

Integrating Health Care for
Sexual and Reproductive Health and Chronic Diseases

Comprehensive Cervical Cancer Control

A guide to essential practice



World Health
Organization

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Organization**

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ABBREVIATIONS AND ACRONYMS USED IN THIS GUIDE

| | |
|--------|---|
| AGC | atypical glandular cells |
| AIDS | acquired immunodeficiency syndrome |
| AIS | adenocarcinoma in situ |
| ANC | antenatal care |
| ASC-H | atypical squamous cells: cannot exclude a high-grade squamous intra-epithelial lesion |
| ASC-US | atypical squamous cells of undetermined significance |
| CHW | community health worker |
| CIN | cervical intraepithelial neoplasia |
| CIS | carcinoma in situ |
| CT | computerized tomography |
| DNA | deoxyribonucleic acid |
| EBRT | external beam radiotherapy |
| ECC | endocervical curettage |
| FAQ | frequently asked question |
| FIGO | International Federation of Gynecology and Obstetrics |
| FP | family planning |
| HBC | home-based care |
| HDR | high dose rate |
| HIV | human immunodeficiency virus |
| HPV | human papillomavirus |
| HSIL | high-grade squamous intraepithelial lesion |
| HSV | herpes simplex virus |
| IEC | information, education and communication |
| IUD | intrauterine device |
| LDR | low dose rate |
| LEEP | loop electrosurgical excision procedure |
| LLETZ | large loop excision of the transformation zone |
| LSIL | low-grade squamous intraepithelial lesion |
| MRI | magnetic resonance imaging |

| | |
|-------|---------------------------------------|
| NCCP | national cancer control programme |
| NSAID | nonsteroidal anti-inflammatory drug |
| OC | oral contraceptives |
| PHC | primary health care |
| PID | pelvic inflammatory disease |
| PS | practice sheet |
| RTI | reproductive tract infection |
| SCJ | squamocolumnar junction |
| SIL | squamous intraepithelial lesion |
| STI | sexually transmitted infection |
| VIA | visual inspection with acetic acid |
| VILI | visual inspection with Lugol's iodine |

PREFACE

Cancer is being diagnosed more and more frequently in the developing world. The recent World Health Organization report, *Preventing chronic diseases: a vital investment*, projected that over 7.5 million people would die of cancer in 2005, and that over 70% of these deaths would be in low- and middle-income countries. The importance of the challenge posed by cancer was reiterated by the World Health Assembly in 2005, in Resolution 58.22 on Cancer Prevention and Control, which emphasized the need for comprehensive and integrated action to stop this global epidemic.

Cervical cancer is the second most common type of cancer among women, and was responsible for over 250 000 deaths in 2005, approximately 80% of which occurred in developing countries. Without urgent action, deaths due to cervical cancer are projected to rise by almost 25% over the next 10 years. Prevention of these deaths by adequate screening and treatment (as recommended in this Guide) will contribute to the achievement of the Millennium Development Goals.

Most women who die from cervical cancer, particularly in developing countries, are in the prime of their life. They may be raising children, caring for their family, and contributing to the social and economic life of their town or village. Their death is both a personal tragedy, and a sad and unnecessary loss to their family and their community. Unnecessary, because there is compelling evidence – as this Guide makes clear – that cervical cancer is one of the most preventable and treatable forms of cancer, as long as it is detected early and managed effectively.

Unfortunately, the majority of women in developing countries still do not have access to cervical cancer prevention programmes. The consequence is that, often, cervical cancer is not detected until it is too late to be cured. An urgent effort is required if this situation is to be corrected. All women have a right to accessible, affordable and effective services for the prevention of cervical cancer. These services should be delivered as part of a comprehensive programme to improve sexual and reproductive health. Moreover, a concerted and coordinated effort is required to increase community awareness about screening for the prevention and detection of cervical cancer.

A great deal of experience and evidence-based knowledge is available for the prevention (and treatment) of cervical cancer and related mortality and morbidity. However, until now, this information was not available in one easy-to-use guide. This publication – produced by WHO and its partners – is designed to provide comprehensive practical advice to health care providers at all levels of the health care system on how to prevent, detect early, treat and palliate cervical cancer. In particular, the Guide seeks to ensure that health care providers at the primary and secondary levels will be empowered to use the best available knowledge in dealing with cervical cancer for the benefit of the whole community.

We call on all countries that have not already done so to introduce effective, organized control programmes for cervical cancer as recommended in this Guide. Together, we can significantly reduce the heavy burden of this disease and its consequences.

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INTRODUCTION

ABOUT THE GUIDE

Scope and objectives of the Guide

This Guide is intended to help those responsible for providing services aimed at reducing the burden posed by cervical cancer for women, communities and health systems. It focuses on the knowledge and skills needed by health care providers, at different levels of care, in order to offer quality services for prevention, screening, treatment and palliation of cervical cancer. The Guide presents guidelines and up-to-date, evidence-based recommendations covering the full continuum of care. Key recommendations are included in each chapter; a consolidated list is given on pages 11–12.

The four levels of care referred to throughout this Guide are:

- the community;
- the health centre or primary care level;
- the district hospital or secondary care level;
- the central or referral hospital or tertiary care level.

A detailed description of each level is given on page 9.

The Guide does not cover programme management, resource mobilization, or the political, legal and policy-related activities associated with cervical cancer control.

Adaptation

This Guide provides broadly applicable recommendations and may need to be adapted to local health systems, needs, language and culture. Information and suggestions on adaptation are available elsewhere (see list of additional resources). The Guide and its recommendations can also be used as a basis for introducing or adapting national protocols, and for modifying policies and practices.

The target audience

This Guide is intended primarily for use by health care providers working in cervical cancer control programmes in health centres and district hospitals in settings with limited resources. However, it may also be of interest to community and tertiary-level providers, as well as workers in other settings where women in need of screening or treatment might be reached.

The health care team

In an ideal cervical cancer control programme, providers work as a team, performing in a complementary and synergistic manner, and maintaining good communication within

and between levels. In some countries, the private and the nongovernmental sectors are important providers of services for cervical cancer. Providers in these sectors should be integrated in the health care team where relevant. Some possible roles of health care providers at different levels of the health care system are as follows:

- Community health workers (CHWs) may be involved in raising awareness of cervical cancer in the community, motivating and assisting women to use services, and following up those who have been treated at higher levels of care when they return to their community.
- Primary health care providers can promote services and conduct screening and follow-up, and refer women to higher levels as necessary.
- District-level providers perform a range of diagnostic and treatment services, and refer patients to higher and lower levels of care.
- Central-level providers care for patients with invasive and advanced disease, and refer them back to lower levels, when appropriate.

Using the Guide

This Guide can be used by health care providers, supervisors and trainers:

- as a reference manual, providing basic, up-to-date information about prevention, screening, diagnosis and treatment of cervical cancer;
- to design preservice and in-service education and training, and as a self-education tool;
- as a review of prevention and management of cervical cancer;
- to find evidence-based advice on how to handle specific situations;
- to understand how the roles of different providers are linked with each other at the various levels of the health care system.

The Guide can be used as a whole, or users can focus on the sections that are relevant to their practice. Even if it is used selectively, we strongly recommend that readers should review the recommendations appearing on pages 11–12 in their entirety.

The contents

The Guide is composed of seven chapters and associated practice sheets, nine annexes and a glossary.

Each *chapter* includes:

- a description of the role and responsibilities of first- and second-level providers in relation to the specific topic of the chapter;
- a story illustrating and personalizing the topic of the chapter;

- essential background information on the subject of the chapter, followed by discussion of established and evolving practices in clinical care, and recommendations for practice, as appropriate;
- information on services at each of the four levels of the health care system;
- counselling messages to help providers communicate with women about the services they have received and the follow-up they will need;
- a list of additional resources.

Most of the chapters have associated *practice sheets*. These are short, self-contained documents containing key information on specific elements of care that health care providers may need to deliver, for example, how to take a Pap smear or how to perform cryotherapy. Counselling is included as an integral part of each procedure described. Practice Sheets 13–17 relate to procedures carried out by specialists. The information provided in these sheets can help other health care providers to explain the procedure to the patient, to counsel her, and to treat particular problems that may arise after the intervention.

The practice sheets can be individually copied or adapted.¹

The *annexes* detail specific practice components, using internationally established protocols (e.g. management flowcharts and treatment protocols) and strategies to enhance service quality (e.g. infection prevention).

The *glossary* contains definitions of scientific and technical terms used in the Guide.

Key principles and framework for this document

Principles

The approach of this Guide is based on the following principles:

- the right of everyone to equitable, affordable and accessible health care;
- reproductive health rights, as formulated in the Programme of Action adopted at the 1994 International Conference on Population and Development in Cairo (paragraph 7.6);
- the ethical principles of justice, autonomy and beneficence as defined and discussed in the Declaration of Helsinki and the International Ethical Guidelines for Biomedical Research Involving Human Subjects prepared by the Council of International Organizations of Medical Sciences (CIOMS) and WHO;

¹ The practice sheets are not intended to be used by a novice to learn how to carry out a procedure. They are intended as job aids, to remind trained providers of the essential steps and to help them to educate, counsel and correctly explain services to women and their families. They can also be used as a checklist to document competency as part of supportive supervision.

- a gender-based perspective: the discussion considers gender-related factors that may affect the power balance between men and women, reduce women's power of self-determination, and affect the provision and receipt of services.

Underlying framework

The following assumptions and context underlie the presentation of material in this Guide:

- All the interventions recommended are based on sound scientific evidence.
- Comprehensive control of cervical cancer should be undertaken in the context of a national cancer control programme (NCCP).
- Cervical cancer control should, as far as possible, be integrated into existing sexual and reproductive health services at the primary health care level.
- Screening and early diagnosis will lead to reduced morbidity and mortality only if they are integrated with follow-up and management of all preinvasive lesions and invasive cancers detected.
- Resources are available or will be developed to strengthen health infrastructure, and make available the following:
 - well trained providers;
 - necessary equipment and supplies;
 - a functional referral system and communication between different teams, services, health system levels and the community;
 - a quality assurance system.

The Guide's development

Evidence for the information in the Guide is based on the following:

- a review of the relevant literature;
- input from a Technical Advisory Group (TAG), consisting of experts in different disciplines from developing and developed countries, who elaborated and reviewed the Guide;
- extensive written review of drafts by a large number of external experts;
- review by WHO staff;
- information provided by the International Agency for Research on Cancer (IARC), including the handbook, *Cervix cancer screening*, published in 2005;
- in-country review (pre-field-testing) in six countries.

The evidence base for all the guidance presented in this Guide will be published separately as a companion document.

LEVELS OF THE HEALTH CARE SYSTEM ²

In the community



COMMUNITY LEVEL

Includes individuals and organizations; community-based, faith-based and other nongovernmental organizations; and community and home-based palliative care services. Also included are health posts or “cases de santé”, usually staffed by an auxiliary nurse or community health worker.

At the health centre



HEALTH CENTRE – PRIMARY CARE LEVEL

Refers to primary care facilities with trained staff and regular working hours. Maternity and minimal laboratory services may be available.

Providers at this level include nurses, auxiliary nurses or nursing assistants, counsellors, health educators, medical assistants, clinical officers and, sometimes, physicians.

At the district hospital



DISTRICT HOSPITAL – SECONDARY CARE LEVEL

Typically, a hospital that provides general medical, paediatric, and maternity services, limited surgical care, inpatient and outpatient care, and, sometimes, intermittent specialized care. Patients may be referred from health centres and private practitioners in the district. Laboratory services may include cytology and histopathology.

Providers include generalist physicians or clinical officers, nurses, pharmacy technicians or dispensing clerks, medical assistants, nurse assistants, and laboratory technology assistants, possibly a gynaecologist and a cytotechnologist. Private and mission hospitals are often present at this level.

At the central hospital



CENTRAL OR REFERRAL HOSPITAL – TERTIARY CARE LEVEL

Tertiary care hospitals provide general and specialized care for complex cases and acutely ill patients, including surgery, radiotherapy and multiple outpatient and inpatient services. General medical, acute and chronic care clinics are offered. The most complete public-sector diagnostic and reference laboratory services are available with pathologists and cytotechnologists, radiology, and diagnostic imaging.

Providers may include gynaecologists, oncologists and radiotherapists, as well as those present at lower levels of care.

² This description does not include services and providers outside the formal health system: traditional healers, traditional birth attendants, medicine sellers, etc., who also play important roles.

