TRAINING PROGRAMME ON CERVICAL CANCER PREVENTION (P-CC) »

PARTICIPANT HANDBOOK

BASED ON REFERENCE DOCUMENTS AND RECOMMENDATIONS BY THE WHO

GLOSSARY

ACCP	Alliance for Cervical Cancer Prevention.
AGUS	Atypical Gandular Cells of Undetermined Significance
ASCUS	Atypical Squamous Cells of Undetermined Significance
CC	Cervical Cancer
CIN	Cervical Intraepithelial Neoplasia
CIS	Carcinoma In Situ
CST	Cervical Smear Test
HSPC	Health and Social Promotion Centre
FIGO	International Federation of Gynaecology and Obstetrics
GICR	Global Initiative for Cancer Registry development
HIV	Human Immunodeficiency Virus
HPV	Human Papilloma Virus
HR-HPV	High Risk Human Papilloma Virus
HSIL	High-grade squamous intraepithelial lesion
IARC	International Agency for Research on Cancer
LSIL	Low-grade squamous intraepithelial lesion
MSCC	Medical Centre with Surgical Services
PAHO	Pan American Health Organisation
PATH	Programme for Appropriate Technology in Health
PCL	Precancerous lesions
SCJ	Squamocolumnar junction
SIL	Squamous Intraepithelial Lesion
SRHR	Sexual and Reproductive Health and Rights
STI	Sexually Transmitted Infection
VIA	Visual Inspection with Acetic Acid
VILI	Visual Inspection with Lugol's Iodine

CONTENTS

FOREWORD

Since 2010, Médecins du Monde (MdM) has considered sexual and reproductive health (SRH) to be a key issue and a priority. In 2012, the practical implementation of the SRH conceptual framework is based on a holistic approach and is integrated in the healthcare and rights continuum. It takes an approach based on human rights, reduction of gender inequalities and empowerment of individuals and communities. In 2013, the SRH Guidelines are developed to support the implementation of our projects.

In 2014, the SRH strategy was validated with a focus on three elements, three breaking points in the healthcare and rights continuum. These points are key public health issues that are subject to both stigma and neglect, despite their major impact on mortality and morbidity for women and girls:
1. Prevention and management of unwanted pregnancies through access to comprehensive sexuality education, contraception, and safe abortion.
2. Response to SRH needs in crisis settings, including prevention and care for survivors of Gender-Based Violence (GBV).
3. Prevention of cervical cancer (CC) through screening and early treatment of precancerous lesions.

These three priorities are also part of a political statement in favour of the respect of sexual and reproductive health and rights, statement that is taken forward at project level as well as in more cross-sectional spaces of influence at regional and global level. Since sexual and reproductive rights are an essential requirement for sexual and reproductive health, MdM has progressively adopted the concept of Sexual and Reproductive Health and Rights (SRHR).

As a part of MdM's priorities, SRHR benefit from the continuous elaboration of tools based on international protocols that support our projects in a quality approach that enables our responses to be adapted to the populations' needs and expectations.

Given the importance of skills and competencies in order to implement the developed strategies and approaches, strengthening skills for MdM staff is a core element of the strategic orientations on this topic. This specific training programme was thus developed to enable teams and partners of MdM to gain an understanding of the topic of CC and enhance the integration of a promotion of sexual and reproductive health and rights approach in their projects. This programme aims at developing technical skills regarding:

- Prevention of cervical cancer
- Provision of quality care of precancerous lesions
- Taking advocacy measures in favour of the promotion and exercise of sexual and reproductive health and rights.

Training of MdM teams and other actors in the field of CC is supported and laid down by a Multiannual Partnership Agreement 2018-2021 signed between MdM and AFD (French Development Agency), which targets two countries of intervention for this topic: Burkina Faso and Ivory Coast.

AIM OF THE PROGRAMME

OVERALL OBJECTIVE:

- To be able to develop and implement a project regarding the prevention of CC (P-CC) and care of precancerous lesions based on a public health approach and underpinned by the promotion of sexual and reproductive rights.

SPECIFIC OBJECTIVES:

- To take ownership of MdM's strategy on P-CC and its integration in the overall SRHR strategy.
- To have a general understanding of the global epidemiological situation regarding CC, the main public health issues at stake and the strategies for primary and secondary prevention.
- To be able to devise and implement awareness-raising activities at community level so as to strengthen users' individual capacities on the issue of CC and promote the empowerment of individuals and communities.
- To be able to devise and implement CC screening and testing activities as per the defined algorithm: testing or self-sampling (HR-HPV) and triage using visual inspection.
- To be able to devise and implement activities regarding care of precancerous lesions.
- To be able to devise and implement activities for the referral and counter-referral in case of diagnosed cancerous lesions.
- To be able to devise and implement activities in relation to pain management and community end-of-life care (palliative care).

INTRODUCTION

MDM POSITION: SEXUAL AND REPRODUCTIVE HEALTH AND RIGHTS

MODULE LEARNING OUTCOMES

THEORETICAL KNOWLEDGE:

- Definition of sexual and reproductive health and rights
- MdM's position and SRHR strategy
- Key advocacy messages.

PRACTICAL SKILLS:

- Identify the main barriers to exercising sexual and reproductive health and rights
- Identify the core elements of the national regulatory framework in relation to sexual and reproductive rights.

1. INTRODUCTION TO SEXUAL AND REPRODUCTIVE HEALTH AND RIGHTS: KEY CONCEPTS AND DEFINITIONS

Sexual and reproductive health and rights

'Sexual and reproductive health is a state of physical, emotional, mental, and social well-being in relation to all aspects of sexuality and reproduction, not merely the absence of disease, dysfunction or infirmity. Therefore, a positive approach to sexuality and reproduction should recognize the part played by pleasurable sexual relationships, trust, and communication in promoting self-esteem and overall well-being. All individuals have a right to make decisions governing their bodies and to access services that support that right[1] .

In order to guarantee sexual and reproductive health and rights, an essential package of intervention must be made available: comprehensive sexuality education, counselling and services offering effective contraceptives, antenatal care, emergency obstetric care (both antenatal and postnatal), comprehensive abortion care, prevention and treatment of HIV and other STI, prevention, screening and care of gender-based violence (GBV), information, counselling and services in sexual health and well-being, and services regarding hypofertility and infertility. These interventions are essential and a part of MdM's approach to ensure the healthcare continuum in SRHR (see below figure on continuum of care in SRHR). Because sexual and reproductive rights are an essential premise to sexual and reproductive health, MdM decided to use the term of SRHR as defined by the Guttmacher-Lancet Commission.

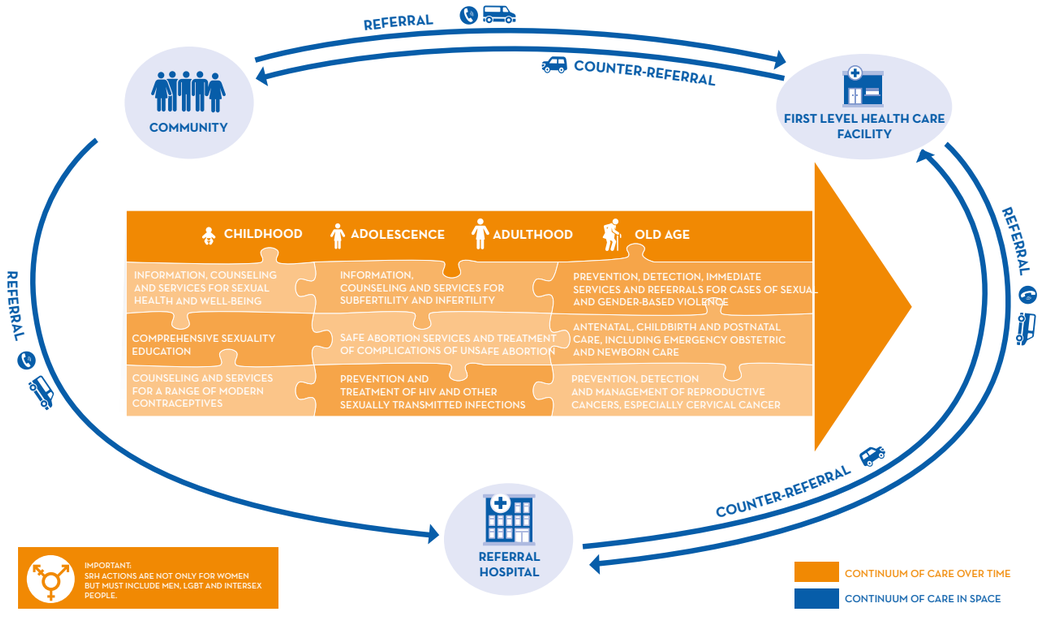
2. MDM'S POSITION AND STRATEGY IN SEXUAL AND REPRODUCTIVE HEALTH

a) MDM's position regarding SRHR

Health is a universal human right to which every person is entitled, and it must be guaranteed by the States. For MdM, this implies to support and strengthen public health systems so that they ensure access to care and respect of the right to health. It is also necessary to strengthen the individual capacities of users, as rights holders, so that they become aware of their rights and may claim them.
In 2010, MdM asserted its commitment towards the respect of SRHR and universal access to sexual and reproductive health services. This implies strengthening the healthcare continuum from community level to reference centres, at all steps of the users' life.

The implementation of this commitment is based on two complementary approaches:
➡ A **public health approach** through the provision of holistic, quality care services that respect the healthcare continuum and are accessible to all.

FIGURE 1: HEALTHCARE CONTINUUM IN SRHR



1. Guttmacher-Lancet Commission, *Accelerate Progress—Sexual and Reproductive Health and Rights for All*, 2018

➡ An **approach based on promotion of sexual and reproductive health and rights** through advocacy actions in favour of the right to access adequate health services.

For further information, see: Sexual and Reproductive Health and Rights Guideline

b) MDM's strategy

MdM acknowledges the importance of a holistic approach that enables care of people throughout the continuum of care, at community level, primary care level through to reference centres. This holistic approach enables care to be delivered to people throughout their life course in the area of sexuality and reproduction. *(See figure 1.)*

The identification of the components of this continuum and the associated healthcare provision is based on the definition of integrated health and sexual and reproductive rights given by the Guttmacher Lancet Commission in 2018. Enhancing access to healthcare services and respect of the right to health are essential ways to strengthen the healthcare continuum. To achieve this, four elements must be taken into account *(see figure 2)*:

- Geographical barriers
- Legal and administrative barriers
- Financial barriers
- And sociocultural determinants that may prevent access to services.

This is why the implementation of projects providing sexual and reproductive health care, requires strengthening or enhancing the development of initiatives that may lift these barriers. Regarding financial barriers, any initiative allowing care to be delivered free of charge should be encouraged. Regarding geographical barriers, the development of referral pathways between the community, primary healthcare centres and reference centres is paramount. Regarding legal barriers, advocacy actions in favour of the respect of sexual and reproductive rights will be undertaken. In addition, the consideration of sociocultural barriers can also strengthen the adequacy between the offer of care and the needs of the individuals. Reflection on access to healthcare services should be undertaken in partnership with health authorities and local stakeholders so as to work hand-in-hand and avoid creating parallel or contradictory strategies.

Three delays are pointed out that are the cause of most maternal deaths and disabilities[2]:

➡ **Delayed arrival at the healthcare centre:** This delay is structural, due to impassable roads and limited communication which delay the point of first contact with healthcare services.

➡ **Delayed identification of complications:** Lack of knowledge of clinical signs, difficulty in assessing risk and insufficient access to family planning services are reasons for delayed first contact.

➡ **Delay in dispensing appropriate care:** Health centres do not have the operative resources to care for the patients. There is a lack of skilled professionals along with a lack of human and material resources that limit the scope of care for complications linked to delivery.

Therefore, MdM's strategy aims at strengthening capacities in order to exercise sexual and reproductive health and rights and at implementing integrated comprehensive and quality SRHR services in the countries of intervention. The aim of this strategy is to *(see figure 3)*:

1. **Strengthen the continuum of care in SRHR** at all stages of the project and in partnership with the actors involved.
2. **Enhance users' ability** to exercise their sexual and reproductive health and rights.
3. **Strengthen the exercise of sexual and reproductive rights and reduce gender inequalitie**s through the involvement of community actors and users at each step of the project.
4. **Accompany social change** and contribute to changes in public policy to improve the acknowledgement of sexual and reproductive rights and guaranteeing universal and effective access to SRHR services.

MdM is specifically involved in improving women's right to choose their motherhood, the number of children and the spacing of pregnancies, and thus in improving access to services that enable to exercise these rights in safe conditions. Adolescents are a vulnerable group that require particular attention with regards to sexual and reproductive health. Young girls are specifically exposed to the risks of sexual violence, early marriages and pregnancies that are risk factors for their health.

Similarly, MdM focuses its action in areas where health services are most scarce, as well as in crisis or conflict settings, where access to SRHR services is often impeded and girls and women are more vulnerable.

In reaction to breaking points in the continuum of care in SRHR, three areas of intervention have been identified as priorities:

For further information: *SRH Strategy 2014-2017.*

FIGURE 2: BARRIERS AND DELAYS IN ACCESSING CARE IN SRHR

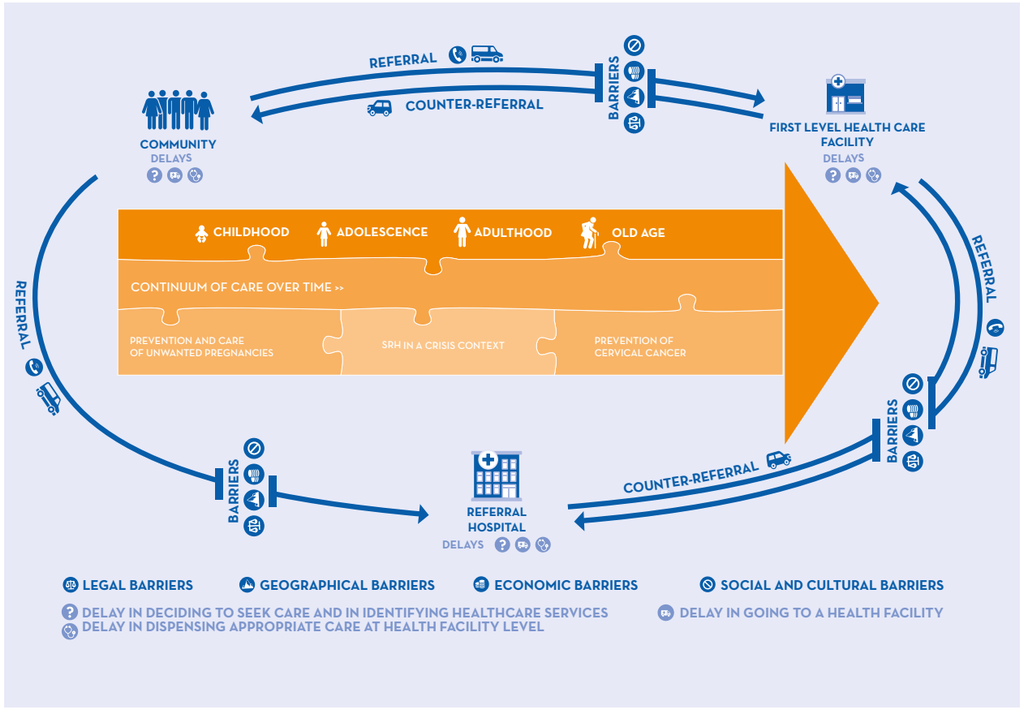
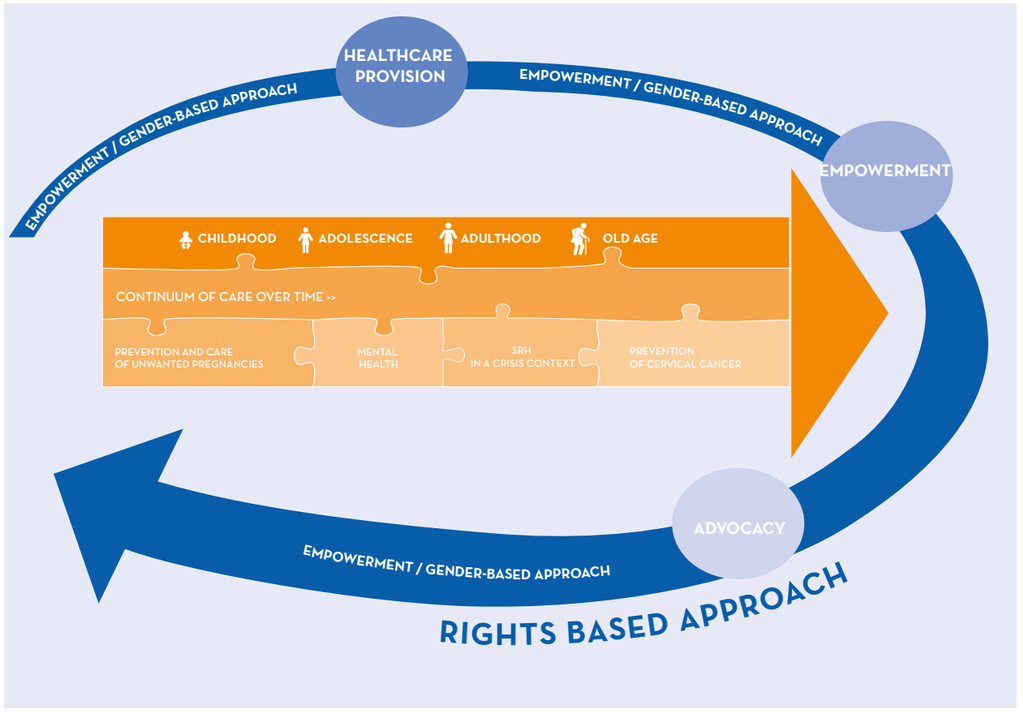
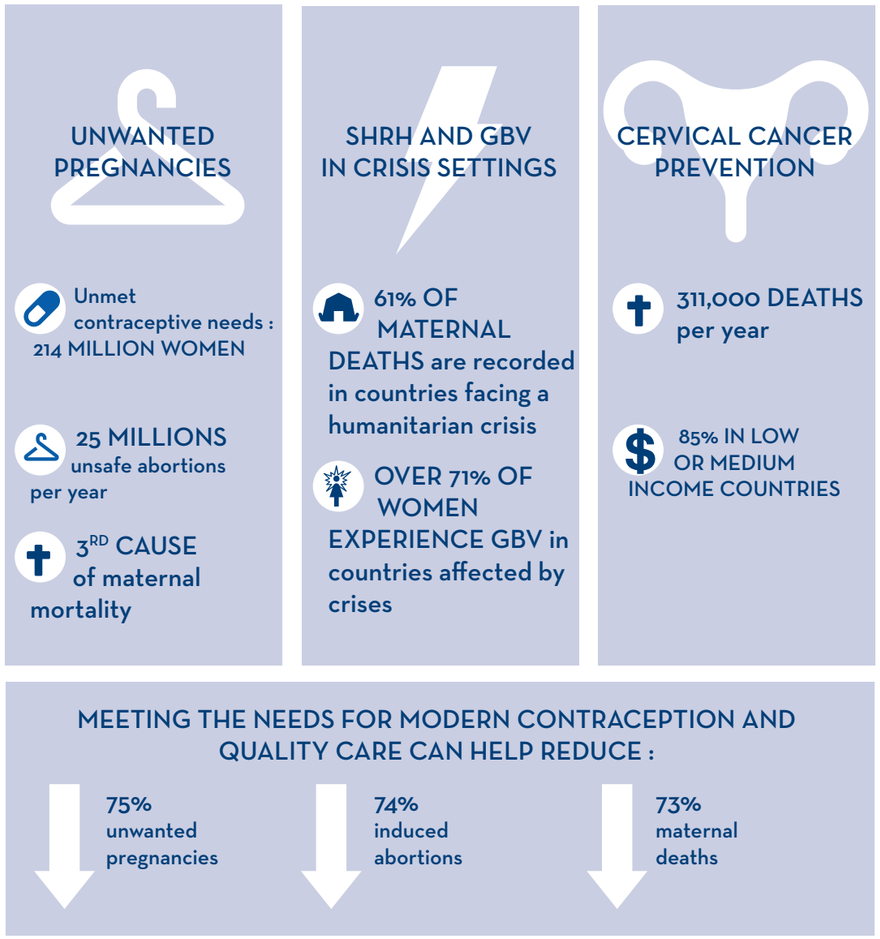


FIGURE 3: MDM'S SRHR STRATEGY: CONCEPTUAL FRAMEWORK



2. WHO (2003), Maternal deaths disproportionately high in developing countries, press release, Media Centre

FIGURE 4: 3 PRIORITIES AREAS OF INTERVENTION IDENTIFIED BY MDM



3. DETERMINANTS OF SRHR AND TYPES OF BARRIERS TO EXERCISING SRHR

A person's state of health is defined by complex interactions between individual, social, cultural, environmental, financial, and political factors. These determinants of health explain the inequalities in health within a country or between two countries. It is important to take them into account and address these determinants to improve a population's health. Moreover, these determinants have an impact on the availability of adequate and quality provision of care but also on the access to healthcare services.
The presence of an available service does not necessarily guarantee that it is used in practice. By taking account of all determinants of access to sexual and reproductive healthcare, MdM strengthens its commitment to enhancing the links between levels of care for women and newborns.

a) Sociocultural barriers

Sociocultural determinants of access to healthcare may be defined as all popular norms, values, knowledge and practices associated with health, and governing actions and thinking about health, illness and also care.
Taking account of sociocultural determinants enables to strengthen communication between the various actors of a given health project and the targeted population, and thus improves the quality of our projects by taking account of needs, values and norms held by service users. Performing a sociocultural diagnosis at the onset of a project is a recommended step in order to identify the key community actors, to understand the barriers to accessing care, the therapeutic pathways and understand the views on sexual and reproductive health, in particular regarding unwanted pregnancies.

For further information: MdM Guideline: Access to healthcare and sociocultural determinants.

b) Geographical barriers

Geographical barriers represent the physical distance that exists between care provided and demand for it. Geographical access is determined by the distance and time of transportation, which depends on the mode of transportation available for the woman and the difficulty of the journey. First and foremost, it depends on the availability of SHRH services in health facilities close to communities.
To reduce geographical barriers, it is important to ensure the availability and quality of services, to improve referral pathways and to reduce the financial impact of transportation on families' budget.

c) Financial barriers

Direct payment by users in health facilities is an obstacle to healthcare. Healthcare is often costly and unpredictable for families with a low income. Financial barriers include direct and indirect cost of care. Indeed, seeking care may also imply shortfalls as a result of the interruption of income-generating activities.
MdM took a stand in 2012 on financial access to care and is committed to introducing or extending free access to primary health care. Thus, we particularly act in support of free healthcare policies covering all aspects of the continuum in SHRH.

For further information: MdM Position paper 2012 Améliorer l'accessibilité financière aux soins de santé primaire [Improving financial access to primary healthcare].

d) Legal and political barriers

Barriers to accessing SHR services, in particular access to contraception (notably for minors), to post-abortion care or to medical abortion, may be induced by a restrictive political and legal environment regarding these issues. Inappropriate administrative procedures can also impede the free exercise of rights (e.g., compulsory advice from several persons, "cooling-off" period...)
An analysis of the regulatory framework is an essential premise of any SHRH project and must be continued throughout the implementation of the project, as it influences the quality and nature of the service provision, as well as the manner in which the rights of women are considered.

Beyond service provision, integrating advocacy actions to the project can help lift barriers and enhance the exercise of sexual and reproductive rights.

KEY MESSAGES

➡ **Sexual and reproductive health is a state of complete well-being, physical, emotional, mental, and social in relation to sexuality and the reproductive system, and is not merely the absence of disease, dysfunction, or infirmity. This includes the ability to:**
- Have a satisfying sex life
- Access information on family planning (FP) and use a chosen contraceptive method
- Access health services that accompany women in pregnancy and birth.

➡ **To achieve and maintain good sexual health, all individuals must see their sexual rights respected, protected, and exercised.**

➡ **MdM supports the right of women to choose their motherhood, the number of children and the spacing of pregnancies.**

➡ **MdM's commitment to SRHR is based on both a public health approach and the promotion of sexual and reproductive rights approach.**

➡ **SRHR are a key theme for MdM and must be understood as a part of the healthcare continuum. However, three breaking points in this SRHR continuum have been identified as priorities:**
- Prevention and management of unwanted pregnancies
- Responses to SRHR needs in crisis settings, and notably response to physical and/or sexual violence,
- Prevention of cervical cancer.

➡ **Sexual and reproductive rights are regulated by international legal instruments in relation to human rights in general and women's rights in particular, which are binding for the States.**

➡ **Barriers to the exercise of SRHR can be sociocultural, geographical, financial, legal, administrative.**

➡ **MdM participates in advocacy actions in favour of universal access to contraception and in favour to lifting legal restrictions and obstacles to safe abortion.**

NOTES

➡ What do I take away from this session?
➡ What elements require further clarification?

➡ Understandings to develop?

PART 1

CERVICAL CANCER PREVENTION COMMON SESSIONS

COMMON SESSION 1

INTRODUCTION TO THE ISSUE OF CERVICAL CANCER AND MDM STRATEGY FOR PREVENTION

MODULE LEARNING OUTCOMES

THEORETICAL KNOWLEDGE:

- Knowledge of epidemiological data on cervical cancer
- Articulate the key elements of MdM's strategy for prevention of cervical cancer.

PRACTICAL SKILLS:

- Understanding MdM's strategy
- Understanding the challenges of setting up CC prevention.

I. BACKGROUND INFORMATION ON THE ERADICATION OF CERVICAL CANCER

« One woman dies of cervical cancer every two minute. Each one is a tragedy, and we can prevent it. »
Dr Tedros Adhanom Ghebreyesus, Director-General of the World Health Organization (WHO)

Cervical cancer is a disease caused by a viral infection by human papilloma virus (HPV). This virus is sexually transmitted, and most cases could be avoided through adequate screening. Due to inequalities, this cancer's mortality rate is higher in low- or middle-income countries with failing health systems. In addition to its impact on mortality, it also has a human, social and financial impact that constitutes a real burden for these countries. Prevention and screening of precancerous lesions, followed by appropriate treatment when required, are essential to prevent new cases of cancer. The last WHO recommendations include the involvement of countries and leaders globally. In fact, it is the first time that 194 countries commit to eradicating that type of cancer, following the adoption of a resolution during the World Health Assembly in 2020.

a) The strategy for elimination of CC adopted on November 16th, 2020 is based on the following standpoints:[3]

- View participation to the response given to non-communicable diseases as a step toward universal access to health.
- Recognize the commitment of populations, in particular women and girls, families, and communities.
- Include all stakeholders as essential to the management of the health system, to fully empower people to improve and protect their own health.
- Promote access to diagnosis, screening, treatments, and affordable care, as well as to vaccination reducing the risk of cancers such as CC and view this promotion as a step towards a more comprehensive approach to prevention and control.
- Implement and upscale any measures proved as financially effective to achieve eradication of CC as a public health issue, including the following: HPV vaccination, screening and testing for precancerous lesions, early diagnosis and treatment of invasive cancers, and use of palliative care.
- Embrace a holistic approach to prevention and control of CC: This includes vaccination programmes, screening and treatment programmes, specific services for adolescents, specific services for HIV and sexual and reproductive health, and both communicable and non-communicable diseases.
- Encourage the creation of strategic and inclusive partnership at national, regional, and global level, with a scope that goes beyond the health sector.
- Consider prioritisation of young girls' vaccination against HPV as the most effective long-term intervention to reduce the risk of CC. To that end, access to vaccination must be enhanced and their distribution must be facilitated by reducing costs to foster the integration of the HPV vaccination in national immunisation programmes.
- Foster research and collaborations, which will enable innovation in the fields of vaccination, screening, diagnosis, treatment, and provision of care in relation to CC.

b) The WHO strategy is based on 3 key steps: vaccination, screening, and treatment.

The global strategy for the eradication of cervical cancer suggests the following goals to be pursued:

- A world where CC is eliminated as a public health problem.
- A threshold of 4 per 100 000 women per year affected by CC, for elimination as a public health problem.
- The 90-70-90 targets must be reached by 2030 for countries that are on the path towards cervical cancer elimination.
- A mathematical model that illustrates the benefits of achieving the 90-70-90 targets for the eradication of CC by 2030 in low- or middle -income countries.
- The median CC incidence rate must decrease by 42% by 2045, and 97% by 2120, thus preventing over 74 million new cases of CC.
- The aggregated median number of avoided deaths from CC will be of 300 000 by 2030, over 14 million by 2070, and over 62 million by 2120.

The main risk factor for developing cervical cancer is a persisting infection with Human Papilloma Virus (HPV). HPV is mainly transmitted through sexual contact.

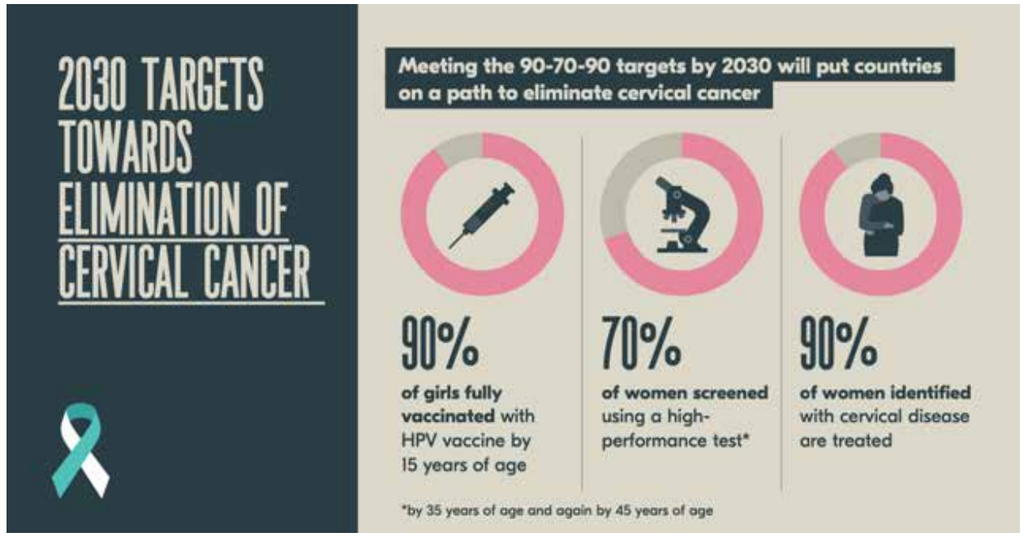
99.7%[4] of cervical cancers are indeed associated with an HPV infection.
HPV is therefore a necessary condition for the development of cervical cancer and precancerous lesions. At first, the persistence of the virus does not cause cytological or histological modifications (latent infection); eventually, it may cause lesions such as condyloma or intraepithelial neoplasia.

Therefore, Médecins du Monde acts by tackling different angles:

- Developing the experience and technical expertise of the organization on this topic.

