication. That group includes women who are receiving treatment for an autoimmune disease and those who have undergone an organ transplant.
- *The coil.* The use of an intrauterine device (IUD) had been cited as a risk factor for cervical cancer. A controversy has set in, and it is believed that the use of an IUD decreases the risk of developing cervical cancer by half. Conversely, the risk of cancer does not appear to be related to the duration of the use of the coil. Moreover, its use does not modify the prevalence of HPV infection. A number of explanatory, non-exclusive hypotheses have been put forward: lesions caused by the insertion, use and/or removal of an IUD could trigger a low-grade inflammatory reaction and/or a cellular immune reaction that stops the cancerization process.
- *Smoking.* Several studies have shown that smoking quite significantly increases the risk of a number of cancers, including certain types of cervical cancer. About 18% of cervical adenocarcinomas and 43% of squamous carcinomas are found in smokers (22% of the control cases). The toxic compounds released by smoking could reduce the immunity of the uterine lining and contribute to infection from human papillomavirus and the ensuing neoplasia.

⁵ The surface of the cervix is made up of epithelium.

- *Chlamydia infection.* This is a common type of bacteria that can infect women's sexual organs. It is spread by sexual contact. A woman may not know that she is infected until she is tested for chlamydia during a pelvic examination. Some studies suggest that women who have a prior or on going infection may have a greater risk of developing cervical cancer.
- *Diet.* Women whose diet is low in fruits and vegetables may have an increased risk of contracting cervical cancer.
- *Excess weight.* Overweight women are more likely to develop cervical adenocarcinoma.
- *Parity.* Women who have had three or more full-term pregnancies have an increased risk of developing cervical cancer. The reason for this is not well known.
- *Early age at first full-term pregnancy.* Women who were younger than 17 years when they had their first full-term pregnancy are almost twice more likely to get cervical cancer later in life than women who delayed their first full-term pregnancy until they were 25 years old or above.
- *Low income.* Low-income women have a higher risk of cervical cancer. This may be explained by the fact that they cannot afford health care services including regular Pap tests. More broadly, however, difficult living conditions brought on by poverty may constitute the underlying causes of this risk factor.
- *DES (diethylstilbestrol).* DES is a hormonal drug that was given to some women to prevent miscarriages between 1940 and 1971. Women whose mothers took DES when pregnant with them have a slightly higher risk of vaginal and cervical cancer.
- *Family history.* Cervical cancer may run in some families. If one's mother or sister had cervical cancer, one's chances of contracting the disease are two to three times higher than if no member of one's family had been affected by the disease. This may be explained by the fact that the women in question are less able to fight off HPV than others.

NB : Cervical cancer may occur during pregnancy.

5.2 What is the burden of cervical cancer in the African Region?

According to WHO (WHO, 2014a), the African Region bears the brunt of cervical cancer, with the highest incidence of all the world Regions at 30.7 per 100 000 inhabitants, displaying extremes ranging from 10 in Algeria to 56 in Guinea. Considering the epidemiological profile of the Region, with the highest incidences occurring mostly in the eastern, southern and western areas, the real causes of the cervical cancer situation are risk factors such as HIV infection and difficult living conditions underpinned by poverty.

5.3 Prevention of cervical cancer

Prevention refers to all the measures that are taken to prevent a situation from getting worse or to prevent the occurrence of an accident, an epidemic or disease. It consists of :

- Limiting the risk, which is primary prevention proper: measures that seek to prevent a risk by eliminating or reducing the probability of the occurrence of a dangerous phenomenon;

- Providing for control measures if the disease occurs, which is secondary or tertiary prevention : these are measures that seek to limit the scale and/or seriousness of the consequences of a dangerous phenomenon, without modifying the probability of its occurrence.

Primary prevention of cervical cancer is based on the three forms of prevention, namely, primary, secondary and tertiary prevention.

5.3.1 Primary prevention

Primary prevention refers to a set of activities aimed at reducing the incidence of a disease or a health problem, that is, reducing the appearance of new cases in a healthy population by decreasing the causes and risk factors. By intervening proactively, before the appearance of the disease and its symptoms, this form of prevention forestalls the appearance of the disease. This is the best form of prevention. It uses methods such as education for health, public information and vaccination.