ESSENTIAL READING

- Alliance for Cervical Cancer Prevention. *Planning and implementing cervical cancer prevention programs: a manual for managers*. Seattle, WA, 2004.
- IARC. *Cervix cancer screening*. Lyon, IARC Press, 2005 (IARC Handbooks of Cancer Prevention, Vol. 10).
- WHO. *Cervical cancer screening in developing countries*. Report of a WHO Consultation. Geneva, 2002.
- WHO. *Comprehensive cervical cancer control. A guide for essential practice, evidence base*. Geneva (in preparation).
- Alliance for Cervical Cancer Prevention (www.alliance-cxca.org).
- International Agency for Research on Cancer (www.iarc.fr).
- Program for Appropriate Technology in Health (www.path.org).
- EngenderHealth (www.engenderhealth.org).
- JHPIEGO (www.JHPIEGO.org).
- *Cancer prevention and control*. Resolution 58.22 of the 58th World Health Assembly (www.who.int/gb/ebwha/pdf_files/WHA58/WHA58_22-en.pdf).
- WHO Cancer Control Programme (www.who.int/cancer).
- WHO Department on Reproductive Health and Research (www.who.int/reproductive-health).

WHO RECOMMENDATIONS

- Health education should be an integral part of comprehensive cervical cancer control.
- Cytology is recommended for large-scale cervical cancer screening programmes, if sufficient resources exist.

Recommended target ages and frequency of cervical cancer screening:

- New programmes should start screening women aged 30 years or more, and include younger women only when the highest-risk group has been covered. Existing organized programmes should not include women less than 25 years of age in their target populations.
 - If a woman can be screened only once in her lifetime, the best age is between 35 and 45 years.
 - For women over 50 years, a five-year screening interval is appropriate.
 - In the age group 25-49 years, a three-year interval can be considered if resources are available.
 - Annual screening is not recommended at any age.
 - Screening is not necessary for women over 65 years, provided the last two previous smears were negative.
- Visual screening methods (using acetic acid (VIA) or Lugol's iodine (VILI)), at this time, are recommended for use only in pilot projects or other closely monitored settings. These methods should not be recommended for postmenopausal women.
 - Human papillomavirus (HPV) DNA tests as primary screening methods, at this time, are recommended for use only in pilot projects or other closely monitored settings. They can be used in conjunction with cytology or other screening tests, where sufficient resources exist. HPV DNA-based screening should not begin before 30 years of age.
 - There is no need to limit the use of hormonal contraceptives, despite the small increased risk of cervical cancer noted with use of combined oral contraceptives.
 - Women should be offered the same cervical cancer screening and treatment options irrespective of their HIV status.
 - Colposcopy is recommended only as a diagnostic tool and should be performed by properly trained and skilled providers.

continued next page

- Precancer should be treated on an outpatient basis whenever possible. Both cryotherapy and the loop electrosurgical excision procedure (LEEP) may be suitable for this purpose, depending on eligibility criteria and available resources.
- Histological confirmation of cervical cancer and staging must be completed before embarking on further investigations and treatment.
- Surgery and radiotherapy are the only recommended primary treatment modalities for cervical cancer.
- Brachytherapy is a mandatory component of curative radiotherapy of cervical cancer.
- Surgery for treatment of cervical cancer should be performed only by surgeons with focused training in gynaecological cancer surgery.
- The needs of women with incurable disease should be addressed by using existing palliative care services or establishing new ones. Providers at all care levels need to be trained and must have the resources necessary to manage the most common physical and psychosocial problems, with special attention to pain control.
- A comprehensive cervical cancer programme should ensure that opioid, non-opioid and adjuvant analgesics, particularly morphine for oral administration, are available.



CHAPTER 1: BACKGROUND

CHAPTER 1: BACKGROUND

Key points

- Cervical cancer is one of the leading causes of cancer death in women in the developing world.
- The primary underlying cause of cervical cancer is infection with human papillomavirus (HPV), a very common virus that is sexually transmitted.
- Most HPV infections resolve spontaneously; those that persist may lead to the development of precancer and cancer.
- It usually takes 10 to 20 years for precursor lesions caused by HPV to develop into invasive cancer.
- Effective interventions against cervical cancer exist, including screening for, and treatment of, precancer and invasive cancer.
- An estimated 95% of women in developing countries have never been screened for cervical cancer.
- Over 80% of women newly diagnosed with cervical cancer live in developing countries; most are diagnosed when they have advanced disease.
- The cure rate for invasive cervical cancer is closely related to the stage of disease at diagnosis and the availability of treatment. If left untreated, cervical cancer is almost always fatal.
- Because of its complexity, cervical cancer control requires a team effort and communication between health care providers at all levels of the health care system.

ABOUT THIS CHAPTER

Cancer control programmes can go a long way in preventing cervical cancer and reducing its morbidity and mortality. This chapter explains why organized cervical cancer control programmes are urgently needed. It outlines the burden that the disease places on women and on health services, summarizing global statistics and describing regional and intracountry inequities. The chapter also describes essential elements of successful programmes, including the rationale for selection of the target group for screening, as well as barriers to their implementation, concluding that cancer control needs to be based on a constant team effort.

WHY FOCUS ON CERVICAL CANCER?

In 2005, there were, according to WHO projections, over 500 000 new cases of cervical cancer, of which over 90% were in developing countries. It is estimated that over 1 million women worldwide currently have cervical cancer, most of whom have not been diagnosed, or have no access to treatment that could cure them or prolong their life. In 2005, almost 260 000 women died of the disease, nearly 95% of them in developing countries, making cervical cancer one of the gravest threats to women's lives. In many developing countries, access to health services is limited and screening for cervical cancer either is non-existent or reaches few of the women who need it. In these areas, cervical cancer is the most common cancer in women and the leading cause of cancer death among women.

The primary underlying cause of cervical cancer is infection with one or more high-risk types of the human papillomavirus (HPV), a common virus that is sexually transmitted. Most new HPV infections resolve spontaneously; if it persists, infection may lead to the development of precancer which, left untreated, can lead to cancer. As it usually takes 10–20 years for precursor lesions caused by HPV to develop into invasive cancer, most cervical cancers can be prevented by early detection and treatment of precancerous lesions.

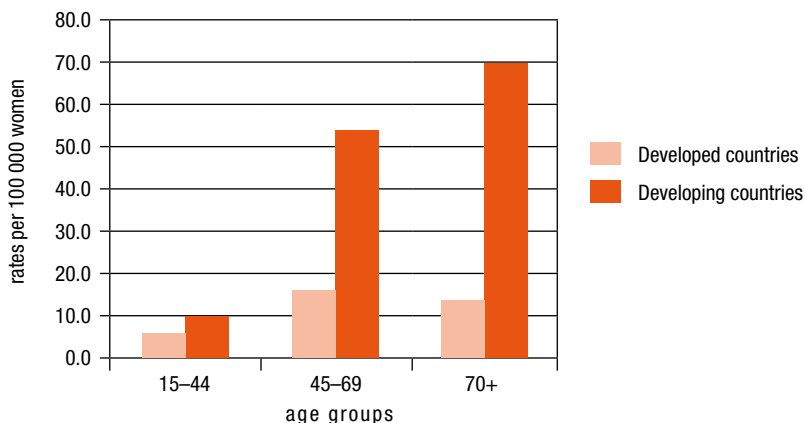
Experience in developed countries has shown that well planned, organized screening programmes with high coverage can significantly reduce the number of new cases of cervical cancer and the mortality rate associated with it. There is also evidence that general awareness about cervical cancer, effective screening programmes, and the improvement of existing health care services can reduce the burden of cervical cancer for women and for the health care system. There is a huge difference in the incidence of, and mortality from, cervical cancer between developed and developing countries, as shown in Figures 1.1 and 1.2.

The main reasons for the higher incidence and mortality in developing countries are:

- lack of awareness of cervical cancer among the population, health care providers and policy-makers;
- absence or poor quality of screening programmes for precursor lesions and early-stage cancer. In women who have never been screened, cancer tends to be diagnosed in its later stages, when it is less easily treatable;
- limited access to health care services;
- lack of functional referral systems.

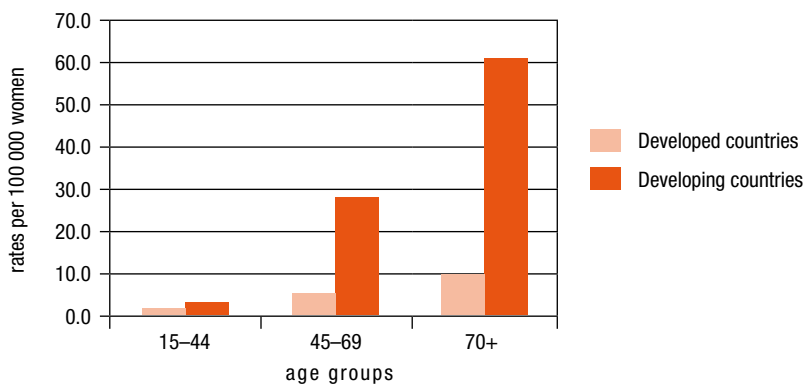
The difference between developed and developing countries reflects stark inequalities in health status, and represents a challenge for health services.

Figure 1.1 Age-standardized incidence rates of cervical cancer in developed and developing countries (2005)



Source: WHO. *Preventing chronic diseases: a vital investment*. Geneva, 2005.

Figure 1.2 Age-standardized mortality rates of cervical cancer in developed and developing countries (2005)

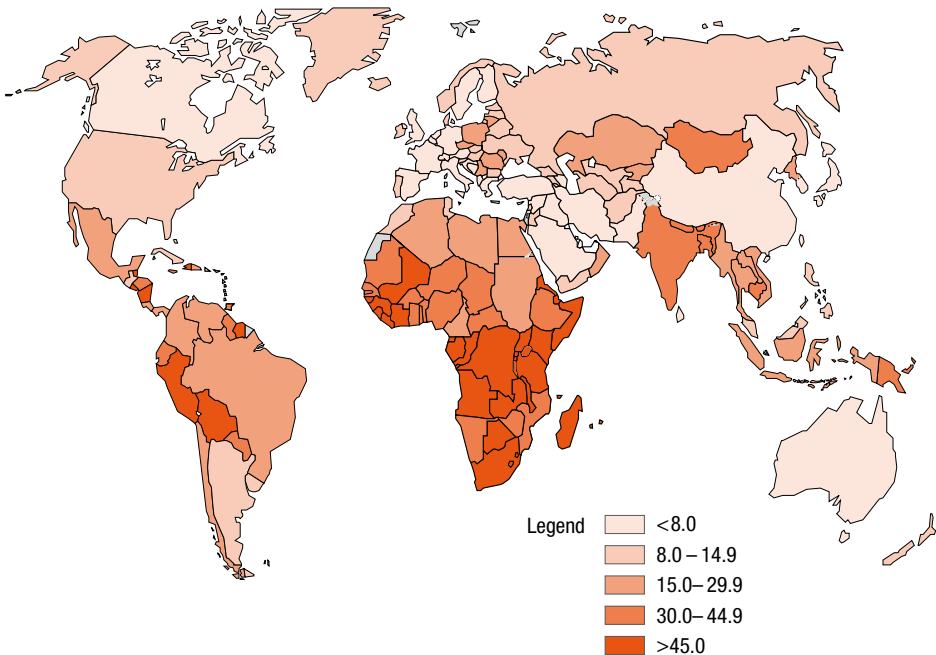


Source: WHO. *Preventing chronic diseases: a vital investment*. Geneva, 2005.

WHO IS MOST AFFECTED BY CERVICAL CANCER?

Cervical cancer is rare in women under 30 years of age and most common in women over 40 years, with the greatest number of deaths usually occurring in women in their 50s and 60s. Cervical cancer occurs worldwide, but the highest incidence rates are found in Central and South America, eastern Africa, South and South-East Asia, and Melanesia. Figure 1.3 shows the global incidence of cervical cancer.

Figure 1.3 Worldwide incidence rates of cervical cancer per 100,000 females (all ages), age-standardised to the WHO standard population (2005)



Over the past three decades, cervical cancer rates have fallen in most of the developed world, probably as a result of screening and treatment programmes. In contrast, rates in most developing countries have risen or remained unchanged. Inequalities also exist in the developed world, where rural and poorer women are at greatest risk of invasive cervical cancer.

Left untreated, invasive cervical cancer is almost always fatal, causing enormous pain and suffering for the individual and having significant adverse effects on the welfare of their families and communities.

BARRIERS TO CONTROL OF CERVICAL CANCER

A number of countries have implemented cervical cancer control programmes in recent decades; some of these have produced significant decreases in incidence and mortality, while others have not. Among the reasons for failure are the following:

- Political barriers:
 - lack of priority for women's sexual and reproductive health;
 - lack of national policies and appropriate guidelines.
- Community and individual barriers:
 - lack of awareness of cervical cancer as a health problem;
 - attitudes, misconceptions and beliefs that inhibit people discussing diseases of the genital tract.
- Economic barriers (lack of resources).
- Technical and organizational barriers, caused by poorly organized health systems and weak infrastructure.