3. The Seventy-third World Health Assembly (03/08/2020), Global strategy to accelerate the elimination of cervical cancer as a public health problem and its associated goals and targets for the period 2020–2030, Agenda item 11.4
4. Walboomers JM, Jacobs MV, Manos MM, Bosch FX, Kummer JA, Shah KV, et al. (1999), Human papillomavirus is a necessary cause of invasive cervical cancer worldwide. J Pathol.;189(1):129

FIGURE 5: 90-70-90, WHO*



* WHO (17 November 2020), 2030 targets toward the elimination of cervical cancer, Official twitter account

- ➡ Integrating screening and treatment of precancerous lesions within SHRH services.
- ➡ Setting-up partnerships and referral pathways to guarantee the continuum between the community and primary healthcare facilities, or secondary facilities in the case of uterine cancer.
- ➡ Developing operational research activities to facilitate the implementation of the screening algorithm, as well as the implementation of effective care adapted to the context of each intervention, in order to influence international recommendations in terms of P-CC.

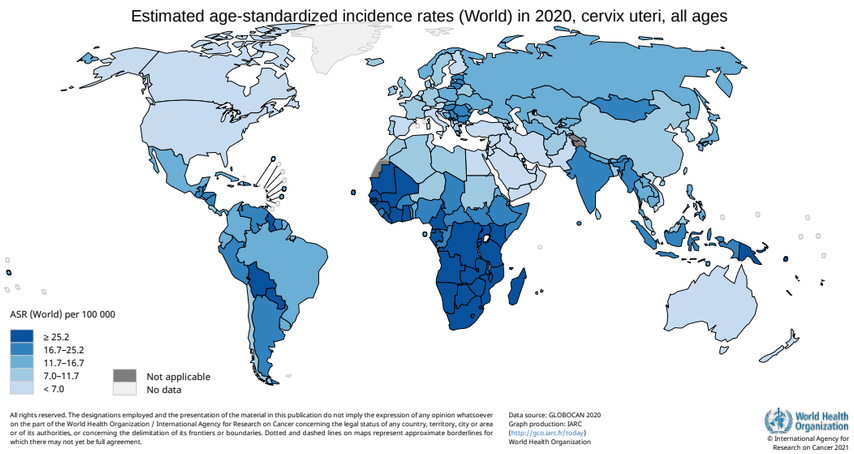
II. EPIDEMIOLOGICAL SITUATION

a) Definition

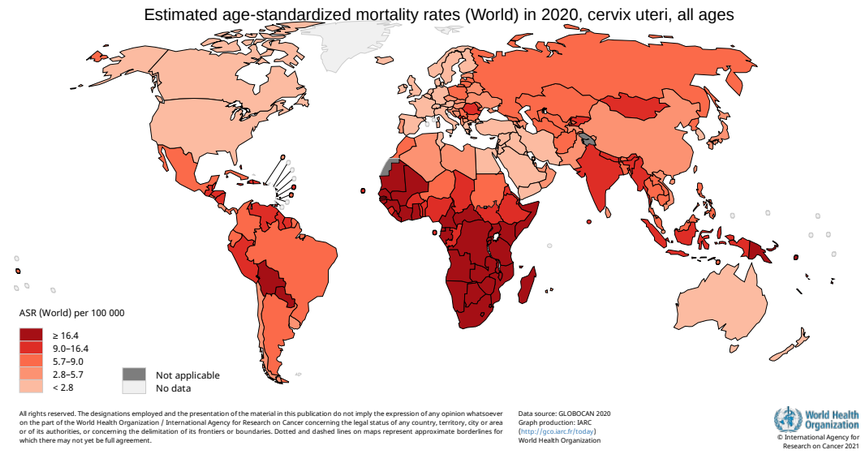
Epidemiology is the study of the distribution and determinants of the state of health and events linked to health, as well as the use of this knowledge to fight illnesses and other health issues.

b) Global epidemiology

MAP 1: GLOBAL INCIDENCE OF CC, WHO 2020



MAP 2: INCIDENCE OF CC MORTALITY AT GLOBAL LEVEL, WHO 2020



Cervical cancer is the most frequent female cancer in 45 countries. These countries are in Sub-Saharan Africa, many countries in Asia and some countries of Central America *(see maps 1 and 2)*[5].

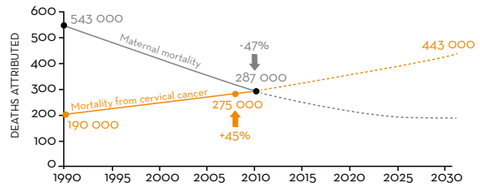
The data presented above underlines important disparities between women living in high-income countries and those living in low-income countries.

Every two minutes, a woman dies of cervical cancer worldwide, 266 000 in 2012, 90% of which occurred in a low- or middle-income country.
Among the 528 000 new cases of cancer diagnosed in the world, 85% occurred in the least developed regions.

The main reason for this disparity is the relative absence of efficient screening programmes. Cervical cancer is thus diagnosed too late, preventing the recourse to efficient treatment.
In high-income countries, the incidence and mortality rates for cervical cancer have decreased in the last 30 years, through prevention programmes (screening, diagnosis, and early treatment of cancers).

According to the World Health Organisation (WHO), cervical cancer will kill 443 000 women per year in the world in 2030. Over 98% of these deaths will occur in developing countries, among which 90% in Sub-Saharan Africa. The increase in cervical cancer rates in the world, and particularly in Africa, is currently undermining the progress made in the last 20 years in terms of reducing maternal mortality and morbidity.

FIGURE 6: WHO ESTIMATED MORTALITY RATES BY CC 2012



c) HIV and CC [6]

« As the world commits to working together to eliminate CC, let us pay attention and we will end this avoidable burden on women and girls with HIV. It is our work »
Dr Princess Nono Simelea, Assistant Director-General for Family, Women, Children and Adolescents at WHO.

Women who are HIV positive are six times more likely to develop CC. This increased risk is present throughout the life cycle and begins with a higher risk of being infected with HPV and a quicker progression into cancer, less chance of regression of precancerous lesions and higher rates of disease recurrence after treatment.

40-50% of women living with HIV have cervical cancer. It is therefore essential to screen them.

5. WHO (2019), *Estimated age-standardized mortality rates (World) in 2018*, Cervix uteri, Females, All age
6. WHO (November, 16th, 2020), New estimates of the global burden of cervical cancer associated with HIV, https://www.who.int/news/item/19-08-2020-world-health-assembly-adopts-global-strategy-to-accelerate-cervical-cancer-elimination

KEY MESSAGES

- Over **340 000 women die each year of cervical cancer.** This represents one woman every two minutes.
- Illness caused by the persistence of HPV, a sexually transmitted virus.
- This illness **could be avoided in a majority of cases** through adequate screening.
- Over **85 % of deaths occur in low- or middle-income countries,** where access to screening and treatment is insufficient.
- **4th female cancer** in the world.

NOTES

- **What do I take away from this session?**
- **What elements require further clarification?**

Understandings to develop?

COMMON SESSION 2

HUMAN PAPILLOMA VIRUS AND CERVICAL CANCER BACKGROUND INFORMATION

MODULE LEARNING OUTCOMES

THEORETICAL KNOWLEDGE:

- Explain the basic physiopathology of CC
- Cite elements of primary and secondary prevention
- Cite elements of risk and vulnerability to HPV.

PRACTICAL SKILLS:

- Discuss representations around HPV and CC.

I. HUMAN PAPILLOMA VIRUS

a) Introduction

Infection by Human Papilloma Virus (HPV) is the most frequent viral infection in the reproductive system. Most men and women with a sexual activity will be infected at one point in their life, and some may be infected several times.
There are many types of HPV, a lot of which cause no disorder. HPV infections generally disappear without treatment within a few months and 90% will spontaneously disappear within 2 years after the date of the infection. A small proportion of infections caused by certain types of HPV can persist and develop into cancers.
Cervical cancer is by far the most frequent illness linked with HPV. Almost all cases of cervical cancer can be linked to HPV infection.

While data is limited regarding anogenital cancers other than cervical cancers, there is a growing body of evidence that enables a correlation to be made between HPV and anal, vulvar, vaginal, and penile cancer. Even if these cancers are less frequent than cervical cancer, their association with HPV makes them potentially avoidable using the same primary prevention strategies as those applicable to cervical cancer. Some oral cancers and laryngeal cancers can also be caused by oncogenic HPV, contracted through oral sexual contact.

b) Human Papilloma Virus

Characteristics

HPV is a DNA virus which belongs to the family of the Papilloma Viridae which encompasses 200 types of virus.

- Low oncogenetic risk HPV causing acuminated condyloma
- High oncogenetic risk HPV or HR HPV, present in cases of invasive cervical cancers

LESIONS	ASSOCIATED TYPES OF HPV
Cutaneous warts	1, 2, 3, 7, 63, 26, 27...
Acuminated condyloma	6, 11, 16, 51...
Intra-epithelial cervical neoplasia, cervical cancer, anal and genital cancers	16, 18, 31, 45, 33, 68...
Oral papillomatosis, recurring laryngeal papillomatosis	6, 11
Laryngeal Carcinoma	16, 18

The typology of HR HPV varies depending on the geographical area, however HR HPV 16 and 18 are the most frequent in the case of diagnosed cancer.

c) Mode of transmission

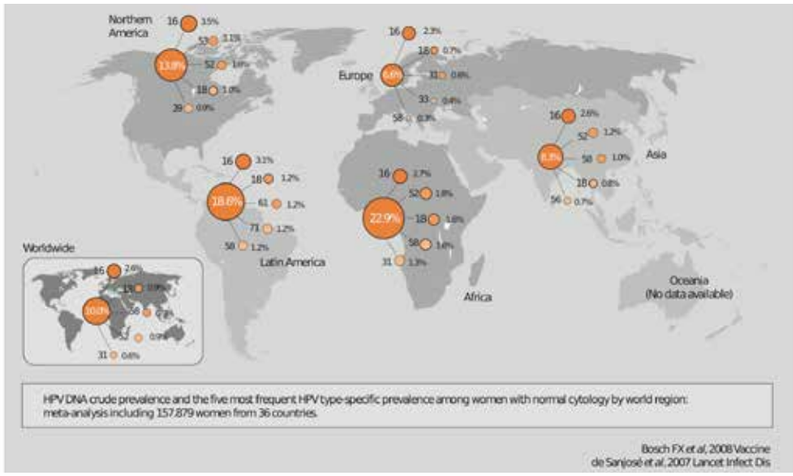
Direct transmission

HPV transmission is mostly through sexual contact, even without penetration. Skin-to-skin contact of sexual organs can be enough to infect the partner. HPV virus is highly contagious.
The risk of infection is at its highest at the beginning of sexual activity for both men and women.
Low-oncogenetic types of HPV can coexist with HR HPV.

Indirect transmission

Due to its resistance to environmental conditions, the papillomavirus may be transmitted indirectly, however this is rare; it can resist in water, towels, public baths, saunas... (e.g., plantar warts).

MAP 3: TYPE OF HPV BY GEOGRAPHICAL LOCATION, WHO



d) Symptoms of an infection with HPV

HPV causes infections that are most often benign and asymptomatic.

Depending on the type, there may be a variety of associated lesions: condyloma, cutaneous warts, oral papillomatosis, or -in the case of HR HPV- cervical, anal, vaginal, or vulvar cancers.

The virus can cause lesions that may appear a few months after contracting the virus but in some cases, the silent period can last months or years. This period where the virus is present but dormant is called the latency period.

The types of HPV which are non-carcinogenic (6 and 11 in particular), can cause acuminated condyloma and respiratory papillomatosis (whereby tumours develop in the respiratory tract between the nose and mouth and the lungs). While these affections rarely cause death, they may result in a strong occurrence of the illness. Acuminated condyloma are frequent and highly contagious.

Condyloma

Condyloma are small lesions of the mucosa and can take many forms:

- **Acuminated condyloma:** look like skin-coloured, small warts or cauliflower-like growths. They may be isolated or grouped in one or several localisations.
- **Papular condyloma:** take the shape of small warts (papula) skin-coloured or pink, isolated or confluent.
- **Condyloma lata:** look like plane spots (macula), they are red or skin-coloured. Therefore, they are not always visible.

They are localised in the genital or anal area and are most often not painful. They can be external or internal. Depending on sexual practices, it is possible that condyloma be found in the mouth.
Lesions can disappear spontaneously, but their size and number usually tend to grow.

Cervical cancer

In the case of high oncogenetic risk HPV-16 and HPV-18, which are responsible for cervical cancer, the symptoms are directly related to advanced precancerous lesions and can take the form of:

- Abnormal vaginal bleeding: outside regular monthly bleeding or during sexual intercourse
- Pain in the back, leg, or pelvis
- Loss of appetite or weight loss
- Tiredness
- The evolution of a cancer takes places over 15 to 20 years (except for women with HIV where evolution is quicker, in 4-5 years).

e) Risk factors for the occurrence of HPV

Infection with HPV is necessary to cause cancer, but it is not sufficient as such. Several cofactors have been identified to date[7] that may facilitate the contamination with HPV and therefore may participate in increasing risk of developing cervical cancer:

Exogenous factors

- High number of sexual partners
- Young age at first intercourse seems to play a role, however there is a link between young age and high number of partners.
- Tobacco through cocarcinogenic action and immunodepression.
- Multiparity: having given birth several times vaginally exposes a zone of the cervix called ectocervix. This exposure facilitates HPV infection.
- A link has been demonstrated between the occurrence of cervical cancer and co-infection by another STI, in particular HSV-2, chlamydia trachomatis and of course, HIV.

Viral cofactors

Infection with a HR HPV is a requirement but the oncogenetic profile depends on the genotypes. HPV 16 and 18 are major factors of an evolution into cancer.

Host factors

Endogenous hormone rates (number of pregnancies, menopausal status); genetic factors and individual immune response capacity (individual immune deficiency) play a role in carcinogenesis[8].

II. PHYSIOPATHOLOGY OF CERVICAL CANCER

a) Anatomy of the cervix

Anatomy

The uterine cervix is about 3 cm long. It is positioned on the lower end of the uterus and forms a canal between the uterus and the vagina. It is primarily composed of connective tissue and muscles. It can be divided into two main regions:

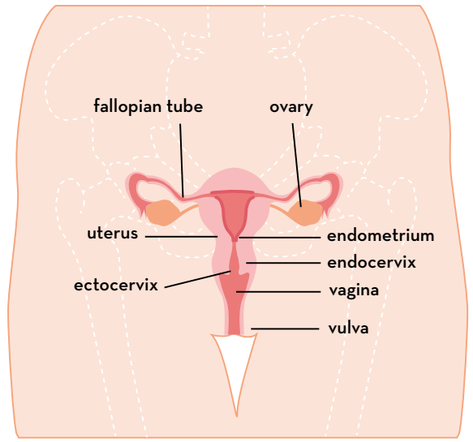
- The endocervix, which is the internal part of the cervix attached to the uterus;
- The ectocervix, which is the external, circular lip-shaped part of the cervix protruding into the vagina.

The **endocervical canal** is the area in the centre of the cervix which links the uterine cavity with the vagina.

The cervix opens into the vagina through the external os. The supravaginal area of the cervix meets the muscular area of the uterus at the internal os.
Multiparous women have voluminous cervix and the external os is uneven and wide and has a fish-mouth appearance. Nulliparous women have an external os which appears smooth and round.

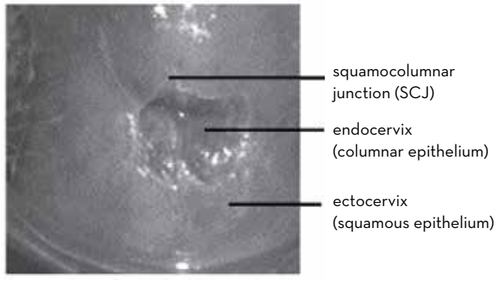
7. Munoz N, Castellsague X, de Gonzalez AB, Gissmann L (august 2006). *Chapter 1: HPV in the etiology of human cancer. Vaccine*
8. Faridi R, Zahra A, Khan K, Idrees M. (2011), Oncogenic potential of Human Papillomavirus (HPV) and its relation with cervical cancer. Virol J.;8(6):18.