Clinical studies have demonstrated the effectiveness of vaccines against papillomavirus for the treatment of cervical cancer (The FUTURE II Study Group, 2007). The marketing of the first HPV vaccine in 2006 was an important step in the control of cervical squamous cell carcinoma.

Above all, the basis of cervical cancer control lies in taking action to enhance the living conditions of women, especially in Africa which bears the heaviest burden of cervical cancer, by combating poverty and empowering and educating women, to name only these.

5.3.2 Secondary prevention

The aim of secondary prevention is to detect in their early stages, those diseases that could not be averted by primary prevention. It comprises all the activities aimed at reducing the prevalence of a disease within a population, that is, detecting a disease before its symptoms appear so as to intervene to slow or stop its progression. It also helps to reduce the duration and gravity of the evolution of the disease. While primary prevention targets the population, secondary prevention specifically targets high-risk individuals and may require a clinical intervention to stop the progression of the disease and lesions.

Screening for pre-cancer lesions is possible through smear testing (see annex). Screening consists in testing all women who present a risk of cervical cancer, most of whom do not have symptoms. Its aim is to detect precancerous changes which if left untreated, could degenerate into cancer.

Screening can be effective only where there is a well-organized follow-up and treatment system. Women who present abnormalities during screening must be followed up, diagnosed and where necessary, treated in order to prevent progression to cancer or to cure cancer at an early stage.

A number of tests can be used to screen for cervical cancer. The Pap smear (cytology-based) is the only test that has been used on major populations and has demonstrably decreased cervical cancer incidence and mortality.

Other tests (VIA, VILI, HPV test) are promising, but so far, no comparative data are available to establish their effectiveness. Major studies are still ongoing.

Whichever test is used, the key to success of an effective programme consists in providing quality screening and treatment to the greatest possible proportion of at-risk women.

Screening programmes that are organized, designed and managed from a central level with the goal of reaching the greatest number of at-risk women are preferable to opportunistic screening.

5.3.3 Tertiary prevention

Tertiary prevention refers to the set of measures that are implemented to prevent the onset of complications and the recurrence of diseases. It comprises:

- All activities aimed at reducing the prevalence of chronic disabilities or impairments and the incidence of recurrence,
- All clinical activities performed after diagnosis of the disease and aimed at preventing a worsening of the state of the patient or the onset of complications.

The detection of precancerous lesions and notably severe dysplasia or carcinoma in situ upon screening allows for treatment that will cure the patient with a very low recurrence rate.

5.3.3.1 Invasive cervical cancer

Preclinical invasive cancer refers to cervical cancer in its early phase, which has just begun to penetrate the underlying cervical stroma and which quite often does not display any symptom or obvious clinical characteristic. When the invasion reaches the stroma, the disease presents a clinical manifestation with the appearance of several tumours that are visible with a speculum.

From a histology standpoint, 90 to 95% of invasive cervical cancers are squamous cancers. Adenocarcinoma represents less than 5% of cervical cancers in developing countries. The staging system, which is the most widely used for invasive cervical cancer, is based on the size of the tumour and the extent of spread of the disease to the vagina, the pelvic wall, the parametria, the bladder, the rectum and distant organs.

The clinical stage of invasive cervical cancer at the time of detection is the only important criterion for predicting survival.

5.3.3.2 Treatment of precancerous lesions

Women who are treated for pre-invasive lesions have a survival rate of almost 100%. Currently, the usual treatment of women with cervical lesions involves colposcopically controlled excisions using loop electrosurgical excision procedure (LEEP) or ablation (destruction) of abnormal epithelium by cryotherapy, both of which are outpatient procedures. If cryotherapy is limited to small lesions (for instance, ≤ 19 mm), efficacy is nearly 100%. Both cryotherapy and LEEP are less radical than the previous standard treatment, namely biopsy and cold knife conization. Although no longer the standard, it is still used for precancerous lesions that cannot be otherwise treated, or for rigorous evaluation of the cervix and cervical canal when squamous carcinoma or adenocarcinoma is suspected.

5.3.3.3 Treatment of cervical cancer

If detected early, invasive cervical cancer can also be treated successfully; five-year survival for women with cancer in the earliest stage (stage 1A, in which the cancer has had minimal spread to the inside of the cervix) is estimated at 92%. Hysterectomy and radiotherapy are the recommended primary treatments for cervical cancer but should not be used to treat precancerous lesions.