Lack of priority for women's health

The lack of priority given to women's health needs, particularly those not related to maternity and family planning, was a focus of the International Conference on Population and Development, held in Cairo in 1994. At this Conference, countries made strong commitments to reframe women's health in terms of human rights and to promote an integrated vision of reproductive health care. Significant advances have occurred in some areas, but cervical cancer has still not received sufficient attention in many countries, despite its high incidence, morbidity and mortality.

Lack of evidence-based national guidelines

National guidelines for cervical cancer control may not exist or may not reflect recent evidence and local epidemiological data. Generic guidelines, available in the literature, are often not used or not adapted to local needs. In many programmes, scarce resources are wasted in screening young women attending family planning and antenatal clinics, and in screening more frequently than necessary. Resources would be better used to reach older women, who are at greater risk and who generally do not attend health services.

Poorly organized health systems and infrastructure

A well functioning health system, with the necessary equipment and trained providers, is essential for prevention activities, screening, diagnosis, linkages for follow-up and treatment, and palliative care.

Lack of awareness

In many places, cervical cancer has been ignored by decision-makers, health care providers and the population at large. Decision-makers may not be aware of the tremendous burden of disease and magnitude of the public health problem caused by this cancer. Providers may lack accurate information on its natural history, detection and treatment. Many women and men have not heard of cervical cancer and do not recognize early signs and symptoms when they occur. Women at risk may not be aware of the need to be tested, even when they do not have any symptoms.

Attitudes, misconceptions and beliefs

Attitudes and beliefs about cervical cancer among the general population and health care providers can also present barriers to its control. Cancer is often thought to be an untreatable illness, leading inevitably to death. In addition, the female genital tract is often considered private and women may be shy about discussing symptoms related to it. This is especially true in settings where the health care provider is a man, or is from a different culture. Destigmatizing discussion of the female genital tract may be an important strategy in encouraging women to be screened and to seek care if they have symptoms suggestive of cervical cancer.

Lack of resources

In the vast majority of settings where competition for limited funds is fierce, cervical cancer has remained low on the agenda. In these settings, cervical cancer is often not considered a problem or a funding priority.

THE FOUR COMPONENTS OF CERVICAL CANCER CONTROL

Within a national cancer control programme, there are four basic components of cervical cancer control:

- primary prevention;
- early detection, through increased awareness and organized screening programmes;
- diagnosis and treatment;
- palliative care for advanced disease.

Primary prevention means prevention of HPV infection and cofactors known to increase the risk of cervical cancer, and includes:

- education and awareness-raising to reduce high-risk sexual behaviours;
- implementation of locally appropriate strategies to change behaviour;

- the development and introduction of an effective and affordable HPV vaccine;
- efforts to discourage tobacco use, including smoking (which is a known risk factor for cervical and other cancers).

Early detection includes:

- organized screening programmes, targeting the appropriate age group and with effective links between all levels of care;
- education for health care providers and women in the target group, stressing the benefits of screening, the age at which cervical cancer most commonly occurs, and its signs and symptoms.

Diagnosis and treatment includes:

- follow-up of patients who are positive on screening, to ensure that a diagnosis is made and the disease appropriately managed;
- treatment of precancer, using relatively simple procedures, to prevent the development of cancer;
- treatment of invasive cancer, including surgery, radiotherapy and chemotherapy.

Palliative care includes:

- symptomatic relief for bleeding, pain and other symptoms of advanced cancer and for the side-effects caused by some treatments;
- compassionate general care for women whose cancer cannot be cured;
- involvement of the family and the community in caring for cancer patients.

Cervical cancer control can be achieved if:

- A national policy on cervical cancer control exists, based on the natural history of the disease and on local prevalence and incidence in different age groups.
- Financial and technical resources are allocated to support the policy.
- Programmes of public education and advocacy for prevention are in place to support national policies.
- Screening is organized, rather than opportunistic, and follow-up and quality control are assured (see Chapter 4).
- The largest possible number of women in the target group are screened.
- Screening services are linked to treatment of precancer and invasive cancer.
- A health information system is in place to monitor achievements and identify gaps.

A TEAM APPROACH TO CERVICAL CANCER CONTROL

Because of its complexity, cervical cancer control requires a multidisciplinary team effort and communication between providers at all levels of the health care system.

- Community health workers (CHWs) need to communicate with nurses and physicians from primary health care settings, and sometimes with laboratory personnel and specialists at the district and central levels.
- Communication within and between health facilities, and links with community-based workers, are essential to coordinate services, to give women the best possible care, and to improve outcomes. Two-way communication is particularly important for the management of women with invasive cancer, who are treated in hospital and then return to the community to recover or to be cared for.
- Secondary and tertiary care providers, such as surgeons, radiotherapists and nurses, need to communicate in plain language with primary care providers and CHWs. It can be helpful, for example, for central hospital-based physicians to go to communities from time to time to talk with CHWs and to see for themselves the problems in low-resource settings of caring for women who have been treated for cancer.
- Facility managers and supervisors can foster links by communicating with providers, and by monitoring and improving the quality of the existing system.
- Managers must ensure that supplies are available and that there are adequate incentives for good work.
- The cervical cancer control team must obtain the support and commitment of regional and national decision-makers.

Tips for building a team

- Ensure good communication between team members through regular meetings where information is exchanged and staff can air and solve work-related problems.
- Foster mutual trust and caring among staff, including supervisors, to stimulate genuine interest in each other.
- Keep motivation high by providing training and support, with regular updates, supervision and mentoring.
- Ensure a pleasant, clean, safe work environment, with adequate supplies and staffing.
- Reward staff adequately for their work.

ADDITIONAL RESOURCES

- Alliance for Cervical Cancer Prevention. *Planning and implementing cervical cancer prevention programs: a manual for managers*. Seattle, WA, 2004.
- Alliance for Cervical Cancer Prevention Website: www.alliance-cxca.org.
- International Agency for Research on Cancer Website: www.iarc.fr.
- World Bank. *World development indicators 2003*. Washington, DC, 2003.
- World Health Organization. *National cancer control programmes*, 2nd ed. Geneva, 2002.

2

CHAPTER 2: ANATOMY OF THE FEMALE PELVIS AND NATURAL HISTORY OF CERVICAL CANCER

CHAPTER 2: ANATOMY OF THE FEMALE PELVIS AND NATURAL HISTORY OF CERVICAL CANCER

Key points

- Basic knowledge of the anatomy of the female pelvis and the natural history of cervical cancer is essential for understanding the disease and communicating messages about prevention, screening, treatment and care.
- The cervix undergoes normal changes from birth until after the menopause.
- The cervical transformation zone is the area where the great majority of precancers and cancers arise.
- The transformation zone is larger during puberty and pregnancy and in women who have used oral contraceptives (OCs) for a long time, which may increase exposure to HPV. This may explain why early sexual activity, multiple pregnancies and, to a lesser extent, long-term use of OCs, are cofactors for the later development of cervical cancer.
- After the menopause, the transformation zone may extend into the inner cervical canal, requiring the use of an endocervical speculum to see it completely.
- From the time that mild dysplasia is identified, it usually takes 10 to 20 years for invasive cancer to develop; this means that cervical cancer control is possible through screening and treatment.
- HPV infection is a necessary, but not a sufficient, cause of cervical cancer; host factors, as well as behavioural and environmental factors, may facilitate cancer development.

ABOUT THIS CHAPTER

The natural history of cervical cancer, with its usually slow progression from early precancer to invasive disease, provides the rationale for screening, early detection and treatment. To understand how cervical precancer and cancer develop and progress, it is necessary to have a basic understanding of female pelvic anatomy, including the blood vessels, lymphatic drainage systems and nerve supply. This chapter describes the pelvic anatomy, and contains additional information for non-specialists on normal and abnormal changes that occur in the cervix and how these relate to screening and treatment for precancer and cancer. With this understanding, health care providers will be able to communicate accurate information on cervical cancer prevention, screening and management to women, patients, and their families.

ANATOMY AND HISTOLOGY

This section describes the female pelvic anatomy, the covering layers of the cervix or epithelia, and the normal physiological changes that take place during a woman's life cycle, and identifies the area most likely to develop precancerous abnormalities.

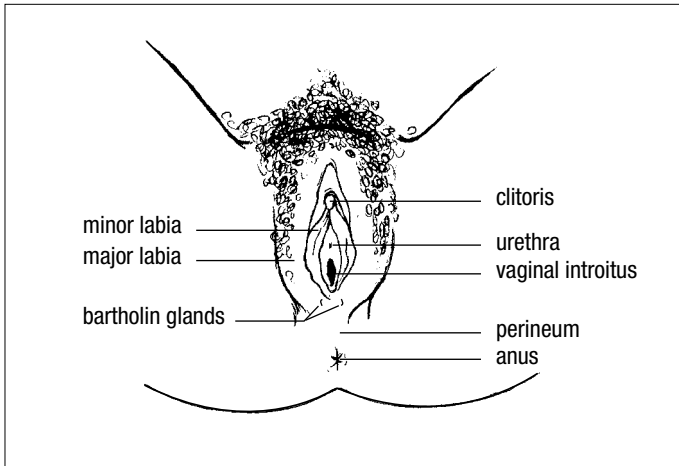
Female pelvic anatomy

An understanding of the anatomy of the female pelvic structures will help providers involved in cervical cancer programmes to:

- perform their tasks, including screening and diagnosis;
- interpret laboratory and treatment procedure reports and clinical recommendations received from providers at higher levels of the health care system;
- educate patients and families on their condition and plan for their follow-up;
- communicate effectively with providers at other levels of care.

The external genitalia

Figure 2.1 Female external genitalia

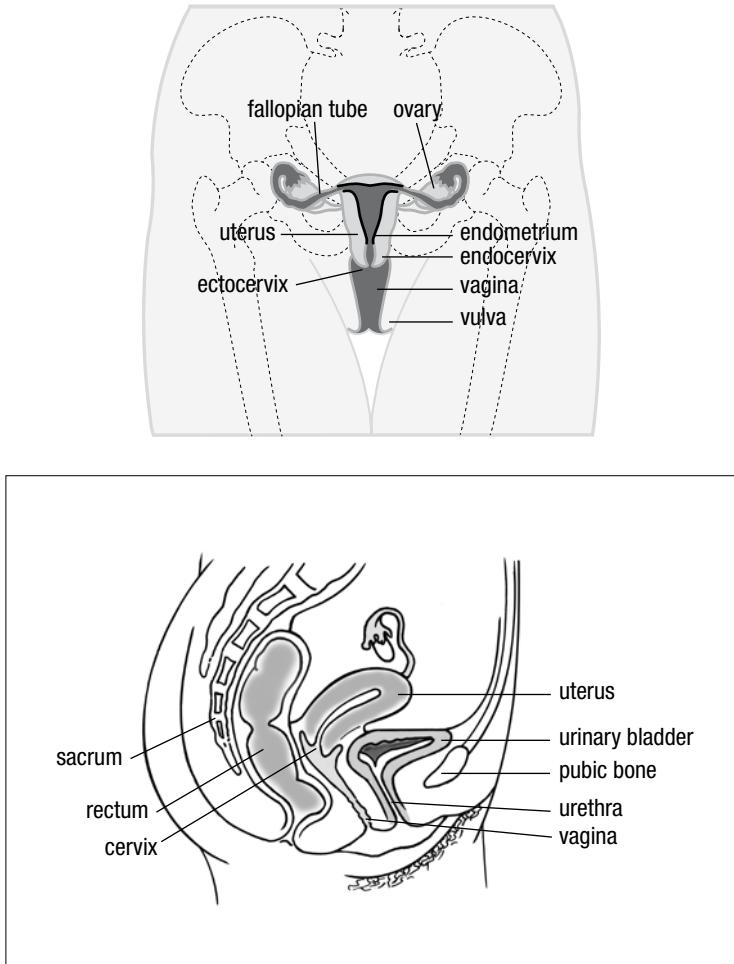


As seen in Figure 2.1, the external genitalia include the major and minor labia, the clitoris, the urinary opening (urethra), and the vaginal opening or introitus. The area between the vulva and the anus is called the perineum. Bartholin glands are two small bodies on either side of the introitus.

The internal organs

As shown in Figure 2.2, the vagina and uterus lie behind and above the pubic bone in the pelvis. The urinary bladder and urethra are in front of the vagina and uterus, and the rectum is behind them. The ureters (small tubes that deliver urine from the kidney to the bladder) lie close to the cervix on each side.

Figure 2.2 Front and side view of female internal organs



The vagina

The vagina is an elastic fibromuscular tube leading from the introitus to the cervix; its walls form multiple folds, allowing it to expand during sexual activity and childbirth. The walls of the vagina are normally in contact with each other. The lower portion of the cervix (ectocervix) protrudes into the upper end of the vagina and the vaginal area surrounding it comprises the anterior, posterior and lateral fornices.