FIGURE 7: FRONT AND SIDE VIEW OF FEMALE INTERNAL ORGANS, WHO[9]



The **ectocervix** is the part of the cervix that is exterior to the external os.
It is the only visible part of the cervix during a speculum examination. The part of the cervix that lies internally, above the external os is called the **endocervix.**

FIGURE 8: UTERINE CERVIX, WHO [10]



The ectocervix and the endocervix join at the **squamocolumnar junction.**

The endocervical canal is the canal within the cervix that links the uterine cavity with the vagina. It lies from the internal os to the external os.
The squamocolumnar junction (SCJ) is a hormonally determined zone and therefore its localisation changes overtime. During puberty, pregnancy and under progestogen treatment, there may be appearance of physiological columnar mucosa (as found in the endocervical area), on the ectocervix, which is called ectropion. After menopause, there is a retraction of the SCJ into the endocervical canal.

At microscopic level, two main types of cells are found in the cervix:

- Columnar Cells cover the endocervical canal. These are glandular cells that produce mucus. They are named columnar cells because of their column-like shape and their length.
- Squamous Cells cover the ectocervix and the vagina. They are flat and thin, similar to fish scales.

FIGURE 9. THE TRANSFORMATION ZONE OF THE CERVIX OF A PAROUS WOMAN OF REPRODUCTIVE AGE, WHO[11]

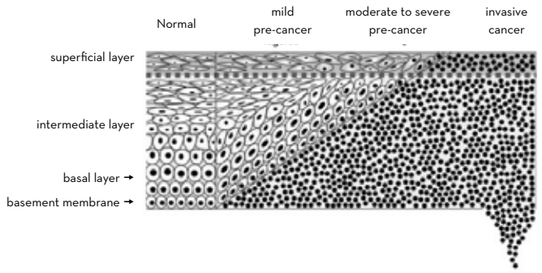
The area where the squamous cells meet the columnar cells is called the squamocolumnar junction. It is also referred to as the transformation zone, as large columnar cells constantly change into squamous cells, in particular during puberty and the reproductive period.
Precancerous lesions and most cervical cancers originate in this transformation zone.

b) Physiopathology

The cervix is in a precancerous condition when the changes undergone by certain cervical cells make them more at risk of developing into a cancer. This condition is not yet a cancer but there is a high risk of evolving into cervical cancer if untreated. When a precancerous condition is not treated, it may take up to 10 years before a cancer develops, but it may be shorter than that.

9. WHO (2014), Comprehensive Cervical Cancer Control, A guide to essential practice, 2nd Edition
10. Ibid.
11. Ibid.

FIGURE 10: PROGRESS FROM NORMAL EPITHELIUM INTO INVASIVE CANCER, WHO [12]



Precancerous conditions of the cervix initiate in a region that is called the transformation zone. This is where a type of coating (columnar cells), continuously transform into another type (squamous cells). The transformation of columnar cells into squamous cells is a physiological process. However, it makes these cells more sensitive to the effects of human papilloma virus (HPV).
Precancerous modifications of the cervix are somewhat frequent. They can occur at any age, but it is mostly women in their 20's or 30's.
Infection with human papilloma virus (HPV) is the main risk factor for precancerous changes in the cervix and of cervical cancer.

Precancerous lesions include both cervical intraepithelial neoplasia (CIN) and adenocarcinoma in situ. Both lesions are asymptomatic. There usually is a long-time span between their appearance and their evolution into invasive lesions, which leaves time for screening and diagnosis.

Persistent infection of cervical mucosa by HPV is necessary to the development of precancerous lesions and cervical cancer.
Precancerous conditions of the cervix are characterised by the extent of the abnormalities of the cells (visible using a microscope) and the severity of cellular changes. They are grouped according to the type of cell that present with abnormalities.

c) Histological Classification

Precancerous lesions are also called cervical intraepithelial neoplasia or CIN. They can take various forms that are more or less severe. A classification helps differentiate three main types of lesions according to their severity:

CIN 1: abnormal cells represent 1/3 of the thickness of the epithelium;
CIN 2: abnormal cells represent 2/3 of the thickness of the epithelium;
CIN 3: abnormal cells touch the entire epithelium.

Cervical intraepithelial neoplasia

CIN represent a variety of lesions characterised by cellular disorganisation, mainly linked to impaired differentiation and proliferation of abnormal cells. The number and localisation of these abnormalities enable to classify CIN with regards to their severity and talk about simple infections lesions (CIN 1) or pre-invasive lesions (CIN 2 and 3).

Epidemiological data suggests a recent rise in the incidence and prevalence rates of CIN and a decreased mean age of patients presenting these lesions.

For patients with a CIN 3, the risk of developing a cancer after 30 years is estimated between 31 and 50% in the absence of treatment. For CIN 3 the estimated time to develop a cancer varies between 5 and 19 years, but faster evolutions are sometimes reported, specifically when there is infection with HPV16.

Adenocarcinoma in situ

The Adenocarcinoma in situ (AIS) represents 1% of precancerous cervical lesions and is usually found in women between 25 and 30 years, thus 10 to 20 years before the development of invasive adenocarcinoma. The frequency of these lesions is rising for young women.

Around 50% of AIS are associated with intra-epithelial squamous lesions. Up to 90% of AIS are said to be HPV-induced (especially HPV18).

LESIONS	REGRESSION	PERSISTENCE	PROGRESSION INTO A HIGHER SEVERITY OF CIN	DEVELOPMENT INTO INVASIVE CANCER
CIN 1	57%	32%	11%	1%
CIN 2	43%	35%	22%	5%
CIN 3	32%	56%		>12

12. WHO (2014), Comprehensive Cervical Cancer Control, A guide to essential practice, 2nd Edition

d) The phenomenon of clearance[13]

The amount of time between the infection with HPV and the development of cancer is varying. In fact, at least 60% of mild dysplasia will spontaneously clear whereas 10% will evolve into moderate dysplasia within 2 to 4 years following the time of infection, and only 50% of dysplasia will develop into invasive cancer. HPV infection is mostly TRANSIENT and in time the cytological and histological abnormalities will disappear.

It will take between 10 and 20 years for mild dysplasia to develop into carcinoma. This slow evolution makes cervical cancer easily avoidable if it is screened. Figure 10 illustrates this clearance phenomenon.

III. PREVENTION

a) Introduction

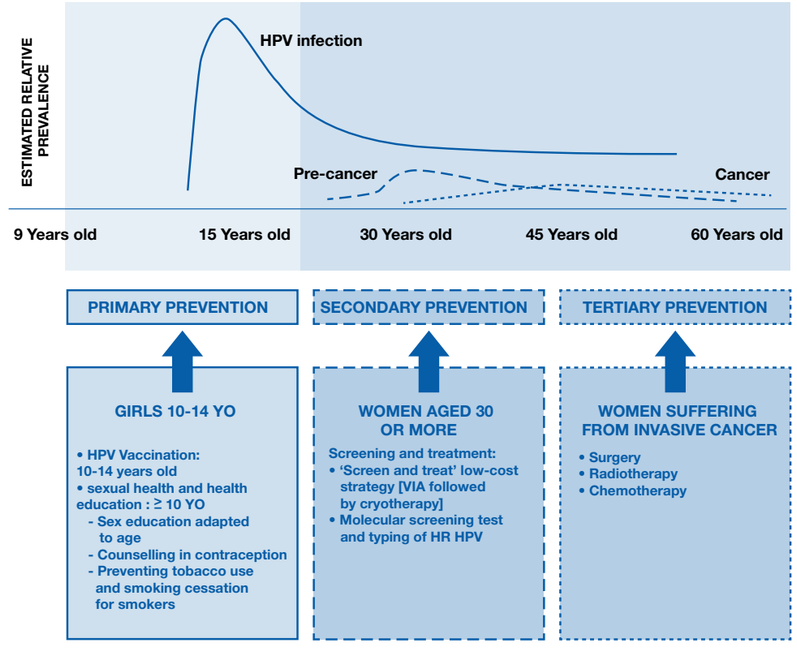
Prevention and diagnosis of precancerous lesions, followed by adequate treatment when required, are the key actions to prevent the 530 000 new cases of uterine cancer that are diagnosed every year.

Today, some screening tests exist that are affordable and easy to use, which could reduce the burden of death by cervical cancer in the least developed countries. The WHO recently acknowledge the importance of committing to prevention and screening of cervical cancer at a global scale. Some countries are beginning to integrate this issue in national health policy. However, there is a lack of resources that prevents effective implementation and access of women to simple and effective solutions to prevent this disease that may have disastrous consequences in the case of delayed diagnosis.

Primary prevention: the public health aim is to reduce infection with HPV. The key interventions are the following: vaccination, comprehensive sexuality education and promotion of the use of condoms.

Secondary prevention: the public health aim is to reduce the prevalence and the incidence of CC and its associated mortality, by preventing precancerous lesions of developing into invasive cancer. The key interventions are information, screening, and treatment of precancerous lesions.

FIGURE 11: WHO'S COMPREHENSIVE APPROACH TO CERVICAL CANCER CONTROL: OVERVIEW OF PROGRAMMATIC INTERVENTIONS DELIVERED ACROSS THE LIFETIME TO PREVENT HIV INFECTION AND CERVICAL CANCER



* Adapted from WHO Guidance Note (2013) Comprehensive cervical cancer prevention and control: a healthier future for girls and women, Geneva

13. WHO (2007), Comprehensive Cervical Cancer Control, A guide to essential practice

Tertiary prevention: the public health aim is to reduce the number of deaths caused by CC. The key interventions are the setting up of referral pathways for patients to adequate facilities, accurate and timely diagnosis of CC and appropriate treatment at each stage in accordance with the diagnosis. It is important to work on health professionals' representations as they may influence professional practice.

b) Primary prevention

Primary prevention aims at reducing infection with HPV through 3 actions:

- ➡ Vaccination of young girls aged 9 to 14 years-old (3 injections 6 months apart).
- ➡ Comprehensive sexuality education.
- ➡ Promotion of the use of condoms.

Vaccination

The WHO recommends systematic vaccination against HPV for young girls aged 9 to 14, given that in most countries they do not have any sexual activity at that age.

The age range must be adjusted at national level, in accordance with available data on sexual activity for young people.
There are three types of vaccines to date, the characteristics of which are summarised and compared in the following table:

TABLE: SUMMARY OF THE CHARACTERISTICS OF ANTI-HPV VACCINES*

CHARACTERISTICS	BIVALENT (CERVARIX)	QUADRIVALENT (GARDASIL®/SILGARD®)	NINEVALENT 9VHPV
TYPE OF VACCINE	Virus-Like Particle (VLP) with L1 recombinant plasmid	Virus-Like Particle (VLP) with L1 recombinant plasmid	Virus-Like Particle (VLP) with L1 recombinant plasmid
TYPES OF HPV IN THE VACCINE	16, 18	6, 11, 16, 18	6, 11, 16, 18, 31, 33, 45, 52, 58
PROTECTION	Cervical cancer (and precancerous genital lesions of the cervix, vulva and vagina)	Cervical cancer (and pre-cancerous genital lesions of the cervix, vulva and vagina) Condyloma acuminata	Cervical cancer (and precancerous genital lesions of the cervix, vulva and vagina) Condyloma acuminata
CROSS-PROTECTION	31, 33	31, 45	Unnecessary
NUMBER OF REQUIRED DOS-ES	2	2	2
DOSING INTERVAL	0 and 6 months (no maximum interval, but it is recommended not to exceed 12-15 months)	0 and 6 months (no maximum interval, but it is recommended not to exceed 12-15 months)	0 and 6 months (no maximum interval, but it is recommended to not exceed 12-15 months)
MODE OF ADMINISTRATION	Intramuscular injection	Intramuscular injection	Intramuscular injection
PHARMACEUTICAL FORM AND TYPE OF VACCINE VIAL MON-ITOR (VVM)	Single dose vial, VVM 30 Two-dose vial, VVM 30	Single dose vial, VVM 30	Single dose vial, VVM to be determined
STORAGE TIME	48 months at 2-8 °C for the single dose vial	36 months at 2-8 °C for the two-dose vial The vaccine is freeze-sensitive.	36 months at 2-8 °C, the vaccine is freeze-sensitive
EFFECTIVE CO-ADMINISTRATION WITH OTHER VACCINES FOR ADOLESCENTS**	Hepatitis B Diphtheria/Tetanus/ Pertussis Poliomyelitis	Diphtérie/ Tétanos/ Coqueluche Poliomyélite	
CONTRA-INDICATIONS	Severe allergic reaction to one of the constituents of the vaccine following the first dose Severe febrile illness Pregnancy	Severe allergic reaction to one of the constituents of the vaccine following the first dose Severe febrile illness Pregnancy	Severe allergic reaction to one of the constituents of the vaccine following the first dose Severe febrile illness Pregnancy

* WHO (2016), Guide to introducing HPV vaccine into national immunization programmes
** WHO (2017), WHO Guidance Note - Comprehensive cervical cancer prevention and control: a healthier future for girls and women, Geneva

According to the WHO Guidance Note [14] (November 2020), the targeted population should be girls between 9 and 14 years old, before the beginning of sexual activity. The recommended immunisation schedules should provide two doses spaced by 6 months, for girls under the age of 15 (this also includes girls 15 or older when injected with the 2nd dose).

While there is no maximum interval between doses, it is suggested not to exceed 12 to 15 months. If the interval between doses is inferior to five months, a third dose will be administered at least 6 months after the first dose, regardless of the reasons for this early injection. A three doses schedule (0, 1-2, 6 months) is recommended for girls aged 15 or more and for immunosuppressed patients, including those positive for HIV (whether or not they are treated with antiretroviral). It is not necessary to screen for infection with HPV or HIV before vaccinating against HPV.

The present recommendations regarding the immunisation schedule apply to both bivalent and quadrivalent vaccines.

Natural infection is not a protection label. The low concentration of antibodies is not enough to provide protection against reinfection and reactivation of the virus.

HPV vaccination for boys and men is under discussion, and it is important to increase the co-responsibility of people regardless of gender, to the public health problem of CC. However, it is less cost-effective in reducing the incidence of CC in comparison with large scale vaccination of a high proportion of young girls in the targeted age group. This is all the more the case that there is a current shortage of vaccines worldwide.

To ensure vaccination uptake, the programme must be associated with strong communication to stand up against the rise of anti-vaccination movements. This is why particular focus should be given to advocacy actions and community involvement, to reassure populations on the efficiency, safety, and benefits of the vaccine.

The WHO website provides regular updates of summary tables on recommendations for systematic vaccination.

For further information regarding vaccination, refer to chapter 4 of Comprehensive Cervical Cancer Control, A guide to essential practice.

Promoting comprehensive sexuality education[15]

« Comprehensive sexuality education is a curriculum-based process of teaching and learning about the cognitive, emotional, physical and social aspects of sexuality. It aims to equip children and young people with knowledge, skills, attitudes and values that will empower them to realize their health, well-being and dignity; develop respectful social and sexual relationships; consider how their choices affect their own well-being and that of others; and understand and ensure the protection of their rights throughout their lives. » UNESCO 2018.
The contents must be adjusted to age and cultural context and must include messages to decrease unsafe sexual behaviours.

Promoting the use of condoms

Encourage appropriate and systematic use of condoms (masculine or feminine), promoting condoms (masculine and feminine) are key factors to reduce STI.

c) Secondary prevention

Secondary prevention of cervical cancer focuses on three components:

Access to information

This requires an in-depth understanding of social, cultural and structural barriers in a given environment so as to develop strategies that guarantee easy access to services. Women from local communities must be decision-makers in these programmes, as they are allies [16].