For advanced disease, radiotherapy is frequently used for palliation of symptoms, but in developing countries, it is not widely available or accessible. Radiotherapy aims to destroy cancer cells while preserving the normal cells insofar as possible. Adverse effects include vaginal bleeding and discharge, diarrhoea and nausea.

Its effectiveness depends on the extent of the cancer, that is, whether it has spread beyond the cervix. Chemotherapy may also be used with hysterectomy and radiotherapy.

Adjunctive non-medical care can include traditional or cultural practices provided they do not cause harm (massage, prayer, counselling and emotional support).

5.4 Obstacles to cervical cancer prevention

There are many obstacles to cervical cancer screening in resource-constrained countries, generally attributed to a lack of infrastructure and resources – technical, medical, and financial - and a lack of awareness and education about cervical cancer among women and health-care providers. Moreover, in Africa which bears the biggest cervical cancer burden, there are competing health care needs such as HIV/AIDS, infectious diseases such as malaria, tuberculosis, and high infant and maternal mortality rates. In addition, trained clinicians are scarce, and there is a lack of adequate laboratory supplies and personnel, and treatment facilities.

Furthermore, there are considerable cultural barriers to routine pelvic screening, especially in the absence of any symptoms, underscoring the profound need for an acceptable and reliable screening method that focuses on timely detection of early lesions and treatment of the lesions so as to reduce cervical cancer burden. Although cytology has proven to be extremely effective in detection of abnormal cervical cells in developed countries, it is still under-utilized in developing countries in general, and in Africa in particular.

An important aspect of the success of cytology screening in developed countries is attributed to repeated screening of women during the long natural history of cervical cancer development. The repeated nature of the screening makes it cost-prohibitive for low-resource countries such as those in Africa. Moreover, the need for multiple visits – one to perform the test, a second to obtain results (following a more or less lengthy wait), and a possible third for treatment – can lead to loss of follow-up of women who may be at greatest risk of cervical cancer, further compounding a complex issue. In addition, screening requires highly trained personnel, specialized equipment and special laboratories, without guaranteeing the sustained quality of results.

A single cytological screening results in a high rate of false-negatives - that is, it lacks sensitivity, making repeat screening necessary. Pap smear failure can be a consequence of the health care provider's sampling technique or the monotony of subjectively processing many samples. In addition, the need for follow-up medical appointments to present the results and manage any abnormalities can negatively affect treatment rates.

Screening programs in resource-constrained countries must consider these limitations and develop approaches that are sustainable and suitable for those settings, such as considering screening methods that target the etiologic agent HPV, appropriate age to initiate screening, and screening interval, and one designed to encompass screening and treatment at one time.

In other words, the higher rates of cervical cancer incidence and mortality for women in developing countries are attributable mainly to financial and organizational shortfalls, lack of services and resources, cultural barriers to health care access and disenfranchisement of women. Owing to lack of infrastructure and the requisite spending, cervical cancer screening programmes are unavailable in most developing countries, and hence, declines in the incidence of cervical cancer have not been observed in low-resource countries. Additionally, a constraint to screening in many African countries is the cultural reticence to seek routine pelvic examination; even in some countries with established national screening protocols, women do not seek pelvic examinations and therefore often present with advanced disease.

5.5 Benefits of preventive actions

There is no doubt that preventive actions are extremely cost-effective. Broadly speaking, when preventive health actions are initiated proactively at a very early stage in a given situation, they help save numerous lives and provide many more benefits that have been demonstrated in many studies. Let us cite a few examples by way of illustration:

- **In the working environment**, for example, the benefits of prevention can be classified under four major components, namely ⁶ :
 - Protecting workers. Protecting the lives and preserving the integrity of workers and keeping them healthy in the face of risks of accidents and diseases. Prevention contributes to the provision of a fulfilling, stress-free working environment that fosters the positive and rewarding development of human resources.
 - Enhancing the profitability of companies. Investments in health and security translate into direct benefits in terms of a reduction in insurance costs. Prevention also triggers indirect positive spin-offs, notably by forestalling expenses related to costs of absenteeism and recruitment. Furthermore, the benefits of increased profitability for companies engender substantial economies of scale at the macroeconomic level.
 - Increasing productivity. Investing in prevention helps to enhance the productivity of the workers and the company as a whole. Integrating the values of health and security in task performance often translates into time-saving and improved mobilization of workers.
 - Contributing to a positive corporate image. A sound management of prevention programmes sends a positive corporate image to all the company's audiences. Conversely, media coverage of a workplace accident deals a heavy and lasting blow to the company's image.
- The example of cervical cancer itself is quite illustrative. In the United States of America, the introduction of the cervical cancer screening programme in the 1960s led to a 75% drop in cervical cancer incidence and mortality. (Safaeian & Solomon, 2007). On that basis, if one were to assess its benefits for each individual, for families, businesses and the State as a whole, one then understands the crucial importance of undertaking cervical cancer prevention programmes in particular, and prevention programmes against any disease burden in general, especially in low-income regions such as Africa (Safaeian & Solomon, 2007).

Having said that, it should also be mentioned that preventive actions may sometimes appear expensive and the benefits cited above are not often reaped directly following the implementation of actions.

5.6 Where can cervical cancer prevention and/or treatment services be obtained?

Generally, cervical cancer prevention services are available to the target groups in health facilities and specifically in maternities. In certain countries, there are specialized cervical cancer screening centres where women within the target age group can go directly.

Regarding the first visit, the personnel of maternities are generally trained to collect the sample required for cervical smear or VIA.

⁶ <http://www.irsst.qc.ca/files/documents/PubIRSST/R-428.pdf>

The rest of the process depends on the technical capacity of the country's health system for the transportation of the collected sample. In some countries, in the case of the smear, this first phase is followed by a telephone call to the woman to inform her of the course of action she should take, depending on her test results.

As the second visit requires the presence of a specialist, it often takes place in a specialized health facility or a cervical cancer screening centre.

There could sometimes be a third visit where precancerous lesions are detected and require treatment. That third visit therefore takes place in a specialized setting.

5.7 Information/Public awareness, Education and Communication

Sub-Saharan Africa is witnessing an upsurge in cases of cervical cancer, and in 80% of the affected women, the disease is diagnosed much too late to stop its deadly progression. This realization has led the World Health Organization to recommend the establishment of screening and vaccination programmes all over the Region. There is urgent need for information, education and communication geared toward the target population, but also toward development partners of the African Region.

WHO, which is the partner of choice in the health sector in the Region, is expected to play a key role, first by mobilizing all efforts within its own structures to prevent and control this silent killer that will continue to expand if nothing is done, but also by conducting sustained advocacy with donors and decision-makers to include cervical cancer among public health priorities.

As for women of the African Region, many of them are unaware of the existence of the disease, and die in silence. Cervical cancer is a largely preventable disease, but women must be screened every three to five years in order to stop this deadly disease. However, in sub-Saharan Africa where diagnostic equipment and national prevention programmes are lacking, only 5% of women regularly undergo cervical cancer screening and that explains why, in most cases, the disease is detected at an advanced stage, where it is difficult to cure.

WHO urges Ministries of Health to ensure that the HPV vaccine is made available for all girls between the ages of 10 and 13 years as part of national health action plans, to prevent the spread of the disease. However, the three doses of the vaccine cost a total of US\$ 300, in a Region where the annual average salary does not exceed approximately US\$ 550, according to the United Nations Children's Fund (UNICEF).

This situation underscores the need for an IEC campaign geared toward the target population with a view to the crucial preventive action that is required for the effective prevention and control of the disease. In fact, effective health communication is as essential in health care as clinical competence. To improve individual health and build healthy communities, health care providers must recognize and take into account the unique culture, language, beliefs and health practices of the various patients and communities. While cervical cancer is causing devastation and Africa is struggling with low screening rates for this disease, there is urgent need to review organizational methods in order to find ways and means of improving the delivery of culturally and linguistically appropriate health-care services. This is a key consideration, notably in terms of cervical cancer prevention and early screening.

In the United States, for example, it has been observed that since 1955, the cervical cancer mortality rate has considerably decreased, following the use of Pap tests as the main screening tool. The mortality rate continues to drop by close to 3% annually. Regular screening for cervical cancer with Pap tests continues to be a useful tool in the prevention and treatment of the disease (American Cancer Society, 2006; 2007).