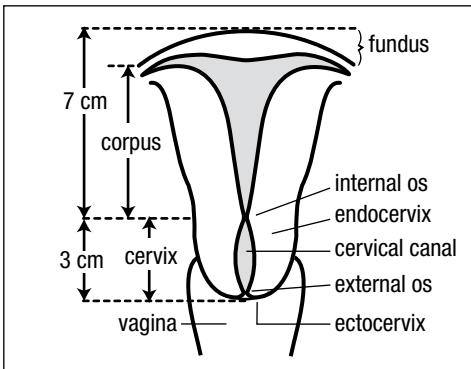
The uterus and cervix

The uterus or womb is a thick-walled, pear-shaped, hollow organ made of smooth muscle. It is supported by several connective tissue structures: transverse ligaments, uterosacral ligament and broad ligament (a fold in the peritoneum spanning the area between the uterus and the side walls of the bony pelvis which enfolds the fallopian tubes and round ligaments within it). The ovaries are attached to the back of the broad ligament. The cavity of the uterus is lined by the endometrium, a glandular epithelium which goes through dramatic changes with the menstrual cycle. When not enlarged by pregnancy or tumours, the uterus measures approximately 10 centimetres from its top (fundus) to the bottom of the cervix.

The cervix is the lower one-third of the uterus and is composed of dense, fibromuscular tissue (Figure 2.3) lined by two types of epithelium (see below). It is about 3 cm in length and 2.5 cm in diameter.

The lower part of the cervix (outer cervix or ectocervix) lies within the vagina and is visible with a speculum; the upper two-thirds (inner cervix or endocervix) lies above the vagina. The cervical canal runs through the centre of the cervix from the internal os (opening) leading into the uterine cavity to the external os, which can be seen in the centre of the cervix on speculum examination. The external os is seen as a small round opening in nulliparous women and as a wide, mouth-like, irregular slit in women who have given birth. The lower portion of the endocervical canal can be visualized using an endocervical speculum.

Figure 2.3 Uterus of a woman of reproductive age



The blood and lymph vessels

The arteries that supply the uterus and cervix derive from the internal iliac arteries and their uterine, cervical and vaginal branches. The cervical branches descend along the length of the cervix at the 3 and 9 o'clock positions. It is important to keep this in mind when injecting local anaesthetic, in order to avoid injecting into the artery. The veins draining the cervix run parallel to the arteries. The lymph nodes and ducts draining the pelvic organs lie close to the blood vessels and may act as a pathway for the spread of cervical cancer. In late stages of cancer, large tumours may block lymphatic drainage and cause the legs to swell (lymphoedema).

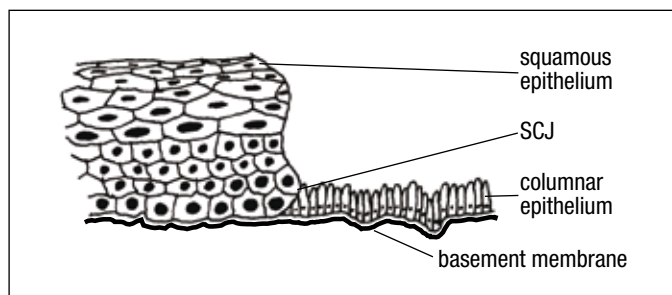
The nerves

The ectocervix has no pain nerve endings; thus, procedures involving only this area (biopsy, cryotherapy) are well tolerated without anaesthesia. The endocervix, on the other hand, is rich in sensory nerve endings, and is sensitive to painful stimuli, injury and stretching. Networks of nerve fibres are found around the cervix and extend to the body of the uterus. A paracervical block, to produce local anaesthesia for certain procedures, is performed by injecting anaesthetic at various points between the cervical epithelium and the vaginal tissue. Because sympathetic and parasympathetic nerves are also present, procedures involving the endocervical canal (such as insertion of an endocervical curette) may sometimes cause a vasovagal reaction (sweating, slow heart rate and fainting).

The cervical epithelia

The surface of the cervix is lined by two types of epithelium: squamous epithelium and columnar epithelium (Figure 2.4).

Figure 2.4 The two types of cervical epithelium and the squamocolumnar junction (SCJ)



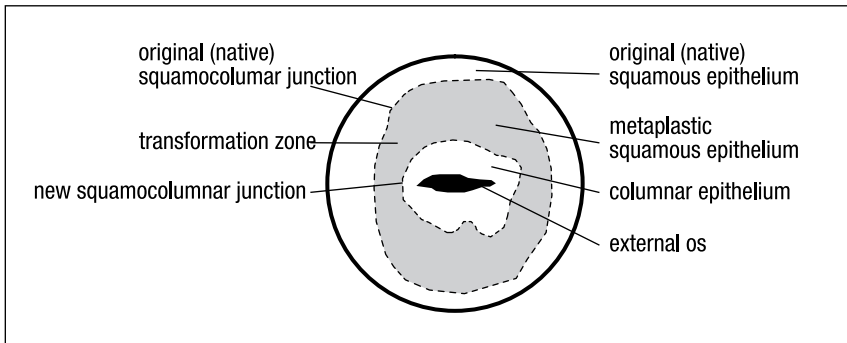
Adapted from: Sellors JW, Sankaranarayanan R. *Colposcopy and treatment of cervical intraepithelial neoplasia: a beginners' manual*. Lyon, France, IARC Press, 2002.

The stratified squamous epithelium is a multilayered epithelium of increasingly flatter cells. It normally covers most of the ectocervix and vagina and, in premenopausal women, appears pale pink and opaque. Its lowest (basal) layer, composed of rounded cells, is attached to the basement membrane, which separates the epithelium from the underlying fibromuscular stroma. In postmenopausal women, the squamous epithelium has fewer layers of cells, appears whitish-pink, and is prone to trauma, which is often visible as small haemorrhages or petechiae.

The columnar epithelium lines the cervical canal and extends outwards to a variable portion of the ectocervix. It consists of a single layer of tall cells sitting on the basement membrane. This layer is much thinner than the squamous lining of the ectocervix. When seen with an endocervical speculum, it appears shiny red.

The original squamocolumnar junction (SCJ) appears as a sharp line, with a step produced by the different thicknesses of the columnar and squamous epithelia. The location of the original SCJ varies with the woman's age, hormonal status, history of birth trauma, pregnancy status, and use of oral contraceptives (Figures 2.5 and 2.6).

Figure 2.5 The transformation zone of the cervix of a parous woman of reproductive age



Source: Sellors JW, Sankaranarayanan R. *Colposcopy and treatment of cervical intraepithelial neoplasia: a beginners' manual*. Lyon, France, IARCPress, 2002.

Squamous metaplasia and the transformation zone

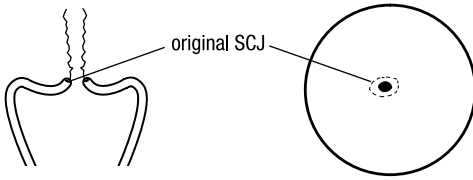
When exposed to the acidic environment of the vagina, the columnar epithelium is gradually replaced by stratified squamous epithelium, with a basal layer of polygonal-shaped cells derived from the original columnar cells. This normal replacement process is termed squamous metaplasia and gives rise to a new SCJ. When mature, the new squamous epithelium closely resembles the original squamous epithelium. However, the newly formed SCJ and the original SCJ are distinct on examination. The transformation zone is the area between the original and the new SCJ, where the columnar epithelium is being or has been replaced by squamous epithelium (Figures 2.5 and 2.6).

Development of precancer and cancer

The stratified squamous epithelium covering the cervix provides protection from toxic substances and infection. Under normal circumstances, the top layers are continually dying and sloughing off, and the integrity of the lining is maintained by the constant, orderly formation of new cells in the basal layer. However, in the presence of persistent HPV infection and other cofactors, the metaplastic squamous cells of the transformation zone take on an abnormal appearance, cervical squamous precancer (dysplasia). These cells later multiply in a disorderly manner typical of cancerous change to produce squamous cell carcinoma.

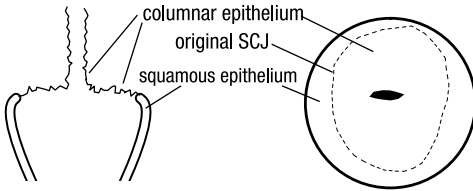
During puberty and pregnancy, and in women using oral contraceptives, the transformation zone on the ectocervix is enlarged. Exposure to HPV at such times may facilitate infection, which may explain the association between squamous cell cervical cancer and early sexual activity, multiple pregnancies and, to a lesser extent, long-term use of oral contraceptives. Ninety per cent of cervical cancer cases are squamous cell carcinomas arising from the metaplastic squamous epithelium of the transformation zone; the other 10% are cervical adenocarcinomas arising from the columnar epithelium of the endocervix.

Figure 2.6 The process of squamous metaplasia



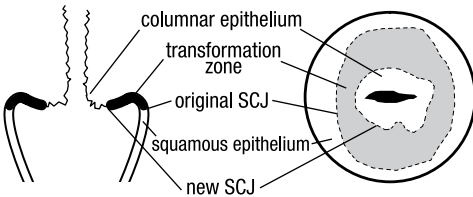
a. From birth to prepuberty:

The original squamocolumnar junction is present in girls at birth, and is found at or near the external os.



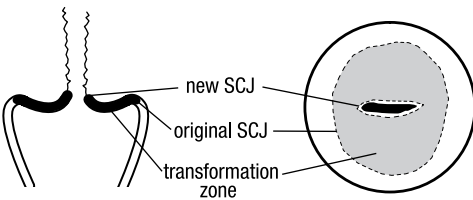
b. From menarche to early reproductive age:

At puberty when the ovaries begin to secrete estrogen, the cervix grows in size, columnar cells from the endocervix and the original SCJ become visible on the outer cervix.



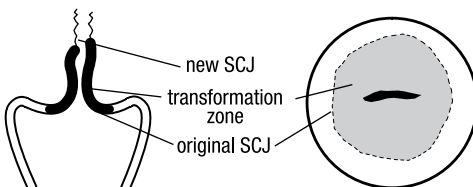
c. In women in their 30s:

Under the influence of estrogen, the normal maturing process, known as squamous metaplasia, takes place, and both original and new SCJs are visible.



d. In perimenopausal women:

As women age and the influence of estrogen decreases around menopause, the cervix shrinks, and the columnar epithelium and transformation zone retreat back from the outer cervix into the endocervical canal.



e. In postmenopausal women:

Without estrogen stimulation, the original SCJ is still visible on speculum examination, but the new SCJ and a variable portion of the metaplastic epithelium of the transformation zone have retreated into the cervical canal.

NATURAL HISTORY OF CERVICAL CANCER

What is cancer?

Cancer is a term used for the malignant, autonomous and uncontrolled growth of cells and tissues. Such growth forms tumours, which may invade surrounding and distant parts of the body, destroying normal tissues and competing for nutrients and oxygen. Metastases occur when small groups of cells become detached from the original tumour, are carried to distant sites via the blood and lymph vessels, and start new tumours similar to the original one.

The development of cervical cancer

The primary cause of squamous cervical cancer is persistent or chronic infection with one or more of the so-called high-risk or oncogenic types of human papillomavirus. The most common cancer-causing types are 16 and 18, which are found in 70% of all cervical cancers reported. Other oncogenic types (e.g. 31, 33, 45, and 58) are found less commonly and may have different prevalence in different geographical areas. Low-risk HPV types 6 and 11 are not associated with cancer, but cause genital warts. The key determinants of HPV infection for both men and women are related to sexual behaviour, and include young age at sexual initiation, a high number of sexual partners, and having partners with multiple partners. High-risk HPV infection is most common in young women, with a peak prevalence as high as 25–30% in women under 25 years of age. In most sites, prevalence decreases sharply with age.

While infection with a high-risk HPV is the underlying cause of cervical cancer, most women infected with high-risk HPV do not develop cancer. Most cervical HPV infections, regardless of type, are short-lived, with only a small number persisting and even fewer progressing to precancerous lesions or invasive cancer. The conditions or cofactors that lead HPV infection to persist and progress to cancer are not well understood, but the following probably play a role.

- HPV-related cofactors:
 - viral type;
 - simultaneous infection with several oncogenic types;
 - high amount of virus (high virus load).

- Host-related cofactors
 - immune status: people with immunodeficiency (such as that caused by HIV infection) have more persistent HPV infections and a more rapid progression to precancer and cancer;
 - parity: the risk of cervical cancer increases with higher parity.
- Exogenous cofactors:
 - tobacco smoking;
 - coinfection with HIV or other sexually transmitted agents such as herpes simplex virus 2 (HSV-2), *Chlamydia trachomatis* and *Neisseria gonorrhoeae*;
 - long-term (> 5 years) use of oral contraceptives.