Screening

Enhancing the integration of screening services in spaces usually dedicated to sexual and reproductive health services[17].

Treatment of precancerous lesions

Screening for cervical cancer is achieved by systematic testing of cervical abnormalities in an asymptomatic population. The women targeted in this screening may feel perfectly healthy and feel no need to consult in a health facility.

Screening services may be organised or opportunistic (this is when women are screened on the occasion of their access to services for another reason), or both. It is common knowledge that **organised screening is more cost-effective than opportunistic screening,** as it enables better use of available resources and larger coverage of the service.

14. WHO (November 16th, 2020), New estimates of the global burden of cervical cancer associated with HIV, https://www.who.int/news/item/19-08-2020-world-health-assembly-adopts-global-strategy-to-accelerate-cervical-cancer-elimination
15. UNESCO (2015), Emerging evidence, lessons and practice in comprehensive sexuality education:
UNESCO (2018), Education 2030: International technical guidance on sexuality education, An evidence-informed approach.
UNESCO (2010), International Technical Guidance on Sexuality Education: An Evidence informed approach for schools, teachers and health educators, Vol.1, The Rationale for Sexuality Education
16. WHO (November 16th, 2020), New estimates of the global burden of cervical cancer associated with HIV, https://www.who.int/news/item/19-08-2020-world-health-assembly-adopts-global-strategy-to-accelerate-cervical-cancer-elimination
17. Ibid.

To treat precancerous lesions, the favoured technique is loop electrosurgical excision procedure (LEEP). In contexts where this method cannot be used, or where resources are limited, the most recent WHO guidelines recommend cryotherapy as another method to satisfactorily treat lesions diagnosed by Visual Inspection with Acetic Acid (VIA). In countries that have the adequate resources, other techniques such as cold knife cone may be used.

The current available options to screen and treat precancerous lesions include the following:
« Screen, triage and treat » – Use of a screening test providing immediate results (HPV test) followed by a triage examination and immediate treatment (through thermocoagulation of the lesions) without waiting for additional test results, except if cancer is suspected. Early detection and treatment of precancerous lesions enable to prevent most of cervical cancers. Three different types of tests are currently available:

- Traditional test (Papanicolaou smear test) and liquid-based cytology (LBC)
- Visual inspection with acetic acid (IVA)
- HPV test enabling the identification of high-risk HPV. (for example, types 16 and 18).

Sequential testing – realisation of a second screening test (triage test) for patients screened positive for the first test, and treatment if precancerous lesions are confirmed.

Screening and realisation (for women with positive test results) of colposcopy and biopsy, and treatment according to the results of the biopsy.

In 2012, there were almost **a billion women between 30 and 49,** and most of these women had never been screened in their life.

d) Tertiary prevention

In many countries, the capacities to provide these services are insufficient, or the existing services are not accessible or affordable for a majority of women. The main difficulties faced in the implementation of efficient treatment systems are the following:

- Elaborating reference documents and guidelines developing and promoting the implementation of measures to manage cervical cancer[18].
- Enhancing access to high quality equipment[19].
- Enabling broader access to surgical treatment[20].
- **Developing and sustaining a referral network towards a specialised referral facility:** The main challenge in delivering treatment is to develop and sustain an efficient and quality network that will enable referral and timely access to care, while ensuring the continuum by linking the health facility with the referral unit, the laboratory and diagnosis and treatment centres. **A referral protocol and effective communication system must be in place to ensure the efficiency of the referral system.** The referral network may vary between countries and also depends on the health system of each country.
- **Treatment compliance:** it is also very difficult to get a treatment completed when it requires prolonged stay in a treatment centre location at regional or national level. Geographical, financial, and social barriers frequently lead to non-compliance, in particular regarding radiotherapy. Ensuring support for accommodation and travel expenses and/or providing an allocation to compensate lost working hours may play an essential role in enabling women and their families to overcome difficulties for the duration of the treatment. In countries that lack the resources to treat this type of cancer, it is useful to be aware of intergovernmental agreements for referral to neighbouring countries and put them to use.
- **Palliative care:** Ensure that patients with cervical cancer in a life-threatening stage benefit from care regarding pain and suffering (physical and psychological). This requires resources, specialised skills, and supervision. Effective palliative care implies a team of physicians, nurses and other specialists and members of the community working in collaboration at facility level, community level and family level.

According to Hunt, Nouvet, Chénier et al. (2020) [21], many barriers exist to the integration of palliative care, specifically in the humanitarian field. These barriers include:

- The prevailing notion of Ethos (saving lives) encourages focus on reducing mortality, thus leading to health professionals setting aside other approaches such as alleviation of suffering.
- The lack of time in crisis setting leading actors to overlook palliative care instead of including them as an integrated element of the humanitarian response.
- The lack of available resources and need to prioritise will lead professionals to set aside patients that might require palliative care.
- The difficulty to communicate with funders on this type of approach.
- The lack of guidelines, specific protocols, and clinical standards.
- The scarcity of skilled members with experience of palliative care.
- Barriers to accessing opioids in some countries.
- Cultural barriers.

Nonetheless, there is growing discussion on palliative care and end-of-life. Humanitarian action ought to integrate issues around suffering and respect of patients' dignity, alongside the fight to prevent mortality.

e) Possible intervention

Requires a cross-sectional and ambitious approach with the following foundations:

- **Empowering women**: strengthening self-determination and women's capacity to make their own decisions
- Reducing gender inequalities
- Respecting fundamental rights for all
- Reducing poverty.

Key components

- Adopt a health promotion approach enhancing empowerment and a healthy life course
- Protecting the exercise of rights to health, education, safety, etc.
- Strengthening comprehensive sexual education
- Planning preventative interventions for the age group 25-50 years old
- Eliminating marriage before the age of 18, preventing violence and sexual coercion
- Involving men to help them contribute to their health
- Taking action with local stakeholders and public services
- Enabling women to participate in the development of projects that affect them should be the cornerstone of any action.

The true challenges are the fight against poverty, gender inequalities, discrimination and lack of access to services.

18. WHO (November 16th, 2020), New estimates of the global burden of cervical cancer associated with HIV, https://www.who.int/news/item/19-08-2020-world-health-assembly-adopts-global-strategy-to-accelerate-cervical-cancer-elimination
19. Ibid.
20. Ibid.
21. Hunt, Nouvet, Chénier, *et al.* (2020), Addressing obstacles to the inclusion of palliative care in humanitarian health projects: a qualitative study of humanitarian health professionals' and policy makers' perceptions. *Conflict and Health*

KEY MESSAGES

- ➡ Papillomavirus is a very frequent group of viruses worldwide, but most infections are transient.
- ➡ HPV is a necessary condition: CC is mainly caused by infection by HPV **transmitted through sexual contact.** HPV represents a group of over 200 types of viruses, of which over 40 can be transmitted through genital contact.
- ➡ **Only a small percentage of the overall infections with HPV will be responsible for invasive cancer.**
- ➡ **Two vaccines are approved in most countries, that enable the prevention of infection by high-risk HPV types 16 and 18.** The vaccine cannot be used as therapeutic treatment.
- ➡ **Vaccination of young girls before the beginning of sexual activity** is an important aspect of primary prevention.
- ➡ **Even the girls who were vaccinated will need to be screened and test for cervical cancer.** Vaccination do not provide protection for all HPV, and in addition, we do not know the duration of the effectiveness of the vaccine.

NOTES

➡ What do I take away from this session?
➡ What elements require further clarification?

➡ Understandings to develop?

COMMON SESSION 3
INTERVENTION STRATEGY, PROTOCOL TESTING ALGORITHM AND DECISION-MAKING

MODULE LEARNING OUTCOMES

THEORETICAL KNOWLEGE:
- Explain the developed screening and testing algorithm
- Identify the key actors involved at each stage of the algorithm.

PRACTICAL SKILLS:
- State the specificities of the MDM model and their rationale
- Position the activities linked to CC in relation to existing services.

I. SCREENING STRATEGIES RECOMMENDED BY THE WHO

The WHO recommends strategies that allow women to benefit from timely care and that avoid loss to follow-up as much as possible. Thus, they encourage the use of rapid screening methods that enable the delivery of results and treatment of women in a single visit. This is the case for the « test and treat » and « sequential testing » methods that are carried out with rapid tests (VIA/VILI and/or point-of-care HPV testing).

'Screen & treat': a single visit with a method that allows for immediate delivery of results (e.g.: VIA) and immediate treatment if necessary.

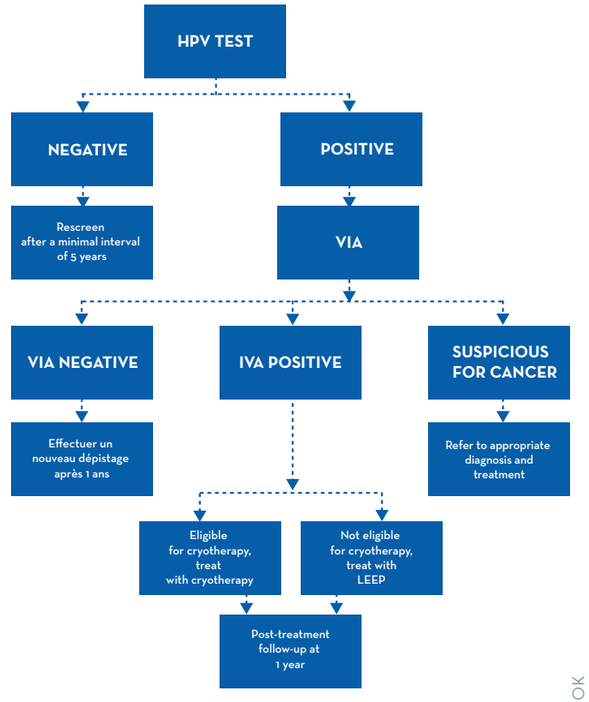
Sequential testing: carry out an initial screening test, followed by a confirmation test (if initial tests results are positive), and treat if necessary. Both tests may be carried out on the occasion of a single visit, or two sequential visits.

The step requiring **confirmation of the diagnosis** by colposcopy and biopsy is not efficient in low-income countries.

The WHO recommends **expanding the coverage of the screening** rather than its frequency.

The WHO recommends **screening all women aged 30 to 49.** This age group may be extended depending on age-related prevalence and life expectancy. Screening by HPV testing results in an important increase in false positives.

FIGURE 12:. SCREENING STRATEGY, WHO*



II. MDM'S SCREENING STRATEGY

a) MdM's strategy to prevent CC

The MdM Strategy
Médecins du Monde's objective to reduce morbidity and mortality caused by cervical cancer takes account of recommendations by the WHO. It includes three innovations based on scientific and technical knowledge of the area. The three suggested innovations are:

POWER TO TAKE ACTION	Choice between self-sampling and test by a health professional
QUALITY	Screening of HPV by PCR technique to improve the quality of the screening
INNOVATION	Use of thermocoagulation as an alternative to cryotherapy to treat precancerous lesions

* WHO (2014), Guidelines for screening and treatment of precancerous lesions for cervical cancer prevention, WHO guidelines, http://www.who.int/reproductivehealth/publications/cancers/screening_and_treatment_of_precancerous_lesions/en/

b) Intervention Algorithm

Our algorithm is based on the following 4 elements to enhance programme optimisation:

- **Definition of the target population**
- **Choice of screening test**
- **Elaboration of the screening modalities**
- **Definition of the interval** between screenings.

Target population

The WHO recommends to screen women between 30 and 49 years old, favouring coverage over the repetition of the screening for a given patient. This is because infections with HR-HPV are very frequent in young girls, but most of these are transient: they will disappear spontaneously from the woman's body. Only a small percentage of HPV infection persist for several years and will cause cervical cancer.

However, younger, or older women may be offered screening, depending on their risk of developing precancerous lesions. Screening women under 30, in particular for HR-HPV, will increase false positives and overtreatment. Indeed, a majority of women will contract an HPV infection during the first sexual intercourses, and this may cause cervical lesions, most of which will heal spontaneously.

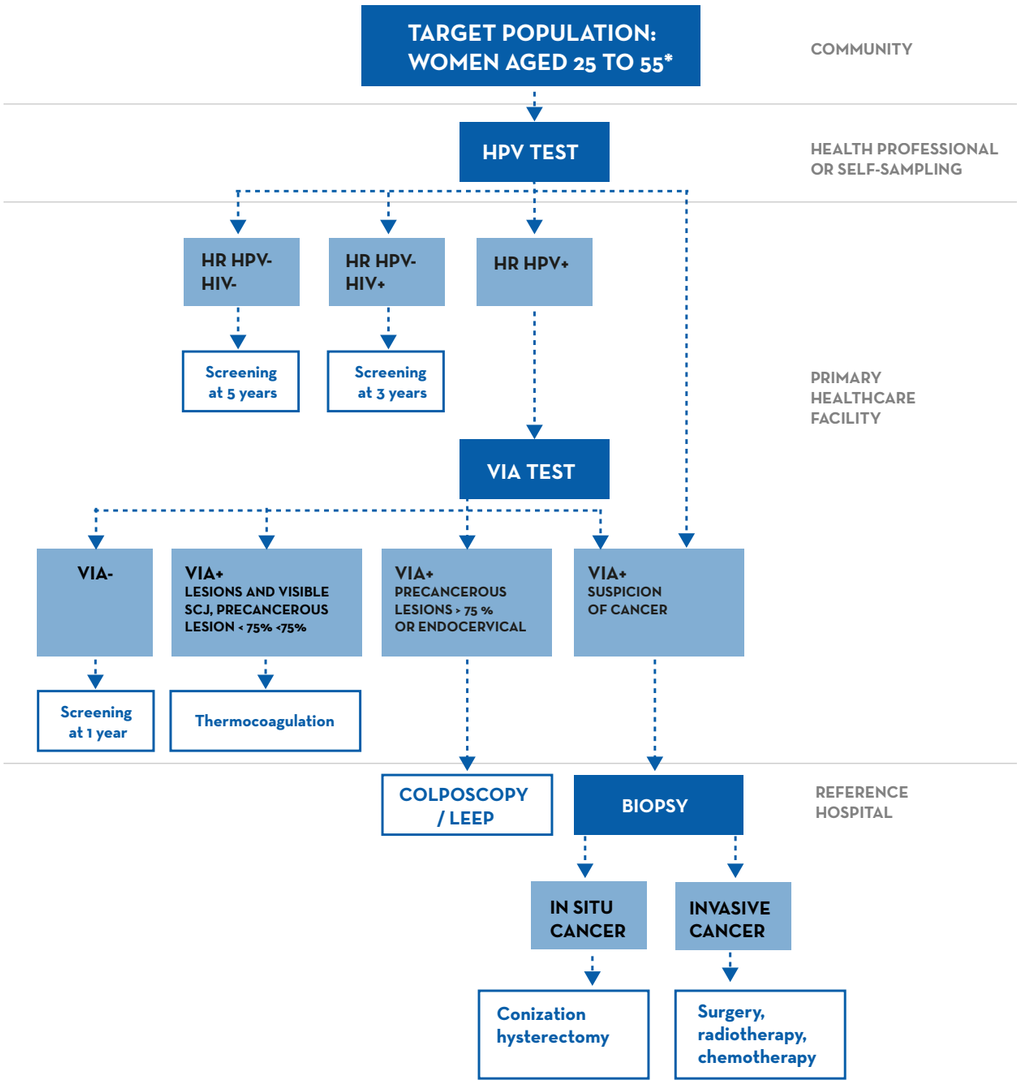
Screening for women older than 55 is not deemed pertinent, given the life expectancy in many countries, and since CC is an illness that requires years to develop (approximately 10 years).