According to "*Healthy People 2010*",⁷, the use of culture-specific information on cervical cancer for population groups is an essential strategy for reducing disparities in accessing quality health care, scaling up cervical cancer screening rates and improving information and public awareness on cervical cancer. This underscores the importance of designing IEC campaigns that are deeply rooted in the specific context of each sub-region of the African continent and of each country.

From the foregoing and to better understand the obstacles faced by the target groups, there is need for well-kept registers of cervical cancer cases, in which results are disaggregated by race, ethnicity and language. That would make it possible for each category of patients to be approached with a better understanding of obstacles to screening, with a view to finding tailored solutions thereto.

The IEC campaign is then directed towards women who present health-care gaps in respect of cervical cancer screening and, where possible, through an integrated approach that includes other priority problems they face at the local level. That would avoid a bottom-up approach and save resources.

The best public awareness strategy should take the form of a community organization that makes it possible to routinely invite the target women in a timely manner, with a reminder one week before the appointment. The methods employed will depend on each context: working women, housewives, women in the informal sector, etc. In the process to identify all the target women, those who miss their appointment should receive a reminder for a catch-up appointment. In addition to notification of the missed screening appointment, those who are literate could also receive a culturally appropriate education brochure to bring down barriers pertaining to their particular race or language. The literate group could be empowered to follow-up their illiterate peers living in the same street (in town) or in the same hamlet (in the village).

Studies have identified examples of cultural beliefs and obstacles that can affect the frequency or cause the absence of cervical cancer screening for women, which include :

- Beliefs about health and illness;
- The roles of multiple health providers;
- Family dynamics;
- Lack of trust in the medical system;
- The role of spirituality /religion;
- The role of family traditions;
- The role of the community;
- Language references.

This form of targeted awareness-raising is likely to yield greater results than the kind of mass campaigns that make no distinction between specific contexts (Raeborn & Rootman, 1998).

5.8 Support and ethical considerations

Cervical cancer screening programmes are absolutely essential if effective results are to be achieved. The same consideration applies to the vaccination of adolescent girls before the onset of sexual activity. Both issues raise ethical problems that must be addressed.

Certain African communities object to the vaccination of adolescents aged between 10 and 12 years on cultural and religious grounds, arguing that it will encourage young persons to initiate sexual activity at

⁷ <https://www.selecthealthofsc.com/firstchoice/provider/services/cultural/cultural-competency-cervical-cancer.aspx>

a very early age. A number of other considerations have emerged, as was seen with the immunization in general of children in the African Region (Blumenthal et al., 2007; Jegede, 2007).

Meanwhile, cervical cancer poses ethical challenges to health professionals. Screening risks, the cost-benefit of establishing the screening programme, the autonomy of patients and the constraints imposed on them, are some of the issues that have to be discussed with the communities in order to obtain their informed consent.

This situation is further compounded by the great complexity of the health care system, in a context where patients have scant health knowledge and information, and this significantly affects their capacity to seek care and receive treatment in a timely manner. In addition, the lack of health insurance, transportation services and social support further constrains access to health care. To be truly able to provide a health-care standard to all patients regardless of resources, health care systems must evolve to respond to the crucial needs of the population. This concern brings the problem of cervical cancer to the fore.

A photograph of a woman with dark hair, wearing a light blue blazer, sitting at a table and writing in a notebook. She is looking down at her work. In the background, another woman is visible, looking towards the camera. The entire image has a warm, orange-toned overlay. A semi-transparent white box is positioned in the lower half of the image, containing the text.

**GLOSSARY,
SOURCES OF INFORMATION,
CONTACTS AND NETWORKS**

Glossary

Absolute risk : A measure of the risk of a certain event occurring. As concerns cancer, absolute risk is the probability that a person free of a specific type of cancer at a given age will develop cancer over a certain period of time. For example, a 35-year-old woman, without any known risk factor for breast cancer, has an absolute risk of approximately 13.5% of developing breast cancer over a life span of 90 years, which means that one out of seven women will develop breast cancer.

Adenocarcinoma in situ (AIS) : A condition in which abnormal cells are observed in the glandular tissue that lines certain internal organs such as the uterus, lung, pancreas and colon. Adenocarcinoma in situ, which most often occurs in the endocervical canal of the uterus, can progress to cancer and spread to normal nearby tissue.