This last cofactor is of particular concern since limiting the use of oral contraceptives could have far-reaching effects on women's choice of contraceptive and hence on the rates of unwanted pregnancy, unsafe abortion and maternal mortality. A WHO expert group, convened to examine the evidence and formulate recommendations, concluded that all methods of contraception, including OCs, carry risks and benefits. With respect to cervical cancer, the benefits of OCs outweigh the risks, because the number of cervical cancers that result from their use is likely to be very small; therefore, women who choose to use OCs should not be prevented or discouraged from doing so.

RECOMMENDATION

There is no need to limit the use of hormonal contraceptives, despite the small increased risk of cervical cancer noted with use of combined oral contraceptives.

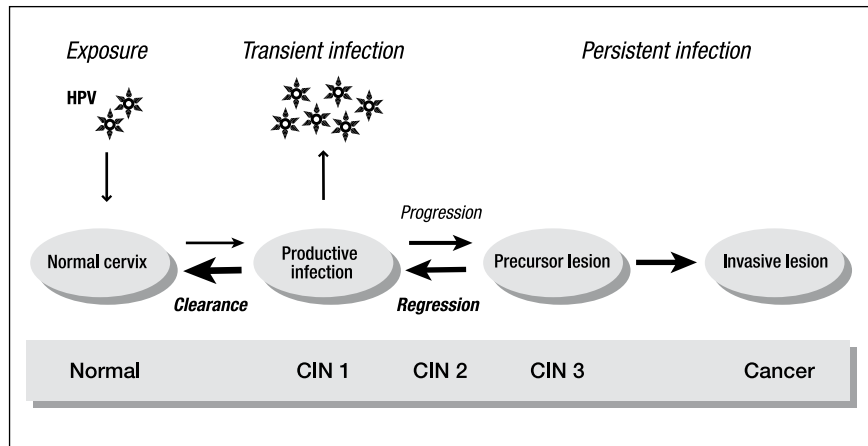
Natural history of precancer

During early adolescence and first pregnancy, when squamous metaplasia is occurring, infection with HPV may induce changes in the newly transformed cells, with viral particles being incorporated into the DNA of the cells. If the virus persists, it may cause precancerous and, later, cancerous changes by interfering with the normal control of cell growth (Figures 2.7 and 2.8).

Estimates of the time it takes for cancer to develop from HPV infection vary. Sixty per cent or more of cases of mild dysplasia resolve spontaneously and only about 10% progress to moderate or severe dysplasia within 2–4 years; in some cases, moderate or severe dysplasia may occur without an earlier detectable mild dysplasia stage. Less than 50% of cases of severe dysplasia progress to invasive carcinoma, with much lower rates seen in younger women.

The usual 10–20-year natural history of progression from mild dysplasia to carcinoma makes cervical cancer a relatively easily preventable disease and provides the rationale for screening.

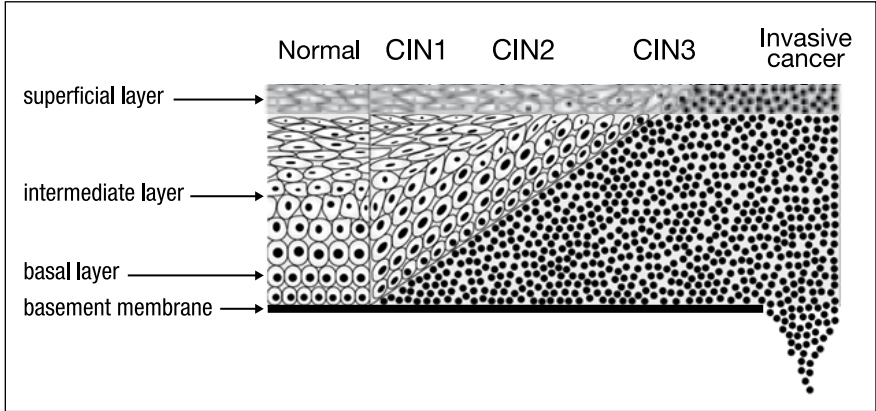
Figure 2.7 Natural history of cervical cancer



CIN: cervical intraepithelial lesion

Adapted from: *Cervix cancer screening*. Lyon, IARC Press, 2005 (IARC Handbooks of Cancer Prevention, Vol. 10).

Figure 2.8 Progress from normal epithelium to invasive cancer



CIN: cervical intraepithelial lesion

Precancer classification systems

There are many systems in use in different parts of the world for classifying and naming precancerous conditions of the cervix, based on cytology and histology (Table 2.1). Some are more useful than others because they incorporate knowledge of the disease's natural history acquired over the past few decades. The classification system of cervical intraepithelial neoplasia (CIN) evolved in 1968, to take into account the different natural histories seen with different degrees of dysplasia. It is still used in many countries for cytological reports, although strictly speaking it should only be used for histological reports (results of microscopic examination of tissue samples). The Bethesda system was developed in the 1990s at the United States National Cancer Institute. In this system, which should be used only for cytological reports, CIN 2 and 3 are combined into one group, termed high-grade squamous intraepithelial lesions (HSIL). Cytologically (i.e. on microscopic examination of a smear), it is difficult, if not impossible, to distinguish CIN 2 and 3. In the 2001 Bethesda classification, atypical cells are divided into ASC-US (atypical squamous cells of undetermined significance) and ASC-H (atypical squamous cells: cannot exclude a high-grade squamous epithelial lesion). This classification is recommended by WHO for cytological reports.



Bethesda System

Table 2.1 Cervical precancer: different terminologies used for cytological and histological reporting

| Cytological classification (used for screening) | | Histological classification (used for diagnosis) | |
|--|--------------------|---|---------------------------------|
| Pap | Bethesda system | CIN | WHO descriptive classifications |
| Class I | Normal | Normal | Normal |
| Class II | ASC-US ASC-H | Atypia | Atypia |
| Class III | LSIL | CIN 1 including flat condyloma | Koilocytosis |
| Class III | HSIL | CIN 2 | Moderate dysplasia |
| Class III | HSIL | CIN 3 | Severe dysplasia |
| Class IV | HSIL | CIN 3 | Carcinoma in situ |
| Class V | Invasive carcinoma | Invasive carcinoma | Invasive carcinoma |

CIN: cervical intraepithelial neoplasia; LSIL: low-grade squamous intraepithelial lesion; HSIL: high-grade squamous intraepithelial lesion; ASC-US: atypical squamous cells of undetermined significance; ASC-H: atypical squamous cells: cannot exclude a high-grade squamous epithelial lesion.

How often are screening abnormalities found?

The number of precancerous lesions found in a population depends on:

- the frequency of disease in the population;
- the age group screened (for example, if many young women are screened, more LSIL will be found);
- the previous screening status of the women (if women are screened regularly, less HSIL will be found);
- the prevalence of HIV in the screened population (more precancerous lesions are found when HIV prevalence is high).

In a previously unscreened population of women aged between 25 and 65 years, the following percentages of abnormal results are likely:

- LSIL: 3–10%;
- HSIL: 1–5%;
- invasive cancer: 0.2–0.5%.

Natural history of invasive cervical cancer

Invasive cervical cancer is defined by the invasion of abnormal cells into the thick fibrous connective tissue underlying the basement membrane. It starts with a microinvasive stage, which is not visible with the naked eye on speculum examination and has to be diagnosed histologically, using a tissue sample from a cone biopsy or hysterectomy. It then evolves into larger lesions, which may extend to the vagina, pelvic walls, bladder, rectum and distant organs. If left untreated, cervical cancer progresses in a predictable manner and will almost always lead to death. The International Federation of Gynecology and Obstetrics (FIGO) system is often used to describe the extent of cancer invasion and to select treatment options (see Chapter 6).

There are four, usually sequential, routes through which invasive cancer progresses. The disease is generally confined to the pelvis for a long period, where it is accessible to treatment.

1. **Within the cervix.** Spread from a tiny focus of microinvasive cancer, eventually involving the entire cervix which can enlarge to 8 cm or more in diameter. The cancer can be ulcerating, exophytic (growing outwards) or infiltrating (invading inwards).
2. **To adjacent structures.** Direct spread in all directions is possible: downwards to the vagina, upwards into the uterus, sideways into the parametrium (the tissues supporting the uterus in the pelvis) and the ureters, backwards to the rectum, and forwards to the bladder.

3. **Lymphatic.** Spread to pelvic lymph nodes occurs in 15% of cases when the cancer is still confined to the cervix, and increases as the cancer spreads. Lymph node metastases are at first confined to the pelvis and are later found in the chain of nodes along the aorta, eventually reaching the supraclavicular fossa (the space above the collar bone). If the cancer has advanced into the lower third of the vagina, the groin nodes may become involved and will be palpably enlarged.
4. **Distant metastases** through the bloodstream and lymph channels. Cervical cancer cells may spread through the blood stream and lymphatic system to develop distant metastases in the liver, bone, lung and brain.

Cervical cancer and human immunodeficiency virus infection

Immunosuppression, resulting from HIV infection or other causes (e.g. use of antirejection drugs after transplantation), presents particular problems.

HIV-infected women have:

- a higher prevalence of HPV; the risk of infection increases with the degree of immunosuppression;
- a higher prevalence of persistent infection and infection with multiple high-risk HPV types;
- a greater risk of precancer, which increases with the degree of immunosuppression and might be 2–6 times the risk in uninfected women;
- an increased risk of developing cervical cancer;
- diagnosis of invasive disease up to 10 years earlier than the average;
- more frequent presentation with advanced disease with poor prognosis.

It is still unclear if treatment of HIV-positive women with highly active antiretroviral therapy (HAART) substantially affects the natural history of SIL.

ADDITIONAL RESOURCES

- Berek JS et al., eds. *Novak's textbook of gynecology*, 12th ed. Baltimore, MD, Lippincott, Williams & Wilkins, 1996.
- IARC. *Cervix cancer screening*. Lyon, IARCPress, 2005 (IARC Handbooks of Cancer Prevention, Vol. 10).
- Shaw RW, Soutter WP, Stanton SL, eds. *Gynaecology*, 3rd ed. Edinburgh, Churchill Livingstone, 2003.
- Tavassoli FA, Devilee P, eds. *Pathology and genetics of tumours of the breast and female genital organs*. Lyon, IARCPress, 2003 (WHO Classification of Tumours).
- WHO. *Cervical cancer screening in developing countries*. Report of a WHO Consultation. Geneva, 2002.

3

CHAPTER 3: HEALTH PROMOTION: PREVENTION, HEALTH EDUCATION AND COUNSELLING

CHAPTER 3: HEALTH PROMOTION: PREVENTION, HEALTH EDUCATION AND COUNSELLING

Key points

- Health promotion, including education and counselling of women and men, should be an integral part of all cervical cancer control programmes.
- Health education should aim to ensure that women, their families and the community at large understand that cervical cancer is preventable.
- Health education messages about cervical cancer should reflect national policy and should be culturally appropriate and consistent at all levels of the health care system.
- Providers should be trained to discuss sexuality in a non-judgemental way and be able to address behavioural issues related to cervical cancer and HPV.
- Privacy and confidentiality during counselling are essential elements of quality care.

ABOUT THIS CHAPTER

This chapter addresses the importance of integrating health promotion into cervical cancer control activities, through health education, primary prevention and counselling. These three strategies transmit similar messages and require related and overlapping communication skills. The key messages related to behaviour change are outlined, as well as the evidence for the effectiveness of condoms and vaccines in reducing the harm done by HPV. The practice sheets (PS) at the end of the chapter list the key messages to be included in health education about cervical cancer, provide answers to frequently asked questions (FAQs) about cervical cancer and HPV, indicate how to involve men in preventing cervical cancer, and give more information on counselling.

HEALTH PROMOTION

Promoting health at the personal and societal levels, by helping people to understand and reduce their personal risk of illness, avoid harmful behaviours and adopt healthier lifestyles, is a key role of health programmes at all levels. In many countries, prevention has traditionally taken a secondary role to curative care, but is gradually becoming more evident; continuing efforts in this direction are needed. Health promotion can be implemented in multiple ways. Three strategies are particularly useful in relation to cervical cancer: primary prevention (of HPV infection), health education, and counselling.

THE ROLE OF THE PROVIDER

Providing correct information on cervical cancer in the community and in health services is key to raising awareness and reducing illness and deaths. All categories of health care providers, in whatever setting they work, should provide correct and consistent information to women and men on cervical cancer, how it can be prevented, reasons for screening, and the significance and management of any abnormalities detected. The language used should be tailored to the audience and in line with the provider's function and training. Providers should always make sure that the information is fully understood by the woman and her support network. To be able to do this, providers must keep their own knowledge up to date and improve their communication skills.