The WHO is also in favour of expanding coverage rather than increasing frequency of screenings.
In HIV+ patients, screening will be offered for all sexually active women as soon as they are aware of the seropositive status, and regardless of their age.

People excluded from the target population:

- **Women who have had a hysterectomy** (for a benign disease)
- **Age groups** defined by WHO recommendations and national strategies <30 years and > 50 years
- **Women having been treated twice** by cryotherapy and thermocoagulation
- **Women with suspected cervical cancer**
- **Women up to date with their tests** (avoid over testing which has no added benefit).

FIGURE 13: FIGURE SUMMARISING SAMPLING PROCEDURES IN P-CC (MÉDECINS DU MONDE 2019),



*ALL HIV+ WOMEN AND SEXUALLY ACTIVE, AGE RANGE TO BE ADAPTED, ACCORDING TO THE MINISTRY OF HEALTH

Screening modalities

Screening makes it possible to select people in general population who are carriers of an affection through systematic use and not on the basis of symptoms. It is a public health action.
It therefore classifies a large number of apparently healthy people into two categories: those who probably have the disease and those who probably do not, with the aim of reducing the morbidity and/or mortality of the disease in the screened population.

There are two different types of screening:

- **Organized (or mass) screening** applies to an age group, by invitation. It is set up according to specifications and is subject to quality control. It applies to the population with no particular risk factor.
- **Opportunistic (or individual) screening** is an individual, not a collective, approach. During a contact with a health professional, a person requests or is offered screening.

Choice of screening test [22]

The 2020 WHO recommendations include:

- **Visual inspection** with acetic acid (only if the junction zone is visible).
- **Search for HR-HPV** with a threshold ·1.0 pg/ml: the search for HR-HPV is the method of choice recommended by the WHO in middle-income countries when this is financially possible, as an addition or in substitution of direct visualisation methods.

The WHO suggests triaging patients whose acetic acid screening is positive: only patients that are positive to both the HPV test (HPV+) and the acetic acid test (VIA+) will be offered treatment. Women with positive HPV (HPV+) that have a negative acetic acid test (VIA-) will be tested again after a year.

In addition, the WHO points out that even if carrying out a test with acetic acid is easy to implement in contexts where the resources are limited, its quality depends on the expertise of the practitioner, which makes for variations in effectiveness.

Defining the screening modalities

Two aspects must be envisaged regarding screening modalities for CC, that depend on the choice of screening test:

- **The use of self-sampling** in the screening for HR-HPV
- **The development of a 'screen, triage and treat strategy'**.

Self-sampling:

Screening was more efficient with self-sampling when these tests enable to increase coverage by >20%, despite the loss of sensitivity when compared to tests by a practitioner.
In the recommendations published in 2020, the WHO recommends setting up a 'screen, triage and treat' programme where treatment is decided upon a positive test result, without need for the histological confirmation by a diagnostic test. The testing strategy may be in the form of single test, which, if positive, will suffice to begin treatment. It may also be in the form of sequential testing, in which case women with all tests positive will be treated, while the others will be more closely monitored. Women at risk of developing precancerous lesions must benefit from adequate treatment, and women with suspected invasive cancer must be referred to an appropriate facility.
Given that one of our tests is based on the search for HPV, the 'screen, triage and treat' strategy will only be possible in facilities with a laboratory.

Definition of the interval between tests

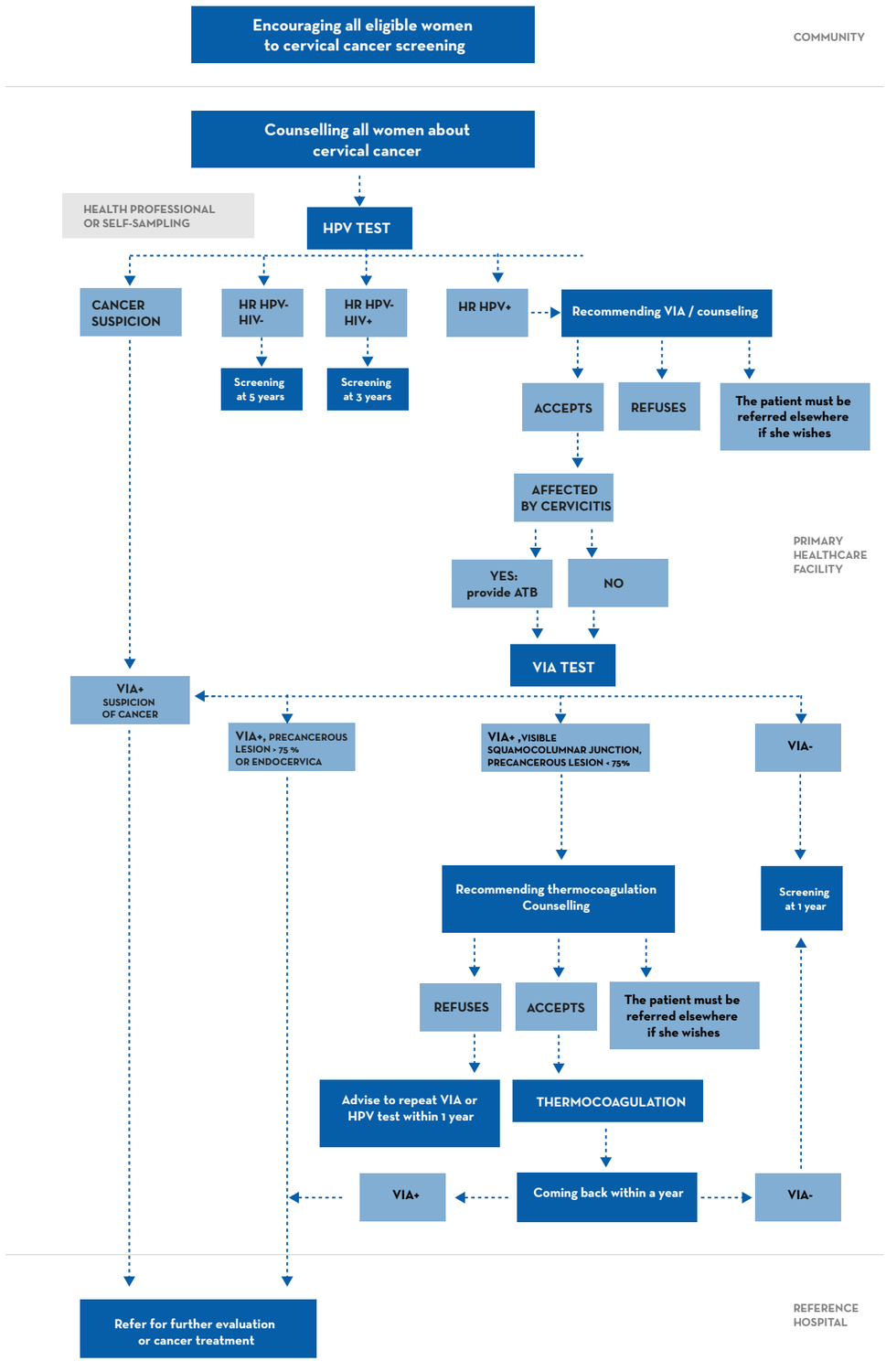
The timespan between two screenings depends on the patient's medical history:

- **1 year:** seronegative patients with HR-HPV positive and VIA negative test results, patients must then benefit from an HPV test.
- **3 years:** HIV positive patients with HPV negative results.
- **5 to 10 years:** HIV negative patients with HR-HPV negative results.

This interval may be adapted according to the evolution of knowledge and research in the field.

22. WHO (November 16th, 2020), New estimates of the global burden of cervical cancer associated with HIV, https://www.who.int/news/item/19-08-2020-world-health-assembly-adopts-global-strategy-to-accelerate-cervical-cancer-elimination

FIGURE 14: FIGURE SUMMARISING SAMPLING PROCEDURES IN P-CC (MÉDECINS DU MONDE, 2019)



c) Issues at stake

MdM strategic issues

Training	Interdependent nature of VIA
Referral pathway	Setting up a pathway depending on the diagnosis or course of action
Communication system	Efficient communication system between health facilities is required to en-sure the efficacy of the referral pathway (indicator)
Lost to follow-up/ Patient follow-up	Common definition of lost to follow-up Setting up a contact system (contact persons) Establishing a register Link ensured between screening services and treatment and follow-up af-ter treatment
Traceability	Developing a data protection system with anonymisation
Medical waste	Partnership with reference hospital
Quality of sample transportation	Quality indicator Appropriate equipment
Referral and counter-referral	Partnerships between health facilities
Evaluation	To set up

The elaboration of the patient pathway is a crucial step in defining MDM's strategy of intervention.

It takes account of any obstacles that patients may face in their pathway of care. Medical waste management is also an important issue to address.

The following figures highlight the various barriers in the care pathway.

The barriers to accessing services must lead to the elaboration of a strategy to strengthen the health system.

FIGURE 15: PATIENT PATHWAY / HSPC (WITHOUT LABORATORY)

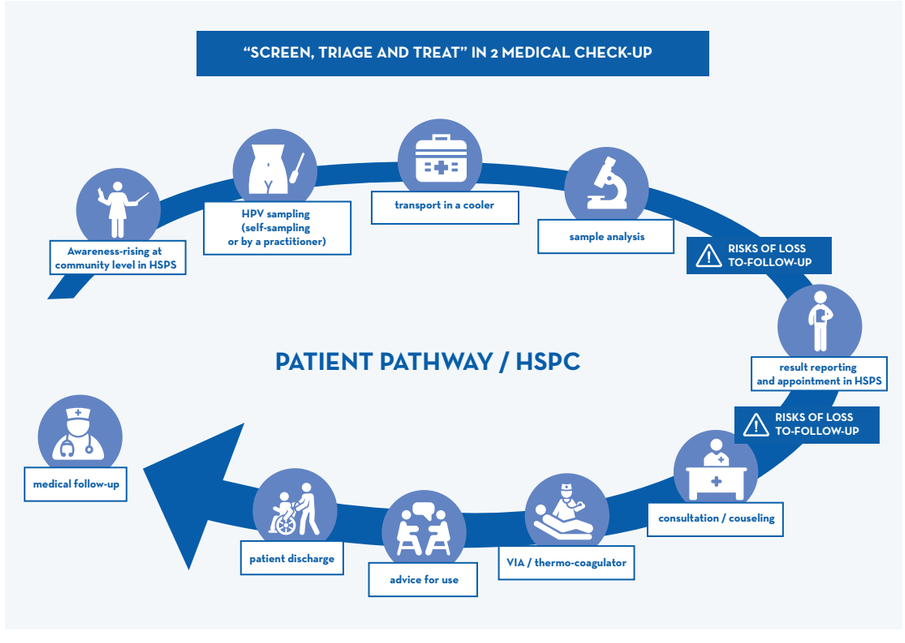


FIGURE 16: PATIENT PATHWAY / MEDICAL CENTER (WITH LABORATORY)

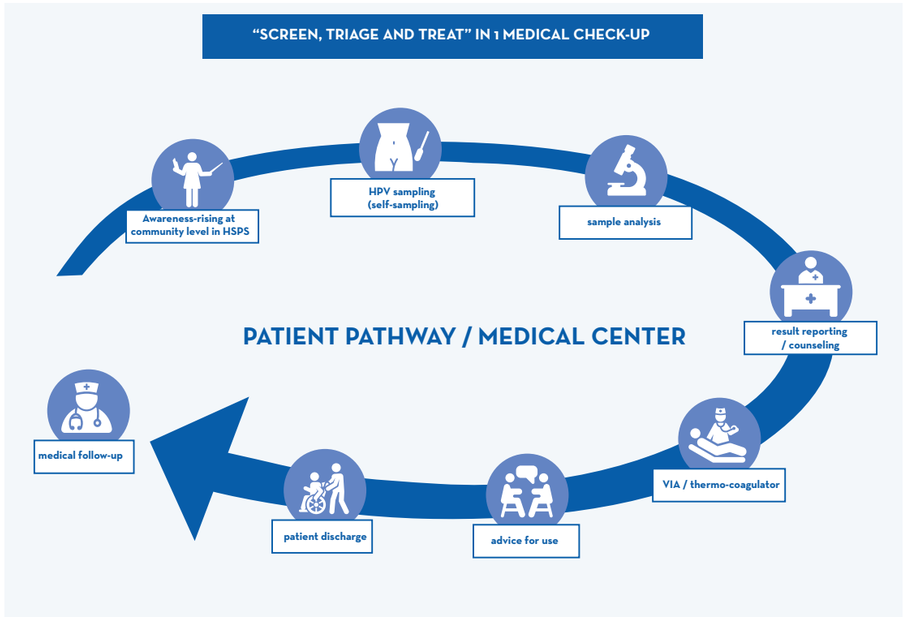
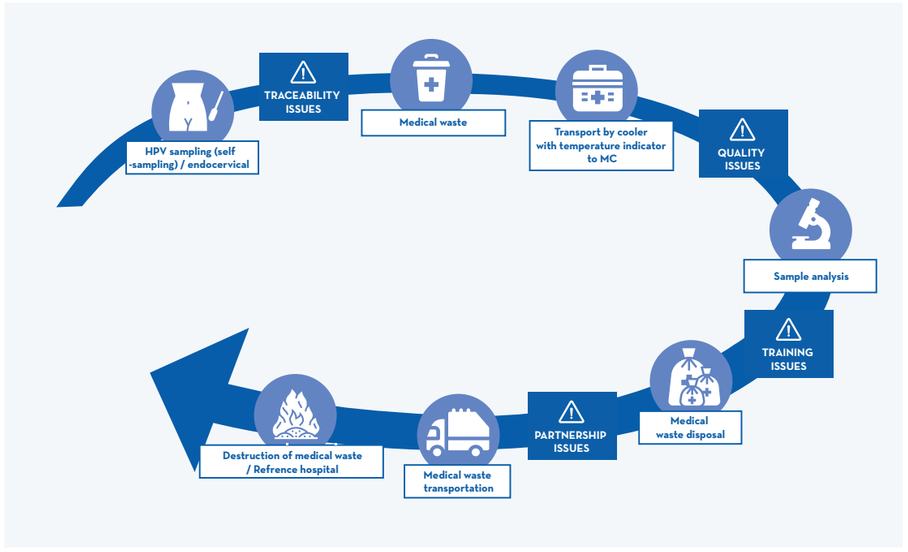


FIGURE 17: MEDICAL WASTE MANAGEMENT



KEY MESSAGES

- The MDM strategy is based on three principles of action: strengthening service provision, reinforcing individual capacities, and taking advocacy actions.
- The service provision for the screening of CC is based on an integrated approach of 'screen, triage and treat'.
- The target population are all women from 30 to 55, except women who have benefitted from treatment (cryotherapy, thermocoagulation, LEEP, cold knife cone or more invasive).
- Women who are HIV + require close monitoring regardless of their age and from the onset of their sexual life.
- Identifying all the barriers to service provision should enable to develop a strategy for strengthening the health system.

NOTES

➡ What do I take away from this session?
➡ What elements require further clarification?

➡ Understandings to develop?

COMMON SESSION 4
COMMUNITY HEALTH APPROACH

MODULE LEARNING OUTCOMES

THEORETICAL KNOWLEDGE:
- State the essential components of a community approach.

PRACTICAL SKILLS:
- Articulate the components of a community strategy
- Explain the added value of community-based HPV self-sampling.

I. THE MULTIPLE DETERMINANTS OF ACCESS TO SCREENING

'Sensitisation and awareness-raising alone are not enough to improve screening uptake. During the design phase, screening programmes should take into account structural and cultural barriers that may negatively impact on the uptake of screening services and, where possible, address these.'[23]

Barriers to accessing screening for CC are not limited to the availability of the test or the dissemination of information. Many other factors can be involved such as the lack of transportation, women's uneasiness with male healthcare practitioners, lack of confidentiality or hygiene in health facilities, language barriers, family commitments limiting or preventing women from travelling, lack of support from men who have the power over women's health choices, etc.