Adenocarcinoma: Cancer that starts in the glandular cells that line certain organs and make and release substances into the body, such as mucus, digestive juices, or other fluids. Examples include the ducts or lobules of the breast and the gland cells of the prostate. Most cancers of the skin, pancreas, lung, prostate and colon are adenocarcinomas.

Adenoma: A tumour that is not a cancer. It starts in the cells that resembles the gland cells of the epithelial tissues (a thin layer of tissue that covers the organs, glands and other structures of the body).

Adenosarcoma: A tumour that is a cross between an adenocarcinoma (a tumour that arises in the cells that resemble the gland cells of the epithelial tissues) and a sarcoma (a tumour that arises in connective or other support tissue such as bone, cartilage, fat, muscle and blood vessels). Wilms' tumour is an example of an adenosarcoma.

Adjuvant therapy: Treatment used in addition to the main treatment to reduce the risk of recurrence of the cancer. Adjuvant therapy may include hormone therapy, chemotherapy, radiation therapy or biological therapy.

Aggravating factor : Something that makes a condition worse. For example, tobacco smoke is an aggravating factor for asthma.

Anticancer antibiotic: A type of anticancer drug that blocks cell growth by interfering with DNA, the genetic material in cells. Also called an antitumour antibiotic or antineoplastic antibiotic

Anticancer therapy: Treatment to stop or prevent the occurrence of cancer.

Anticarcinogens: Substances that prevent or delay the development of cancer.

Antimitotic agent: A drug that inhibits mitosis, or cell division. The drug disrupts microtubules, which are structures that pull the cell apart when it divides. It is used in cancer treatment. Also called mitosis inhibitor.

Antineoplastics : Substances that block the formation of tumours (growths that may become cancerous).

Biopsy: The removal of a piece of body tissue to be examined by a pathologist. The pathologist may examine the tissue under a microscope or conduct other tests on the cells or tissues. There are different types of biopsy procedures. The most commonly practised types include: (1) incisional biopsy that removes only part of the suspicious area, enough to make a diagnosis; (2) excisional biopsy removes the entire tumour or abnormal area, and (3) needle biopsy.

Conization : Surgery to remove a cone-shaped abnormal piece of tissue from the cervix. A scalpel, a laser knife or an electrically heated loop can be used to remove the tissue. The tissue is then examined under the microscope for signs of disease. Conization can also be used to check for the possible existence of cervical cancer or to treat certain cervical conditions. Conization types include LEEP (Loop electro surgical excision procedure) and cold knife conization, also known as conization.

Counselling: The process by which a professional counsellor assists a person facing emotional or mental distress to understand and deal with their personal problems.

Local or localized cancer: An invasive cancer that has not spread to distant parts of the body.

Local therapy: Treatment that targets cells in a tumour and adjacent region.

Low grade: A term used to describe cells and tissues that look almost normal under a microscope. Low-grade neoplastic cells look more like normal cells and tend to develop and spread more slowly than high-grade neoplastic cells. The cancer grade may be used to establish a treatment plan and to determine the prognosis. Usually, low-grade lesions have a better prognosis than high-grade ones, and do not always need to be treated immediately.

Low-grade Squamous Intraepithelial Lesions (LSIL): Slightly abnormal cells on the surface of the cervix. Low-grade squamous intraepithelial lesions are caused by certain types of human papillomavirus (HPV) and constitute the abnormal result obtained with a Pap test. They generally resolve by themselves without treatment, but sometimes, they develop into cancer and invade normal surrounding and nearby tissues. Low-grade squamous intraepithelial lesions are sometimes called mild dysplasia.

Malignant tumour: Refers to diseases where abnormal cells grow out of control and can invade surrounding tissue. Malignant cells can also spread to other parts of the body through the blood and lymphatic systems.

Radiotherapy: Treatment with high-energy rays or particles to kill cancer cells and shrink tumours. The radiation may come from outside the body (external radiation) or from radioactive materials placed in the body near the cancerous cells (brachytherapy or internal radiation). Systemic radiotherapy uses radioactive substances, such as radiolabelled monoclonal antibodies that circulate in the blood and attach to the cancer cells. Also known as radiation.