To change behaviour, knowledge is necessary but is not sufficient. Behaviour change will be more likely if providers assist women to assess their own risk of disease and empower them to reduce this risk. Communication skills are required for educating and counselling women, and for helping those in the target group to understand their need for screening, follow-up and treatment. If cancer is discovered, the women need to be told about the nature and prognosis of their disease. Once clear messages have been developed in simple language, health education in the clinic setting should not take much time, and can be done in group settings as well as in private consultations.

PREVENTION OF HPV INFECTION

HPV is a common virus, which is transmitted by close contact, including penetrative and non-penetrative sexual contact. A large proportion of men and women are infected with HPV at some time in their life. The only certain way to prevent genital HPV infection is to abstain completely from genital skin-to-skin contact and sexual intercourse. However, certain changes in sexual behaviour (e.g. using condoms, delaying first intercourse) offer some protection against HPV.

Using condoms

Condoms only offer partial protection against HPV transmission, because the virus can exist on body surfaces not covered by the condom, such as the perianal area and anus in men and women, the vulva and perineum in women, and the scrotum in men.

Despite this, consistent and correct condom use has been shown to provide important benefits:

- It allows faster HPV clearance in both men and women.
- It increases regression of cervical lesions.
- It reduces the risk of genital warts.
- It reduces the risk of cervical precancer and cancer.

- It protects against other sexually transmitted infections (STIs), including chlamydia and HSV-2 infection, which are possible cofactors for cervical cancer.
- It protects against HIV infection, a known facilitator of both high-risk HPV infection and progression to high-grade lesions.
- It protects against unwanted pregnancy.

Condoms may reduce the risk of developing HPV-related diseases because they decrease the amount of HPV transmitted or because they reduce the likelihood of re-exposure. Whether female condoms (which cover part of the vulva) offer the same or additional HPV protection as male condoms is as yet unknown.



Condoms

Condom promotion and distribution are essential components of all STI control efforts

The future: vaccination against HPV infection

Since most people are exposed to HPV once they become sexually active, an ideal way to prevent HPV infection would be through vaccination prior to exposure. The vaccine should protect against at least the most common high-risk types (HPV 16 and HPV 18), and preferably all the high-risk types. Recently developed candidate HPV vaccines designed to protect against infections with HPV 16 and HPV 18 have given promising results. However, many questions and programme concerns still need to be addressed before any vaccine can be effectively used. For example, it will be important to ensure equitable access to HPV vaccines, in order to attain high coverage of adolescents before they become sexually active.

Any effect of a vaccine on the incidence of cervical cancer would not be detectable for some decades after its introduction. Widespread screening for cervical cancer would therefore need to continue, even after an HPV vaccine programme is fully implemented, in order to detect cervical abnormalities in the unvaccinated and previously infected population, and to monitor and evaluate progress towards the goals of the vaccination programme.

Prevention of possible cofactors

Men, women and adolescents need to be aware of the other factors associated with the development of cervical cancer in women infected with HPV (see Chapter 2). Even though understanding of cofactors remains incomplete, health care providers should develop strategies to reach individuals and communities, to disseminate information and provide advice on changing behaviour, e.g. reducing number of sexual partners,

stopping smoking, delaying first intercourse, and using condoms. Cervical cancer risk is also increased in women who use oral contraceptives for five years or more; however, the increase is very small and the benefits of preventing unwanted pregnancy and unsafe abortion greatly outweigh the risk. There is, therefore, no need to limit the use of hormonal contraceptives.

HEALTH EDUCATION

Health education involves communicating up-to-date general information and messages about changing behaviour in simple, understandable language, to individuals or groups. Messages should use locally and culturally appropriate terms, and should be developed in collaboration with the community and in accordance with national guidelines. It is important that the core of the messages is always the same, regardless of where, by whom and to whom they are given. Health education is not an isolated event; it should be a continuous activity and requires constant effort from managers and providers to maintain their knowledge up to date.



Health education

Health education is needed to ensure optimal programme coverage, which in turn, will lead to increased programme impact. Many barriers to cancer screening programmes can be addressed through education of the community. For example, numerous studies have shown that many women do not attend screening programmes because they are not aware of their risk of cervical cancer or of the benefits of screening in its prevention and early detection. Women in developing countries and rural areas may not have heard of cervical cancer or screening tests, or may not be aware that a positive test result does not necessarily mean that they have cancer or that they are certain to die. Many misconceptions and beliefs about cancer reflect fears about the discovery of a disease they have heard is fatal. Often there is also stigma related to diseases of the reproductive tract, particularly sexually transmitted infections, including HPV. Fear and embarrassment about genital examinations, and concerns about lack of privacy and confidentiality, may keep women from attending services. Such fears and misconceptions can be dealt with by reassuring women about what is involved in an examination and screening. If such information is backed up by skilful, respectful provision of services, women will be more likely to attend and will be more likely to recommend screening to their friends and family.



FAQs

RECOMMENDATION

Health education should be an integral part of comprehensive cervical cancer control.

Some misconceptions and facts about cervical cancer

| Misconception | Fact |
|---|--|
| Intrauterine devices (IUDs) cause cervical cancer. | IUDs are not linked to any increase in cervical cancer. |
| In screening, part of your body is removed. | Cervical cancer screening involves a gentle collection of cells from the surface of the cervix; no pieces of tissue are removed. |
| Screening is like a vaccine: once you have had it, you will not get cervical cancer. | Screening in itself does not prevent cervical cancer, but it does detect if the cervix is normal or not. If abnormalities are detected early and are treated, cancer can be prevented. |
| There is no point in going for cancer screening, because it only tells a woman that she has a fatal condition and nothing can be done for it. | Screening can detect abnormalities before they become cancer. Also, if cancer itself is detected early, it can be cured with proper treatment. |
| Cervical cancer is seen in women with poor hygiene practices. | There is no evidence that poor hygiene causes cervical cancer. |
| Use of tampons and herbs can cause cancer of the cervix. | Cervical cancer is caused by a virus infection. Smoking and having multiple sexual partners can increase the risk, but use of tampons and herbs has not been shown to have any effect. |

In cervical cancer control programmes, health education includes:

- informing people about cervical cancer, its causes and natural history;
- promoting screening for women in the target group;
- increasing awareness of signs and symptoms of cervical cancer, and encouraging women to seek care if they have them;
- reducing ignorance, fear, embarrassment and stigma related to cervical cancer.



Health education

How to provide health education

- Messages should be developed to address common fears and misconceptions, as well as the stigma attached to STIs.
- Providers should make efforts to overcome their own discomfort in talking about sexual matters and diseases that affect the genital organs.
- Providers should give accurate information in an acceptable and non-judgemental manner.
- Answers to frequently asked questions need to be developed locally, in consultation with the community and in harmony with local beliefs and practices.
- The fact that cervical cancer is linked to HPV, a sexually transmitted infection, raises some difficult questions that providers need to be prepared to answer. Some examples and answers are provided in Practice Sheet 2.



Where can health education take place?

Information on cervical cancer can be provided within or outside the health facility, by a variety of health workers: doctors, nurses, health educators, nursing assistants, clinical officers, counsellors and community health workers. Other people, such as community leaders and traditional healers, can also provide health education if they are trained in the key messages formulated by the health authorities.

Health education in health facilities

Information can be provided to groups in waiting areas through posters, health talks, videos and written materials. Messages should be consistent, and should always be designed and pretested with the particular audience in mind. Information and education on cervical cancer for men and women can be integrated into health talks on antenatal and postnatal care, family planning, acquired immunodeficiency syndrome (AIDS), chronic care and STIs. In groups consisting mostly of young women at low risk, messages can be framed simply to inform the group and promote screening for women in the target age. To deliver messages effectively, skills in adult education are needed.

Messages should also be given to individual women during their visits to health facilities, tailored to their age and other risk factors. For example, a woman over 30 years of age, who presents with STI symptoms and who has never been screened should, in addition to receiving education and services specific to her symptoms, be given information on cervical cancer. If she cannot be screened immediately, she should

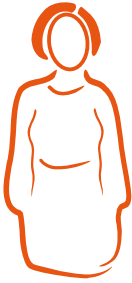
be strongly encouraged to return soon for screening. On the other hand, a teenager who comes only for family planning can be given general information, assured that she will not need to be screened until she is 25–30 years old, and encouraged to tell older women in her family about the need for screening.

Screening can be offered to all women at risk who attend health facilities for any service for themselves or their children. In addition, everyone who works in a health facility, including cleaners, secretaries, and drivers, can be enlisted in this effort and trained to deliver appropriate messages. For example, cleaners and drivers should know the hours and location of screening services; receptionists can be trained to answer questions on the recommended age for screening and on the nature of the procedure, and to help clients obtain more information.

Outreach in the community

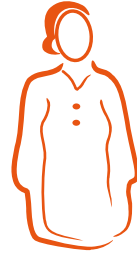
Community education may take place in a variety of settings, such as with religious or community groups, in schools, at sports activities, on health awareness days, or in the context of a screening campaign. Various members of the community can be trained to deliver key messages: medical professionals, teachers, community leaders, health promoters, traditional healers and midwives. Written materials, radio and television messages, newspaper articles, posters and pamphlets are all ways to reach people in the community. The approach to educating the community about cervical cancer and the benefits of screening can be adapted to the audience and the setting, but the content of the messages must not vary.

STORY ³



Dawn, a 32-year-old Kenyan woman, was not sick. In fact she was in high spirits. Shortly before, a community health worker's announcement at a funeral had inspired her. He had spoken about a chronic disease that affects women – cancer of the cervix – and explained that the disease is preventable. If cervical cancer is not detected early and treated, a woman can die from the disease.

The community worker gave Dawn a card and told her where she should go to have a screening test. "For some reason, I felt it was important for me to attend and find out if I had any risk because, after all, I could get help." When she returned two weeks later, she was told her test was negative meaning it was normal. "I was greatly relieved." Now, she was informed, she only needs to return for another test in three years' time.



Because she was treated so kindly and learned so much, Dawn has begun to speak publicly about her experience whenever an opportunity arises. Many women she has spoken to have followed her advice and have been tested, even if they had no symptoms. Two of these women have reported to Dawn that they were being treated for precancer so they would not get cancer. Dawn is happy to be helping others. "I don't want anyone to die when there is opportunity for us to live longer," she says.

Reaching men

As with other aspects of reproductive health, it is crucial to reach men in clinical and community settings with messages about cervical cancer prevention, sexual transmission of HPV, and the importance of encouraging their partners to be screened and treated when necessary. Unsafe sexual behaviour in men is a risk factor for their partners. Thus, information about prevention of HPV and its role in cervical cancer should be included in STI and HIV prevention messages in all settings where men seek care. Condoms should be widely available.



To Men

³ Adapted from: Alliance for Cervical Cancer Prevention. *Women's stories, women's lives: experiences with cervical cancer screening and treatment*. Seattle, WA, 2004.

COUNSELLING

Counselling is face-to-face, personal, confidential communication, in which the counsellor helps the client to make decisions and act on them. Counselling requires listening and conversational skills and knowledge of the subject being discussed. All providers should be trained in counselling skills, to help them communicate effectively with clients.



Counselling

Counselling can help a person to make decisions only if:

- there is mutual trust between the client and the counsellor;
- there is a two-way transfer of relevant, accurate and complete information.

The content of counselling about cervical cancer will vary according to the client's problem or concern and her individual circumstances. It can cover prevention, screening, follow-up, referral, diagnosis, treatment of precancerous conditions, and treatment of invasive cancer. Counselling can also help patients and their families to cope with a diagnosis of invasive cancer and terminal disease. Such counselling may involve only the patient, or also her partner and other family members, especially if decisions concerning severe disease or costly treatment need to be made. A good counsellor uses verbal and non-verbal communication skills, and helps the client feel at ease by empathizing with her situation, reassuring her, and fostering a sense of partnership in helping her solve her problem. Providers at all levels involved in cervical cancer control who have face-to-face contact with patients may provide counselling. The depth and detail of communication will vary according to the patient's situation and needs and the category and level of provider. Counselling should be structured to educate the woman, review the results of screening and follow-up, present alternative services and procedures, and discuss any follow-up she may need. This will give the woman the tools she needs to make rational decisions for herself.

Who needs to be counselled?

All women who have to decide whether to have a service should receive counselling, as well as those who have chosen to have the service and need information on what it entails and how it relates to their present and future health. Some guidelines on good counselling are found in Practice Sheet 4.

Privacy and confidentiality

Ensure *privacy* by conducting counselling in a setting where the woman and the provider will not be seen or heard, except by people specifically agreed to by the woman. *Confidentiality* is also essential, which means that nothing that is discussed during a consultation or found during an examination may be disclosed to anyone, without prior authorization.

Privacy and confidentiality are essential in counselling, as in all aspects of patient care, and are especially important in relation to conditions that involve the genital area and that may require an examination that is embarrassing to the patient. If a patient feels that there is lack of privacy in a clinic or that the provider is judgemental or disapproving, or might reveal information to others, she may choose to withhold important information, attend a distant clinic or not seek care at all.