Unless there is an in-depth understanding of the context of the intervention, a project to promote screening for CC may be inefficient at best, if not counterproductive[24].

Thus, during the design stage and throughout the interventions, it is crucial to explore, identify and take account of all structural determinants (financial, political, legal etc.) and sociocultural determinants (gender relationships, health practices, perception of body and illness, etc.) that have an impact on acceptability and accessibility to screen, prevention, and treatment of cervical cancer.

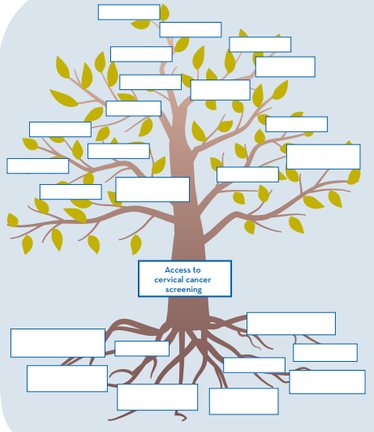
The involvement of the people who are directly affected through a community approach, from the onset of the intervention is paramount to correctly identify the determinants of access to screening and to set up activities that are adapted to the people and context and respond to their needs.

II. A COMMUNITY HEALTH APPROACH

'Cervical cancer prevention programs that listen to and learn from the community and that involve community members in program implementation and materials development are more likely to increase demand, ensure follow-through for treatment, and, ultimately, reduce disease burden'[25]

What is a community health approach?
Strengthening community action is one of the five pillars of health promotion as defined by the WHO in the Ottawa Charter [26]. It is defined as 'the process of enabling people to increase control over and to improve their health and that of the community". It is defined as the process through which individuals and families take responsibility for their own health and well-being, participate in enhancing community health, and develop their ability to get involved in individual and community health[27].

Indeed, health promotion requires effective participation of the community in defining priorities,



PROBLEM TREE

The problem tree is a visual support and reflection tool that facilitates exploration and discussion around the consequences and determinants of a given health issue (e.g., limited access to CC).

MdM can facilitate or support the use of the problem tree with or by the people directly concerned so that they identify and become aware of the factors that have an impact on their health. They will be in the best position to identify and develop appropriate strategies and actions to influence the situation.

For more information on the use of the problem tree in a community approach, refer to: *Empowerment en Pratique #1 - L'arbre de santé : un outil de réflexion collective* (only in French)

23. O'Donovan J, O'Donovan C, Nagraj S. (2019) *The role of community health workers in cervical cancer screening in low-income and middle-income countries: a systematic scoping review of the literature*. BMJ Global Health ;4:e001452
24. Isaac R, Finkel M, Olver I, et al. (2012) *Translating evidence into practice in low resource settings: Cervical cancer screening tests are only part of the solution in rural India*. Asian Pac J Cancer Prev ;13:4169-72.
25. Agurto I, Arrossi S, White S, et al. (2015), *Involving the community in cervical cancer prevention programs*. Int Journal of Gynaecology Obstetrics 2005 ;89 Suppl 2:S38-S45
26. The others are: Building Healthy Public Policy, Creating supportive environments, Reorienting Health Services, Developing personal skills
27. WHO (1986) Ottawa Charter for Health Promotion

FIGURE 18: THE KEY COMPONENTS OF A COMMUNITY APPROACH TO PREVENTION OF CC

making decision, developing, and implementing planning strategies aimed at achieving better health. At the heart of this process lies the empowerment of individuals and communities, who are considered capable of taking their destinies in their own hands and to take responsibility for their actions. Community development builds on the human and material resources of the community to foster self-help and social support, to establish flexible systems that are likely to reinforce participation and public control around health.

What is a community?

The term 'community' encompasses complex and dynamic concepts. We have multiple identities, and each individual belongs to multiple communities (geographical, professional, family, etc.) It must never be assumed that a group of people sharing a living area, or a workplace automatically becomes a 'community. Indeed, individuals in each group may hold different or opposing interests.

In a community approach we are seeking to gather individuals and groups around what they have in common, common interests, to 'congregate' around a given health issue.

The core principles of the community approach:
A community-based approach to health is based on some core principles that should be continuously implemented.

For further information, *please refer to the MdM guide "Working with communities"*

a) Creating alliances and partnerships with community leaders and organisations

Dès les phases de conception et d'élaboration d'uneIt is necessary to identify and establish alliances with community organisations and influent community members from the design stage of an intervention. These organisations and people can be varied in nature: formal or informal women's groups, village or neighbourhood committees, health services, political groups, religious leaders, or institutions, etc.

These actors can both participate in identifying multiple barriers and levers of prevention, and also participate in the elaboration of strategies and actions that are culturally appropriate and adapted to the local context. Co-creating actions from the onset with community actors contributes to community taking ownership of the topic. In turn, these people will become ambassadors who will convey information to their peers. When there are no such organisations or when they are not formally constituted, the opportunity to support the creation or reinforcement of community organisation capacities should be considered and weighed.

In an aim of good governing, transparency and accountability, it is also advised to associate community partners in the formal governance of the projects (e.g., through steering committees) throughout the project.

b) Mobilising and strengthening community resources around implementation of actions

Community involvement should go beyond diagnosis and elaboration, and we should create opportunities for community members to engage directly in the implementation stage of the projects. This is in line with the ethical principle 'Nothing About Us Without Us'. It is also important in order to ensure effectiveness by recognising and appropriately mobilising existing skills and expertise in communities that are necessary to the success of a project.
This involvement may take various forms: mobilisation, training and support to community health agents, development of a network of educators (volunteers or paid workers), identification and training of intermediaries, support to self-help groups (for example groups of people living or having lived with cervical cancer), etc.

Their close ties with other members of the community and their expertise based on their own experience will make these actors able to contribute to strengthening trusting relationships between community and health services, and thus enhancing the acceptability and uptake of screening. They are more able to adapt health information to the local culture and context.

Community members can also be involved in carrying out studies or research (e.g., on barriers to access for prevention, or about the perception of the illness or perception of health services) as investigators to analyse the data and put it to use. Participatory research can significantly contribute to the success of actions of prevention and screening of cervical cancer[28].

Community agents must benefit from appropriate and sufficient support in terms of training, supervision and acknowledgement, etc. to be able to play an essential role without compromising their health, safety or well-being.

Finally, the role of community agents must be viewed as flexible and adapted to the local context. In some settings, a woman will prefer to address people outside her community to stay anonymous, in others she will prefer to address people she trusts in her closer circles.

A PRACTICAL EXAMPLE IN KENYA

In Kenya, the ACCP (Alliance for Cervical Cancer Prevention - a group of 5 international NGOs) developed a partnership with *Maendeleo Ya Wanawake*, which is a national women's organisation that brings together 25 000 local women's groups throughout the country. Thirty-five members of the organisation in the area of intervention volunteered to inform and motivate other women in their communities to participate in the screening. Group-based activities were carried out with women's organisations, religious congregations, parent groups and during local meetings. Home visits were carried out to provide a more intimate setting so that woman can talk more freely and inquire about screening services and possible support from trained community health workers[1].

1. Alliance for Cervical Cancer Prevention (ACCP) (2005). *Improving Screening Coverage Rates of Cervical Cancer Prevention Programs: A Focus on Communities*. Cervical Cancer Prevention Issues in Depth No. 4. Seattle: ACCP

THE CRUCIAL ROLE OF COMMUNITY HEALTH AGENTS IN INDIA

In March 2010, the CNCI (Chittaranjan National Cancer Institute) initiated a project to promote screening and treatment of cervical cancer for women living in rural areas around Kolkata.
This project is based on a strong involvement of community health agents recruited on a part-time basis in each village concerned by the intervention.
These women were trained for 2 days on the concepts, needs and steps of cervical cancer. A FAQ booklet (Frequently Asked Questions) was provided in their native language.
They played a central role in the dissemination of information, health education and support to women to make an informed choice. They carried out home visits to provide counselling to women who required it and motivate them to participate in screening actions. They also transmitted the information to husbands and other family members.
In addition, they also participated in delivering test results, carried out post-test counselling interviews and provided support to women requiring further testing or treatment.
This model of community intervention has proved extremely efficient in ensuring acceptance of screening and adherence to treatment.[1]

1. Mittal S, Mandal R, Banerjee D, et al. *HPV detection-based cervical cancer screening program in low-resource setting: lessons learnt from a community-based demonstration project in India*. Cancer Causes Control 2016;27:351–8.

28. Colón-López V, González D, Vélez C, et al. (2012), *Community-Academic partnership to implement a breast and cervical cancer screening education program in Puerto Rico*. P R Health Sci J 2017;36:191–7 ; Nguyen-Truong CKY, Lee-Lin F, Leo MC, et al. *A community-based participatory research approach to understanding Pap testing adherence among Vietnamese American immigrants*. J Obstet Gynecol Neonatal Nurs ;41:E26–E40; Agurto et. Al Op.Cit.

c) Developing health education strategies and education material adapted to communities

We must ensure participation of community members in the elaboration of strategies and materials for health information, education, and communication. This participation may take various forms: participatory research to study knowledge, attitudes and practices of each community in relation to cervical cancer, workshops and focus groups to elaborate key messages and identify appropriate communication tools, formation of "test groups" to assess and refine communication tools, participation of community members in the creation and elaboration of tools (such as films, theatre plays, radio broadcast, visual tools, etc), dissemination of information between peers. Particular attention should be given to the representativeness of these groups in the setting-up stage (issues such as language, literacy, level of education should be considered).

Involving the community helps make sure that message make sense in the local culture. Moreover, their participation fosters acknowledgement of the value of their expertise and competence and strengthen the sense of ownership over the implementation and outcomes of an intervention. People who contributed to the elaboration of tools will play a role in the dissemination of the messages in their social circles.

These mechanisms must foster dialogue and mutual learning between communities and professionals outside communities and can lead to negotiations around what can be said and done in a local context. Professionals ensure that the contents are accurate and do not contribute to strengthen stereotypes. For populations, this helps fight the negative image of health education, often experienced as control and imposition of knowledge.

In addition, communities can participate in elaborating communication tools for their communities as well as communication and training tools for professionals. This will contribute to a better understanding of patients' views and realities by healthcare professionals.

PARTICIPATORY ELABORATION OF INFORMATION TOOLS IN SALVADOR

As part of a project for promotion of screening for cervical cancer in Salvador, the ACCP team *(Alliance for Cervical Cancer Prevention)* begun to make a list of the communication tools used by the ministry for health. These tools were analysed on the basis of the language used, design, size, and understanding by women of key messages.
This analysis showed that existing material used fear as the main argument and that contents were inaccurate and not up to date. Focus groups were set up in rural and urban zones to refine the messages. A logo and graphic materials that put forward the benefits that women could expect from screening were developed and tested. New and updated information were integrated into new tools including: a prevention leaflet destined to women, a counselling guide for health professionals, and a guide for post-treatment. To facilitate the dissemination of these tools, training for professionals were set up across the country.

d) Promoting accountable health services sensitive to the needs of the community

Poor uptake of screening services can be attributed to poor quality of welcome and of service, gap between the service provision and needs of populations[29]. Moreover, health services are not always inclusive to marginalised groups.

In the aim of improving the quality of services with regards to patients' needs, it is essential to promote accountability of health services to communities.
Various activities can participate in this accountability: qualitative studies that explore the perceived quality of services by its users, participation of community members in awareness-raising and training of health professionals, the development of feedback mechanisms for users after their contact with any service, satisfaction surveys, involvement of communities in health facilities' governance, etc.

e) Developing outreach activities and promoting inclusion of marginalised individuals and groups

Cervical cancer is revealing of social inequalities in health. Those who have the highest risk of developing cervical cancer are among the most vulnerable people[30] who are also those who face most of the barriers in accessing healthcare and prevention services. In order to break the vicious circle of exclusion, targeted and affirmative actions must be taken throughout our projects to enhance participation and inclusion of marginalised individuals or groups. Specific efforts must be made so that marginalised individuals and groups are represented and heard by project decision-making and governing bodies, as well as by the health services that ought to respond to their needs. These actions must contribute to the fight against stigma and discrimination.
In order for health services to improve their accessibility for marginalised populations, specific measures must be considered such as: setting-up premises to enable wheelchair access, interpretation services for allophone populations, outreach strategies for geographically isolated populations, recruitment of healthcare intermediaries from marginalised groups, etc.
Promotion and availability of HPV self-sampling is also a powerful tool to promote the inclusion of marginalised women[31].

29. Agurto I, Bishop A, Sanchez G, Betancourt Z, Robles S .(2004) "Perceived barriers and benefits to cervical cancer screening in Latin America". *Prev Med* ;39(1):91 –8. & Bingham A, Bishop A, Coffey P, Winkler J, Bradley J, Dzubal, et al. "Factors affecting utilization of cervical cancer prevention services in low-resource settings". *Salud Publica Mex* 2003;45(3):S408–16.
30. In the described Kolkata project, the women most affected were the least educated, those who had married early and who had the highest number of children. (see Mittal, *op.cit*)

f) Empowering women and increasing men's responsibility

THE MOBILE CLINIC EXPERIENCE IN OSMANABAD, INDIA

The ACCP project in the Osmanabad district in India took place in 722 villages with a total population of 1,239,009 inhabitants. The female literacy rate in this area is 39%, and the cervical cancer incidence rate ranges from 55 to 77 cases per 100,000 women among women aged 30–69 years.
A fully equipped van was sent out to 32 primary health care clinics, as well as other settings such as municipal offices, classrooms in local schools, and buildings housing women's organizations that could be used for screening women using visual inspection. Project staff met with district administrative and health authorities, the president and members of the local civic bodies (panchayaths), village community leaders, teachers, and others to explain the details of the project and to seek their cooperation. On the evening before the services were to be available, eligible women, their partners, and elders in the village were invited to a meeting where a film about cervical cancer prevention was shown. On the screening day, medical social workers were on hand to explain the screening and treatment procedures to women waiting to be screened. Afterward, female health workers explained screening results and organized appointments for women with positive results of screening tests. Of the women invited, 63.4% attended and were screened through mobile clinics.

Making choices on one's own sexual and reproductive health is a human right. However, this right is not fully exercised and there are many contexts where women face reduced power to exercise free and informed choices on their sexuality. The following barriers to exercising this right are the following:

- Imbalance in power between men and women within the couple and the family
- Women's lack of autonomy and of power of decision
- Reduced access to information on rights, health, and sexuality
- Low self-esteem
- Shame and fear in the presence of health professionals
- Low access to social and financial resources...

These reasons justify the need to develop women's power to take action and men's sense of responsibility as a core element of our projects in cervical cancer prevention.
To achieve this aim, professionals need to act as facilitators and defenders of the exercise of sexual and reproductive rights of women. Women must be viewed as rights holders rather than "beneficiaries" of services.

Women must access clear, objective, and adequate information on the rights, anatomy of sexual reproductive health, intimate hygiene, prevention, or any other information necessary in order for them to make informed health choices. Professionals must be proactive in associating women in therapeutic and preventative choices and accompany their decision with support and counselling. Support to care facilities, possibly by peers, should be provided, (e.g., for those in need of additional examinations or treatment) for women facing barriers to accessing care, with the objective of enhancing their autonomy.

WOMEN AND MEN ASSOCIATED IN THEIR COMMITMENT TO FIGHTING CERVICAL CANCER IN SOUTH AFRICA

Khayelitsha is a large town in the vicinity of Cape Town. Up to this day, there was no coordinated programme to prevent cervical cancer. The number of screening tests has significantly decreased between 1988 (5000 tests) and 1995 (only 1332). A new project for health promotion initiated in the city identified the important role of men in improving women's participation and adherence to screening and treatment of precancerous lesions. Thus, interventions were carried out to mobilise men in this community. A training programme was developed to train peer educators so that they may inform men on cervical cancer prevention and encourage them to support women in using screening services and adhering to treatment. An evaluation after the training showed significant impact on attitudes and knowledges of the men who attended.