Remission : Complete or partial disappearance of the signs and symptoms of cancer in response to treatment. In partial remission, some, but not all of the signs and symptoms of the cancer disappear. In complete remission, all the signs and symptoms of the cancer disappear, but the cancer could still remain in the body.

Screening: The search for disease in people who do not have any signs or symptoms. Through screening, it is possible to detect diseases at an early stage and thus improve the chances of curing them. Examples of cancer screening tests include mammography (for the breasts), colonoscopy (for the colon), Pap smear and HPV test (for the cervix). Screening can also include conducting a genetic test to determine the risk of developing a hereditary disease.

Social service: A community resource that assists people in need. Such services may include providing assistance to secure a medical appointment or reminding the persons concerned of such appointments, delivering medicines and meals at home, providing home-based nursing care, helping to pay medical bills that are not covered by insurance, providing medical material and housekeeping assistance.

Wilms' tumour: A disease in which malignant cells (cancer) arise in the kidneys and can spread to the surrounding lungs, liver and lymph nodes. Wilms' tumour generally occurs in children below the age of 5 years.

Sources of Information, Contacts and Networks

- **WHO sites :**

- <http://www.who.int/reproductivehealth/topics/cancers/en/>
- <http://www.who.int/mediacentre/factsheets/fs380/en/>
- <http://www.who.int/reproductivehealth/publications/cancers/9789241505147/en/>
- http://www.who.int/cancer/detection/cervical_cancer_screening/en/

- **United States sites:**

- <http://www.cancer.gov>.
- <http://www.cdc.gov/cancer/cervical/>
- <http://www.cancer.gov/cancertopics/types/cervical>
- <http://www.cdc.gov/cancer/cervical/statistics/>
- <http://www.cancer.org/cancer/news/new-screening-guidelines-for-cervical-cancer>
- <http://www.nccc-online.org/index.php/cervicalcancer>

- **United Kingdom sites:**

- <http://www.cancerresearchuk.org/cancer-info/cancerstats/types/cervix/>
- <http://www.cancerresearchuk.org/cancer-info/cancerstats/keyfacts/cervical-cancer/uk-cervical-cancer-statistics>
- <http://www.cancerresearchuk.org/cancer-info/cancerstats/types/cervix/incidence/uk-cervical-cancer-incidence-statistics>

- **International sites:**

- http://www.wcrf.org/cancer_statistics/cancer_facts/cervical_cancer.php
- http://www.wcrf.org/cancer_statistics/data_specific_cancers/cervical_cancer_statistics.php

A photograph of a woman with short dark hair, wearing a light blue shirt, writing in a notebook. She is looking down at her work. In the background, other people are visible but out of focus. The entire image has a warm, orange-toned overlay.

ANNEXES

ANNEXES

PAP (PAPANICOLAOU) TEST

To perform the test, the doctor asks the woman to lie down on the examining table. He then inserts an instrument called a speculum (Figure 1, the metal device) into her vagina to open it up and allow him to see the cervix. He then collects a sample of cells from the cervix by using a spatula and a small brush or a special broom (Figures 1 and 3). He then sends the sample to the laboratory to be analysed. The Pap test is not painful, but it may be uncomfortable.