- Ensure that no one can see or overhear consultations, counselling and examinations.
- Ensure confidentiality: special efforts are needed in many health care settings, particularly those that are busy or crowded.
- Store forms and records securely; only relevant staff should have access to them.
- Avoid talking about patients with other clinic staff, both inside and outside the clinic.
- Treat patients with respect, regardless of their age, illness, lifestyle and marital or socioeconomic status.
- Health care providers who know the extended families or neighbours of patients must take extra care to reassure patients that confidentiality will be respected.

HEALTH EDUCATION AND COUNSELLING AT DIFFERENT LEVELS

In the community



- Assess gaps in knowledge, myths and negative attitudes prevalent in the community.
- Develop key messages about prevention and use them in health education and counselling.
- Give health talks tailored to specific audiences (young people, men, women of different ages) in different venues.
- Distribute information, education and communication (IEC) materials.
- Counsel individual women in the community about cervical cancer and its prevention, screening, and treatment (depending on individual needs).

At the health centre



- Use every opportunity to provide information and education, and to promote behaviour change to groups of patients.
- Counsel individual women and men, as well as couples, on cervical cancer prevention and early detection.
- Promote screening for women in the target age group, in waiting rooms and outpatient clinics and by outreach to the community.
- Train and assist community health workers and community volunteers to educate the community. Ensure that they use agreed key messages.

At the district hospital



- Educate and counsel women in waiting rooms, outpatient clinics and wards on cervical cancer, its prevention and early detection.
- Promote screening at all opportunities, including in outreach activities to the community.
- Train and supervise workers, and support education in communities and health centres, ensuring that messages on cervical cancer prevention are consistent.

At the central hospital



Carry out all activities performed at district hospitals, plus:

- Develop clear information and education materials for patients and families on cervical cancer diagnosis, treatment and palliative care.
- Inform and educate policy-makers and decision-makers on cervical cancer, its effects on health in the population, and the costs to the system, as well as the cost–benefit of organized efforts to prevent and detect it.

Counselling messages

The community health workers and other health care providers can talk to individual women who consult them about:

- the target group for cervical cancer screening;
- the screening test that is used, how it is done and what it can tell about the cervix;
- what is involved in a pelvic examination and screening test, and where and when screening is available.

They can also:

- help overcome women's reluctance to have a pelvic examination;
- stress the need to follow advice regarding return to the health centre for results or follow-up;
- explain that she will be given a thorough explanation of the clinic procedures and she can accept or decline to have any of them (informed consent);
- tell her that she may bring someone with her if she wishes.

ADDITIONAL RESOURCES

- ACCP. *Planning and implementing cervical cancer prevention and control programs: a manual for managers*. Seattle, WA, Alliance for Cervical Cancer Prevention, 2004.
- Bradley J et al. *Whole-site training: a new approach to the organization of training*. New York, Association for Voluntary Surgical Contraception, 1998 (AVSC Working Paper, No. 11; www.engenderhealth.org).
- Burns A et al. *Where women have no doctor: a health guide for women*. Berkeley, CA, Hesperian Foundation, 1997.
- *Cervical cancer prevention guidelines for low-resource settings*. Baltimore, MD, JHPIEGO Corporation, 2001.
- *GATHER guide to counselling*. Baltimore, MD, Johns Hopkins School of Public Health, Population Information Program, 1998 (Population Reports, Series J, No. 48; www.jhuccp.org).
- Hubley J. *Communicating health: an action guide to health education and health promotion*. London, Macmillan, 1993.

- *Prevention and management of reproductive tract infections (RTIs): the comprehensive reproductive health and family planning training curriculum.* Watertown, MA, Pathfinder International, 2000.
- WHO. *Sexually transmitted and other reproductive tract infections. A guide to essential practice.* Geneva, 2005.
- *Working with men.* New York, EngenderHealth, 2005 (<http://www.engenderhealth.org/ia/www/index.html>) [resources for male involvement in reproductive health programmes].

PRACTICE SHEET 1: HEALTH EDUCATION

PS 1

This Practice Sheet provides key evidence-based messages that can lead to behaviour changes that will reduce the harm done by cervical cancer.

To be an effective health educator about cervical cancer:

- You should have correct up-to-date knowledge about cervical cancer and good communication skills.
- You should transmit consistent messages about cervical cancer, tailored to the educational background and culture of the audience.
- You should be comfortable talking about sexuality and behaviour that increases risk of HPV infection and cervical cancer.
- You should feel comfortable explaining how to use male and female condoms.
- Your messages must be in line with national policy and appropriate to the local situation.

Key cervical cancer messages for men and women

- Cervical cancer is the leading cause of cancer deaths in women in their 40s, 50s and 60s in developing countries.
- Cervical cancer is caused by an infection with human papillomavirus, a very common viral, sexually transmitted infection. This infection very often occurs in young men and women who may not be aware of it.
- Condom use offers partial protection from HPV and may lower the risk of developing HPV-related diseases, such as genital warts and cervical cancer.
- Most HPV infections do not persist and do not cause cancer.
- The few HPV infections that do persist may lead to precancer; if not treated, this may become cancer.
- It usually takes many years for HPV infection to cause precancer and years longer for precancer to progress to cancer.
- Screening can detect precancer. Most abnormal conditions found on screening are curable.
- Women aged 25 years and older are more likely than younger women to have cervical precancer. Women should be screened at least once between the ages of 35 and 45 years and, if possible, every 3 years from age 25 to 65 years (or according to national guidelines).
- Screening is relatively simple, quick and painless.
- Precancerous lesions can be treated simply, and a hospital stay is not usually required.

- If cancer is found and treated early, it can be cured.
- Women need to seek medical care promptly if they have abnormal discharge, vaginal bleeding, bleeding after sexual intercourse, or any bleeding after menopause; these may be signs of cervical cancer.
- Women have a right to make their own decisions about their health (involving their partner or family if they so wish). While screening and follow-up are highly recommended, women should be free to refuse any test or treatment.

Messages about personal behaviour

- **Delay first sexual intercourse:** people who engage in early sexual activity are more likely to be infected with HPV. Younger women are more vulnerable to being infected with a single sexual act.
- **Delay first childbearing:** the hormones of pregnancy may increase the risk of developing cervical cancer.
- **Limit the number of pregnancies:** women who have had 5 or more children have a higher chance of developing cervical cancer.
- **Reduce the number of sexual partners:** the more partners a person has, the greater the chance of becoming infected with an STI, including HPV and HIV, both of which increase the risk of cervical cancer.
- **Avoid partners who have multiple partners:** women whose partners have or have had multiple partners have a higher rate of cervical cancer.
- **Use condoms:** condoms have been shown to protect against STI and to reduce the risk of cervical cancer.
- **Do not smoke tobacco:** women who smoke have a higher risk of almost all cancers, including cervical cancer.
- **Seek treatment immediately if you have symptoms of an STI, or suspect that you have been exposed to an STI.** Some STIs may facilitate the development of cervical cancer and cause other undesirable health effects, including infertility. Prompt treatment of STIs may protect against HPV and cervical cancer.
- **If you are over 25, go for screening.** Almost all women who have had sexual intercourse have probably been exposed to HPV. Screening can detect early lesions so they can be treated before they have a chance to progress to cancer.
- **Special message to men and boys:** reduce the number of your sexual partners, and always use condoms, especially with new partners.

Note to the educator

Some of the above behaviours may be difficult to put into practice, especially for women who cannot control when, with whom, and how they have sexual intercourse. Making men aware of these facts may lead them to treat their partners more equitably.

Supplies for health education

Health education is best provided in face-to-face encounters. Using the following materials, if they are appropriate to your community, can assist:

- flipcharts;
- brochures;
- slide shows;
- drama and role-plays;
- videos;
- radio and television programmes;
- presentations by experts who can communicate in nontechnical language.

PS1

Practice Sheet 1: Health Education

PRACTICE SHEET 2: FREQUENTLY ASKED QUESTIONS (FAQs) ABOUT CERVICAL CANCER

PS 2

Men, women and even health care providers often lack information on cervical cancer. This Practice Sheet lists some frequently asked questions and provides answers to them. You and your colleagues should add other questions relevant to the local situation, and their answers.

CAUSES AND RISK FACTORS

Q What is cancer?

A Cancer is the uncontrolled growth of certain cells in the body, causing tumours or growths. Not all growths are cancer. Those that spread to other parts of the body and can interfere with normal functions are called cancer.

Q What is cervical cancer?

A It is cancer that begins on the cervix, which is the opening of the womb. Cells on the cervix begin to grow abnormally and sometimes, if they are not treated, they become cancer. However, these early (precancerous) changes can disappear on their own, without causing problems.

Q What causes cervical cancer?

A Cervical cancer is caused by infection with a virus called human papillomavirus or HPV. Most of the time, HPV infection disappears without treatment; sometimes, however, HPV stays in the cells for years and, in some women, eventually causes cervical cancer. Not much is known about why some women get cervical cancer and others do not.

Q Is cervical cancer a sexually transmitted infection (STI)?

A No, but HPV is a sexually transmitted infection, which is quite common in both men and women. Only a few women with HPV will go on to get precancer. If not treated, some of these women will develop cervical cancer, many years after they were infected with HPV.

PS 2

Q Can cervical cancer be prevented?

A Yes. Limiting the number of new sexual partners, using condoms, delaying first sexual relations and childbearing, and not smoking tobacco help prevent cervical cancer. HPV vaccines are now being tested and will probably be the most effective means of prevention, when they become widely available. Once they are available, they will need to be given to young people before they start to have sexual relations.

The best way to prevent cervical cancer today is through screening of women for precancer, which can be treated before it becomes cancer.

Q Who is at risk of cervical cancer?

A All women who have had sexual intercourse are potentially at risk because they might have been infected with HPV. Cervical cancer is most commonly found in women in their 40s and 50s. The women most at risk are those who have never been screened, had sexual intercourse and children at a young age, have had more than 5 children, have multiple partners or partners who have multiple partners, and smoke tobacco. Being infected with HIV also puts women at higher risk.

Q Are women who take hormonal contraceptives at increased risk for cervical cancer?

A There is a slightly increased risk when oral contraceptives are used for a long time. Women who take OC, as others, should be screened regularly. There is no reason to stop using contraceptives as the benefits outweigh the risks.

Q Do genital warts cause cervical cancer?

A No. Cancer is caused by certain high-risk types of HPV. Genital warts are caused by different low-risk HPV types, which do not cause cancer.

SCREENING**Q What is a screening test?**

A A screening test is a test done on people who are healthy and without symptoms, to identify those with a higher chance of getting a particular disease. A cervical cancer screening test can determine if a cervix is normal or not. It can detect early signs of disease before a woman has symptoms, when treatment can prevent the disease from developing.

Q Who should be screened for cervical cancer?

A Women between the ages of 25 and 65 years (or according to national norms) should have a screening test to detect early changes. Women younger than 25 almost never get cervical cancer and do not need to be screened. Women who have never had sexual intercourse do not need to be screened.

Q What exactly is done during screening?

A The most common screening test is the Papanicolaou (Pap) smear. The health care provider will do a genital examination to look at the cervix, collect a sample of cells from your cervix, and send it to the laboratory to be examined. Other tests are sometimes used to screen for cervical cancer, such as looking at the cervix after putting vinegar on it. The provider will tell you about the test used in your area.

Q What if my test is negative?

A If your screening test is negative, it means that you do not have any changes that might develop into cervical cancer. It is important to be screened at regular intervals (every 3–5 years, depending on local norms) to make sure that such changes do not develop.

Q What if my test is positive?

A In most cases a positive test means you have precancer, a condition that might go away on its own or that can be easily treated in an outpatient setting. You might need to have other tests to make sure that what you have is precancer, and not cancer. Sometimes a positive test means you have cancer. In this case, you will be referred to a hospital for treatment.

PRECANCER AND CANCER**Q What is precancer?**

A Precancer results when the cervix has been infected with high-risk HPV for some time. It is easily treated. Most precancer goes away on its own, but if it persists and is not treated, it can become cancer.

Q What are the signs of cervical cancer?

A Early cervical cancer usually has no signs, which is why screening is so important. Signs of cancer are: vaginal spotting or bleeding after sexual intercourse, between menstruations, or after menopause, and foul-smelling discharge that does not go away even with treatment. If you have any of these signs, you should see a health care provider, because the earlier cancer is found, the better your chance of being cured.

PS 2

Q Can cervical cancer be treated?

A Most cervical cancer can be successfully treated if it is found early. In middle-aged women who have never been screened, cancer may be discovered late, when it has already spread beyond the cervix and is more difficult to treat.

Q Can cervical cancer be cured?

A Yes, cervical cancer is curable, if it is found before it has spread too far. The earlier cancer is found, the better your chance of being cured.