Figure 1 : Instruments used in performing the Pap test

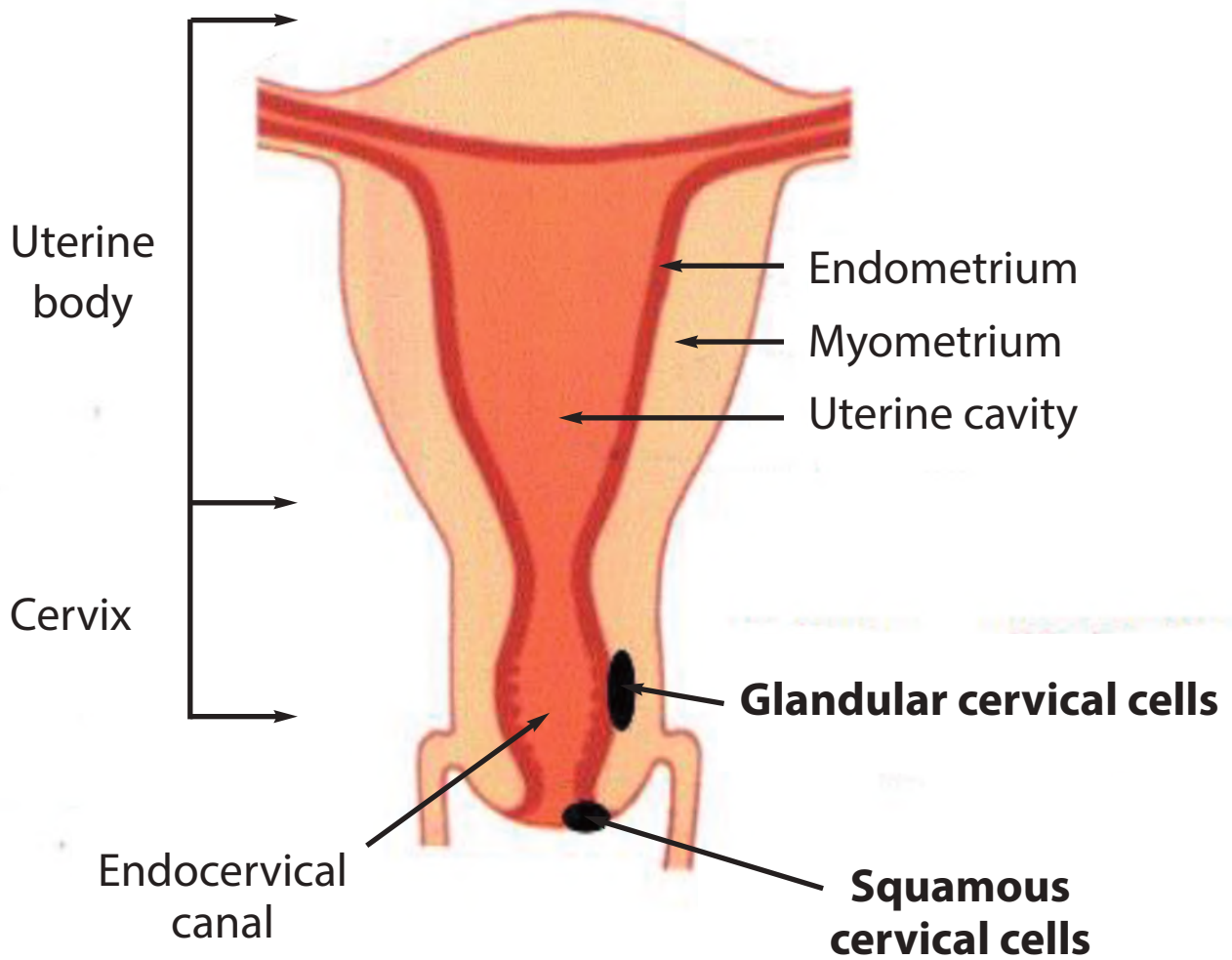


Figure 2 : The cervix

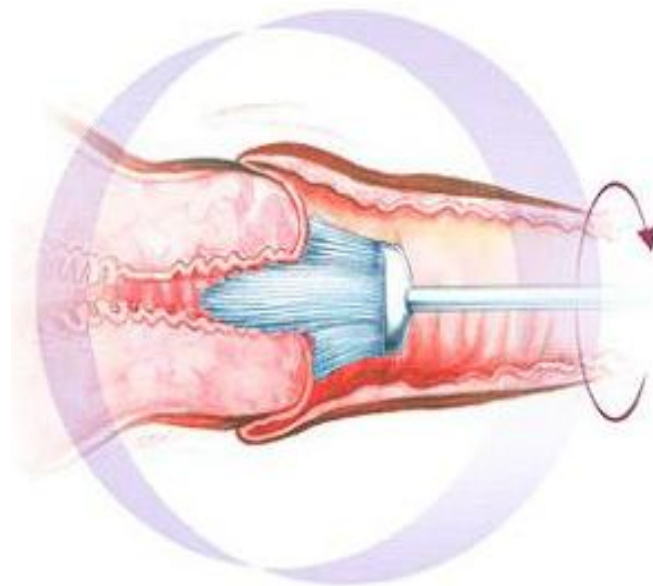


Figure 3 : Collecting a sample for the Pap test

Source : http://www.paptestinfo.ca/having_a_pap_test/index_f.html



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