Q How is cervical cancer cured?

A There are two major ways to treat and cure cervical cancer—by an operation to remove it surgically, or by radiation therapy which kills the cancer cells. Sometimes both methods are used.

PRACTICE SHEET 3: HOW TO INVOLVE MEN IN PREVENTING CERVICAL CANCER

Cervical cancer is exclusively a woman's disease, but men can play a key role in preventing and treating it. Infection with HPV is sexually transmitted, and men therefore can contribute to preventing it. This Practice Sheet provides basic information that men need, and suggests ways to involve them in cervical cancer control.

BASIC INFORMATION FOR MEN ON CERVICAL CANCER

- General messages can be found in Practice Sheet 1 on health education.
- Cervical cancer is common and is usually seen in women aged 40 years or over. Cervical cancer develops from precancer, which can be detected by screening and treated. Women over 25 years should be screened.
- Most cervical cancer is caused by infection with a virus, the human papillomavirus (HPV). This virus is easily passed between people who have sexual contact. It causes no symptoms.
- HPV can also threaten men's health; if it persists, it can increase the risk of cancer of the penis.
- HPV is sexually transmitted, but penetration is not essential as the virus can live on the skin, outside the genital area.
- Using condoms does not offer complete protection, but it can cause infections to disappear faster, and thus has a role in the prevention of cervical cancer.
- Smoking tobacco can increase the risk of many cancers in men and women, including cervical cancer in women infected with HPV.
- Men can play a key role in the prevention of cervical cancer in women, by:
 - reducing the number of their sexual partners and using condoms if they have more than one relationship;
 - using condoms to prevent STIs, including HIV/AIDS;
 - encouraging their partners to be screened if they are over 25 years of age;
 - collaborating with partners to avoid unwanted pregnancies and pregnancy at very young age;
 - not smoking and helping their partners not to smoke.
- Men whose partner is found to have precancer or cancer can support and assist her in obtaining the recommended treatment, by accompanying her to clinical appointments, and by learning about cervical cancer.



Health education

PS3

- Men need to cooperate with their partners, if they are told in the clinic to abstain from sexual intercourse, as may be the case following certain tests and treatments.
- Men can reduce the work burden of their partner when she has had surgery, chemotherapy, or radiation for cervical cancer. These treatments can help cure the cancer, but they can make the woman feel tired and weak. She will need time for rest and recuperation.
- Where a woman has very advanced cervical cancer, her partner can assist by providing maximum comfort.
- Men can also contribute to reducing cervical cancer deaths in their community and country, by advocating for women's health programmes.

To men:

You have a very important role in the prevention and treatment of cervical cancer. Please use condoms consistently and correctly; this will lead to improved sexual and reproductive health for yourself and your partner.

PRACTICE SHEET 4: COUNSELLING

PS 4

What is counselling?

Counselling is face-to-face, personal and confidential communication, aimed at helping a person (and her family) to make informed decisions and then to act on them. It is a two-way exchange of relevant and accurate information. To be an effective counsellor, you should have the ability to listen, up-to-date knowledge, and conversational skills.

What background knowledge on cervical cancer does the patient need to have?

The counsellor should ensure that all women, especially those targeted for cervical cancer control programmes, have the following basic knowledge:

- the basic anatomy of the cervix, its location in the pelvis, the changes it undergoes at different ages, and how it can be examined;
- what cervical cancer is, what causes it, and the risk factors for developing it;
- how to prevent cervical cancer, with emphasis on screening and treatment of precancerous lesions;
- what screening test and which treatments for abnormalities detected on screening are used locally;
- options available for women who have invasive cancer detected by screening and diagnosis.



Health education

Drawings and illustrations, as well as the information provided in this Guide and in Practice Sheets 1 and 2, are useful aids in explaining the above.



FAQs

What must the counsellor ensure?

- **Privacy:** no one, unless specifically permitted by the woman, should be able to see or hear anything that goes on between the woman and the counsellor.
- **Confidentiality:** nothing seen, heard or done during counselling and examination should be known by anybody else, unless the woman specifically authorizes it.
- **Mutual trust** between provider and patient.
- **Sensitivity** in addressing and discussing private topics, particularly related to sexuality and behaviour.

Suggestions for counselling on cervical cancer

1. Welcome the woman warmly by name and introduce yourself.
2. Sit close enough that you can talk comfortably and privately.
3. Make eye contact; look at her as she speaks.
4. Assure her that nothing that is discussed will be repeated to anybody.
5. Use language that she can understand and provide relevant information.
6. Tailor the information you give and the discussion to the reason she is here today.
7. Listen attentively and take note of her body language (posture, facial expression, eye contact).
8. Try to understand her feelings and point of view.
9. Use open-ended questions to invite more than “yes” or “no” answers.
10. Be encouraging. Nod or say: “Tell me more about that.”
11. Try to identify her real concerns.
12. Explain all the options available and respect her choices.
13. Always verify that she has understood what was discussed by having her repeat the most important messages or instructions.
14. Invite her to return if and when she wishes.

Counselling “do’s”

- Ensure privacy.
- Greet the woman by name and introduce yourself.
- Look the woman in the face unless culturally not appropriate.
- Use a natural, understanding manner.
- Be empathetic: place yourself in the woman’s situation.
- Use approving body language (nod, smile, etc., as appropriate).
- Use simple language and terms the woman understands.
- Answer her questions truthfully.
- Allow enough time for the session.
- If she has doubts, invite her to return later to inform you of what she (and possibly her family) has decided.

Counselling “don’ts”

- Appear to be distracted (looking at your watch, answering the phone).
- Use a harsh tone of voice, or act impatient.
- Allow interruptions during the visit.
- Interrupt the woman.
- Be critical, judgemental or rude.
- Overwhelm the woman with too much detail or irrelevant information.
- Use medical words the woman does not understand.
- Force a decision; if she has doubts, invite her to return later to inform you of what she (and possibly her family) has decided.

STANDARD COUNSELLING STEPS FOR ANY WOMAN HAVING A TEST, PROCEDURE OR TREATMENT

Before the procedure



- Explain again why it is important for her to be screened or to undergo the procedure or the treatment recommended.
- Explain what will be done: how it is done, what it can show, possible need for future tests or treatments.



Informed consent

While you are doing the procedure



- Invite and respond to questions and obtain informed consent, including consent to be contacted at home or work if necessary.
- Tell the woman what you are doing at each step. If what you are about to do may cause pain, cramps or other discomfort, warn her in advance. This will help her feel comfortable.

After the procedure



- Explain what you did.
- Describe any noted abnormalities or reassure the woman that you did not see anything unusual.
- Agree a date for the return visit.
- Explain the importance of her returning to the clinic as planned.

PS 4

If you noted something for which you wish to refer her to a higher level for further examination or tests:

- Explain why, where and when she must go, and whom to see.
- Stress the importance of keeping this appointment.
- Answer any questions she has or, if you do not know the answer, find someone who does.
- Invite her to return if she has any questions or concerns about this appointment, and respond or find answers from someone who knows.

PRACTICE SHEET 5: HOW TO USE MALE AND FEMALE CONDOMS ⁴

PS5

Messages about condoms to be communicated to men and women

- Condoms are the most reliable available method of protection against STIs.
- Used correctly, a condom forms a barrier that keeps out even the smallest bacteria and viruses.
- Because HPV can infect tissue outside of the area normally covered by a condom, condoms cannot completely prevent HPV infection.
- However, the use of condoms has been shown to:
 - speed up HPV clearance;
 - reduce the risk of genital warts;
 - reduce the risk of cervical cancer;
 - protect against Chlamydia and HSV infection (possible cofactors for cervical cancer);
 - protect against other STIs;
 - protect against HIV infection;
 - protect against pregnancy.

When should you recommend that a woman use condoms?

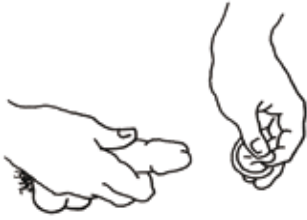
- If she is diagnosed with an HPV infection or a low-grade lesion (LSIL) which is being watched.
- When there is a risk of infection or bleeding and she is not able to follow advice to abstain from intercourse. This is the case after certain procedures, such as cryotherapy (see Chapter 5).
- For simultaneous prevention of most sexually transmitted infections, including HIV, and pregnancy (dual protection).
- While she is being treated for any STI.
- When her partner has symptoms or is being treated for an STI.

Condoms only protect when they are used consistently and correctly!

⁴ Adapted from: *Sexually transmitted and other reproductive tract infections. A guide for essential practice*. Geneva, WHO, 2005.

MALE CONDOMS

Male condoms are made of latex; they are widely available and inexpensive, highly effective in preventing STIs and partially effective in preventing HPV transmission.

Instructions for use

1. Remove the condom from the package carefully, to avoid tearing.



2. Squeeze the air out of the tip of the condom.



3. Unroll the condom onto the erect penis.



4. After ejaculation, withdraw the penis from the vagina while the penis is still erect. Hold on to the rim of the condom while withdrawing to prevent it from slipping off and the semen spilling into the vagina.



5. Remove the condom from the penis, and tie a knot in it to prevent spills or leaks. Dispose of the condom safely (where it cannot cause any hazard).

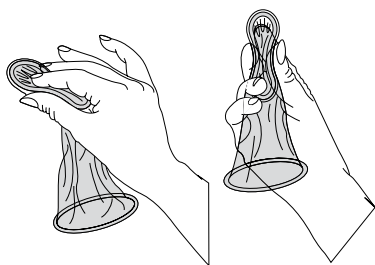
FEMALE CONDOMS

The female condom is a soft, loose-fitting sheath with a flexible polyurethane ring at each end. The inner ring at the closed end is inserted into the vagina. The outer ring at the open end remains outside the vagina during intercourse and covers outer genitalia. Female condoms are made of polyurethane and come in only one size. They probably offer the same level of protection as male condoms, but are considerably more expensive. One advantage is that the woman has greater control in using them than in using male condoms.

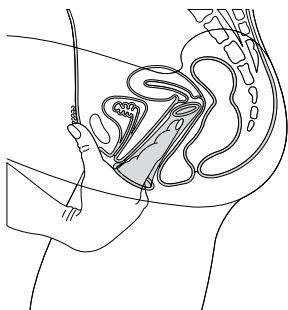
Instructions for use



1. Remove the female condom from the package, and rub it between two fingers to be sure the lubricant is evenly spread inside the sheath. If you need more lubrication, squeeze two drops of the extra lubricant included in the package into the condom sheath.



2. The closed end of the female condom will go inside your vagina. Squeeze the inner ring (closed end) between your thumb and middle finger. Insert the ring into your vagina.



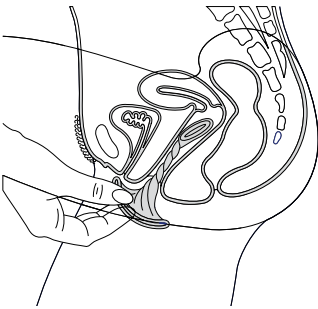
3. Using your index finger, push the sheath all the way into your vagina as far as it will go. It is in the right place when you cannot feel it.

Do not worry, it cannot go too far.

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- The ring at the open end of the female condom should stay outside your vagina and rest against your labia (the outer lip of the vagina). Be sure the condom is not twisted. Once you begin to engage in intercourse, you may have to guide the penis into the female condom. If you do not, be aware that the penis could enter the vagina outside of the condom's sheath. If this happens, you will not be protected.



- After intercourse you can safely remove the female condom at any time. If you are lying down, remove the condom before you stand to avoid spillage.

Dispose of the female condom safely (where it cannot cause any hazard). Do not reuse it.

INSTRUCTIONS FOR COUNSELLING ON CONDOM USE

- Male and female condoms are only effective if they are used correctly every time when having intercourse.
- Providers need to overcome their own reluctance to talk about and touch condoms. They should show patients and their partners how a condom is used.
- When instructing and counselling patients and their partners in how to use condoms, use a model penis or vagina. These can be bought, or you could make one with locally available materials.
- Demonstrate how to open a condom package, how to unroll the condom, how to place it on the erect penis (for a male condom) or inside the vagina (for a female condom), how to remove the penis from the vagina when still erect, how to remove the condom, and how to dispose of it safely.
- During or after your demonstration, ask the patient and her partner to do the same actions using a new condom on the same or another model. Gently correct any errors.
- Advise patients and partners to be particularly careful about the following:
 - When opening a condom package, avoid tearing the condom; do not use teeth or long nails.
 - Use condoms only once.
 - Have a supply always available.
- Provide sufficient condoms to every patient, including those who have been advised to abstain from sexual intercourse. Make sure women and men know how to use them, and where to obtain them in the community.

PS5

Practice Sheet 5: How to Use Male and Female Condoms