31. Franco, E. L. (2018). Self-sampling for cervical cancer screening: Empowering women to lead a paradigm change in cancer control. Current Oncology, 25(1), 1.

Alongside these actions, men must be involved and targeted by actions to inform them of their role and responsibility in terms of prevention and fight against cervical cancer, in order to enhance autonomy of women and encourage gender equality. Actions to strengthen women's capacity to negotiate with men may also contribute to reducing inequalities and increase women's empowerment.

In addition, all actions that aim at reinforcing self-esteem, financial autonomy, education, and women's social role may contribute to reducing inequalities in cervical cancer.

Conclusion

Each cervical cancer programme should build on these six components and adapt the practical examples to local contexts in order to develop a comprehensive and effective community mobilisation strategy.

For further information, please refer to the guide "Working with communities" on the Médecins du Monde Intranet page.

KEY MESSAGES

- The barriers to cervical cancer screening can be sociocultural, geographical, financial, legal, or administrative.
- Extra-institutional activities, community involvement, health education and counselling are essential elements of an effective programme to fight cervical cancer, as they enable high immunisation coverage, high screening coverage, and good adherence to treatment.
- Importance of working on representations and development of individual capacities.

NOTES

➡ What do I take away from this session?
➡ What elements require further clarification?

➡ Understandings to develop?

COMMON SESSION 5
AWARENESS-RAISING AND HEALTH EDUCATION

MODULE LEARNING OUTCOMES

THEORETICAL KNOWLEDGE:
- Key information to be delivered to various audiences about CC.

PRACTICAL SKILLS:
- Formulate simple and understandable messages.

SOFT SKILLS:
- Behave in a non-judgmental and sympathetic manner.

I. HEALTH EDUCATION

a) Principles of health education

Health education is a key approach to health promotion as defined by the Ottawa Charter. Health promotion is the process of enabling people to increase control over, and to improve their health. Health education aims to enable people to adopt healthier behaviours by providing them with necessary knowledge, skills and attitudes. It also aims at promoting community ownership of health issues and at encouraging community participation.

- Health education is not limited to information on health. It is more than that and seeks to provide individuals with the knowledge, skills and attitudes that they need, in order to change behaviours or strengthen health promoting behaviours for them or their community, **should they wish to do so.**
- Health is thus considered a **resource in daily life** and it's up to each individual to make his or her choices, to find his or her balance and to determine what is good for him or her. Health education therefore aims at enabling each and every one to make responsible and informed choices regarding behaviours impacting individual or community health.
- Individual involvement also aims at promoting a **participatory approach** to health.

Health education is built on 4 elements:
- **A target:** the recipient of the information
- **Materials:** media, poster, leaflet, mediation...
- **A setting:** meetings, public talks, theatre sessions, television broadcasts, waiting rooms...
- **A messenger:** the person who articulates the message (health agent, peer, community actor...)

All four elements must be present and appropriate so that the target effectively has access to the message.

When a health education project is set up aiming at behaviour change, considering individual level is not sufficient. All potential barriers must be considered and lifted to make behaviour change possible. This includes barriers such as environmental barriers, financial barriers, social barriers, cultural barriers.

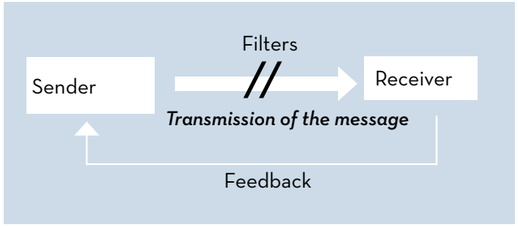
While health education aims to enable individuals to adopt health-promoting behaviours, the decision to do so is theirs. The aim is to empower people, not to enforce new behaviours!

Thus, it is important to consider a few ethical principles:
- **Individual autonomy:** respect individual choices and avoid laying blame.
- **Beneficence:** Use scientifically validated tools and ensure non-maleficence.
- **Do no harm:** always question the methods used (the end does not justify the means) and ensure that the intervention will not have harmful consequences in other areas than health.
- **Equity and social justice:** Health education must not increase social inequalities in health or create new inequalities. Messages must be adapted so that they are accessible for all.
- **Monitor** actions regularly to adjust if required.

For further information, please refer to MdM guide*: Health Education - A Practical Guide for Health Care Projects - 2010*

b) Elaboration of messages and awareness-raising tools

Communication
Transmission of information implies:



Filters include elements such as: noise, psychological state of the receiver, lack of clarity in the message, accent or language, physical barrier...
Communication channels are auditory, visual or kinaesthetic (through practice).
The effectiveness of the transmission usually is the following:
- Auditory channel → 20% retention
- Auditory + visual channels → 40% retention
- Auditory + visual + kinaesthetic channels → 80% retention.

Steps for the elaboration of messages and educational material
- **Identification of needs in terms of health education**
  - To be carried with the users or the population
  - Identification of a health issue requiring educational material and identification of the determinants of that issue.
- **Defining the target group**
  - Health education must be specific to the target group: to its needs, its reality, its information channels...
  - The definition of the target group must be precise: primary target population can be identified separately from a secondary target population that will indirectly benefit from education.
- **Collecting and organising adequate information that will define messages and educational**

material. For example:

- Target group's behaviours with regards to the health issue.
- Target group's knowledge with regards to the health issue.
- Characteristics of the target group (demographic, economic, social, political, religious, cultural...) that may influence the reception of the message.
- Readiness of the target group to receive the message.
- Level of education.
- Interests: meeting locations, sports, etc.
- The channels usually used to transmit and receive information and those that are most suitable and accessible for this group.

➡ **Identifying existing resources**

- Human resources: people, skills, experience in the team...
- Material and structural resources (adequate location to meet users involved in the development of the project).
- Financial resources.

➡ **Listing existing educational material**

- Opportunity to use existing material that has already proved effective by adapting it if necessary.
- Ensure that the existing material does not deliver contradictory messages to what we are trying to put forward.

➡ **Defining the objectives of health education**

- These objectives will be associated with indicators that will allow to monitor the behaviour change that is sought.

➡ **Defining messages**

- They must be clear and directly related to the identified issue.
- Adequate messages include the benefits of following the message conveyed, provide accurate and validated information...

➡ **Defining channels and materials for the dissemination of the message**

➡ **Determining the time and location for transmission**

- Limit the number of ideas per material
- Find a balance between educational aspects and artistic aspects: messages must be attractive and satisfy the group's artistic tastes.

➡ **Pre-testing and adjusting the material**

- Helps verify comprehension, acceptability, ease of use...

To guarantee acceptability and adequacy of educational messages and materials, representatives of the target group must be involved at all stages (see session 4 'A community Health Approach'). This also gives an opportunity to the target group to become actors of their education, according to their desire and abilities.

c) Health education and prevention of cervical cancer

Concerning prevention of CC, messages should be adapted to all groups and individual realities. Messages may mention the following:

➡ Information about responsible and enjoyable sexuality
➡ Anatomy of male and female genital organs
➡ Importance of medical care
➡ Contraceptive methods
➡ Available services and means to access them
➡ Discussion around reasons for not using contraception when one wishes to avoid or delay pregnancy
➡ Individual rights regarding contraception, sexuality, abortion, access to healthcare services...

II. AWARENESS-RAISING

Awareness-raising involves sharing information with the aim of increasing knowledge on preventative health in order to stay healthy and prevent illnesses such as cervical cancer. Awareness-raising actions must also communicate information on available services.

a) Which population should be targeted?

The aim of awareness-raising is to maximise coverage and use of cervical cancer services. To achieve this aim, the following priority populations should be targeted:

➡ Young women and men (vaccination, use of condoms, sexuality education)
➡ Women targeted by the screening programme
➡ Vulnerable groups: women with HIV, sex workers, refugees, and other marginalised groups
➡ Political, religious and community leaders
➡ Men
➡ Organisations, private sector.

b) How to raise awareness on screening for cervical cancer?

The person conducting awareness raising should:

➡ Have a good grasp on the topic.
➡ Be at ease with the topic, not experience any embarrassment when talking about female anatomy and sexuality.
➡ Be clear and coherent. Issue key messages that are easy to understand and appropriate for the audience, be coherent with these messages. Prepare and test messages and tools on some people and adjust them accordingly.
➡ Work on messages to counter fears and misconceptions. (see table).
➡ Be receptive and non-judgmental.
➡ Provide support and a listening ear. Be patient and understanding and help women and families to find solutions.
➡ Be welcoming and encouraging. People who feel welcome are more likely to come back for care when they need it.
➡ Tailor messages to the intended audience (women under 30, over 30, seropositive women, sex workers, men, etc.).
➡ Given their closeness with the target population, peer educators have knowledge of the population and personal experience that makes them key actors in awareness-raising campaigns.

c) Key messages for primary and secondary prevention of cervical cancer

You must keep in mind that effective communication often leads to increasing screening tests rates and to saving the life of many women.
Health workers must be able to **speak about sexuality in a non-judgemental manner** and to deal with the issues of screening while protecting all patients' intimacy and privacy.
It is important to think about what key messages to communicate to **men** (encourage their partners, sisters and mothers to vaccinate, get tested and follow treatment if necessary, use condoms to avoid STI and pregnancy), all the while avoiding to strengthen power imbalance between men and woman, specifically trying to avoid reinforcing the power of decision of men over women.

Encourage HIV+ women to get a yearly test from an early age and encourage women to get tested for HIV. This adaptation to care for people living with HIV should not result in increased stigma and discrimination of these women.

Key messages:

➡ Cervical cancer is an **avoidable illness.**
➡ Test exists that enable an **early detection of any change of the cervix** that may develop into cancer if untreated.
➡ There are **safe and effective treatments** for these lesions.
➡ Every woman aged **30 to 55 years should be tested at least once** for cervical cancer.
➡ There is a **vaccine for girls** that prevents cervical

MESSAGES TO AVOID	UNEXPECTED OUTCOMES	ALTERNATIVES
Women with cervical cancer or precancerous lesions have an STI.	Discourages women to undergo screening and cause them problems in their relationship.	• Cervical cancer is caused by a virus called HPV that is transmitted by sexual contact; most people will be infected with this virus at one point in their life. • Most HPV infections spontaneously disappear without the person being aware that he/she was infected.
The screening test searches for the presence of cervical cancer.	Leads people to think that a positive result to the test is a diagnosis of cancer.	• The screening test is a simple procedure (cervical smear test, VIA or HPV test) that enables early detection of cervical abnormalities (called precancerous lesions), before they develop into cancer.
The use of an IUD or of a contraceptive pill may cause cervical cancer.	Women will be afraid of using contraceptives even if this information is incorrect.	• The use of IUD does not increase the risk of cervical cancer. • Contraceptive pills may cause a very small increase of the risk of cervical cancer, but the benefits of pregnancy prevention outweigh that risk. • The use of contraceptive pills decreases the risk of ovary and colorectal cancer.
The screening test is painful: during the procedure, a part of the woman's body is removed.	Women will be afraid of the screening tests. Fear can also reach family members who will prevent them from getting tested.	• Some women find speculum examination uncom-fortable, but the test is not painful. • During the test, the practitioner uses a swab or a soft brush to sample a few cervical cells. • The test is simple and only lasts a few minutes. • A screening test is different from a biopsy or a sur-gery. Screening tests require no incision.
There is no need to screen for cervical abnormalities because when the result is positive it means that the woman has a life-threatening disease and will die.	Only a small number of women will get tested if they believe there is no solution.	• If a woman is diagnosed with precancerous lesions, she will be offered safe and simple treatment. • If the test is carried out at the appropriate age, it is possible de prevent cervical cancer. • When it is diagnosed early, cervical cancer can be cured.

cancer.

TOPIC	KEY MESSAGES
CERVICAL CANCER	➡ Cervical cancer occurs when there is an unusual rise of cervical cells. ➡ Cervical cancer is caused by persistent infection with high-risk HPV.
HPV	➡ HPV is a very frequent virus and is transmitted through sexual contact. ➡ A majority of people will be infected at one point in their life. ➡ In most cases the HPV infection will spontaneously disappear. ➡ Some infections will persist and will lead to the development of cervical cancer.
RELATIONSHIP BETWEEN HPV AND CERVICAL CANCER	➡ Persistent high-risk HPV infection causes cervical cancer within 10 to 15 years. ➡ Being infected with HPV doesn't mean having cancer.
HPV TEST	➡ An HPV test detects the presence of HPV infection. ➡ This test can be a self-sampling or be carried out during a gynaecological examination by sampling cervix cells using a vaginal swab. The swab is then placed in a tube and sent to the laboratory for analysis. ➡ Self-sampling has the advantage of permitting the patient to do it herself. ➡ Self-sampling: evidence suggests that the results of HPV self-sampling can be similar to tests carried out by a practitioner.
HPV TEST RESULTS	➡ The result is positive or negative. ➡ A negative result means that no high-risk HPV infection was found. ➡ A positive result means that there is an infection with a high-risk type of HPV and that another test using visual inspection with acetic acid must be carried out.
VIA TEST	➡ The VIA test does not require any anaesthesia and is not painful
VIA TEST RESULTS	➡ A positive result means that there are precancerous lesions likely to develop into cervical cancer.
THERMOCOAGULATION	➡ This is a technique that uses high temperature to destroy precancerous lesions. ➡ The cervix does not include any nerves, so this is painless. ➡ Safe and effective treatment of precancerous lesions.

d) Awareness-raising tools

Awareness-raising tools are most effective when they are developed with people from the target population. Develop key messages and tools, test them on an audience and modify them according to the feedback.

Material:

- ➡ Flap boards
- ➡ Leaflets
- ➡ Plays and role plays
- ➡ Radio broadcasts and video clips

Specific tool regarding self-sampling:

Self-sampling helps increase the coverage rates. Indeed, women may experience fear of pain or embarrassment at the idea of a gynaecological examination, thus discouraging them from getting test. Self-sampling **increases the acceptability of screening and widen access to some populations by lifting the practitioner barrier (no need for speculum examination) or geographical barrier** in cases when the screening is organised locally.

Conditions of use:

- ➡ Do not carry out the test during menstrual periods
- ➡ No sexual intercourse the day before
- ➡ Do not carry out vaginal wash or apply any product in the prior 24 to 48 hours

Figure 19: Instructions for self-sampling:

- ➡ Partially open the packaging.
- ➡ Do not touch the cotton or drop the swab. If this occurs, request another sampling kit.
- ➡ Remove the swab from the bag.
- ➡ Hold the swab as shown in figure 1, by placing the thumb and the index at the top of the swab.
- ➡ Spread your labia with one hand so that the swab does not touch the external parts (see figure 2).
- ➡ Gently insert the swab in the vagina on around 2/3 of the distance (see figure 2).
- ➡ Gently rotate the swab three times during 10 to 30 seconds. Make sure the swab touches the vaginal mucosa so that the moist is absorbed by the swab.
- ➡ Remove the swab without touching the skin.
- ➡ Immediately place it in the transport medium and seal the sample.

III. HIV AND CERVICAL CANCER

Key messages to deliver to women living with HIV are the following:

- ➡ Women living with HIV are at higher risk of being infected with HPV and cervical cancer. Screening must be more frequent and initiated as soon as the diagnosis of HIV is made, regardless of the age.
- ➡ Cervical cancer progresses faster for women with HIV, hence the higher frequency of screening tests.
- ➡ If you have precancerous lesions, you will need to be treated.

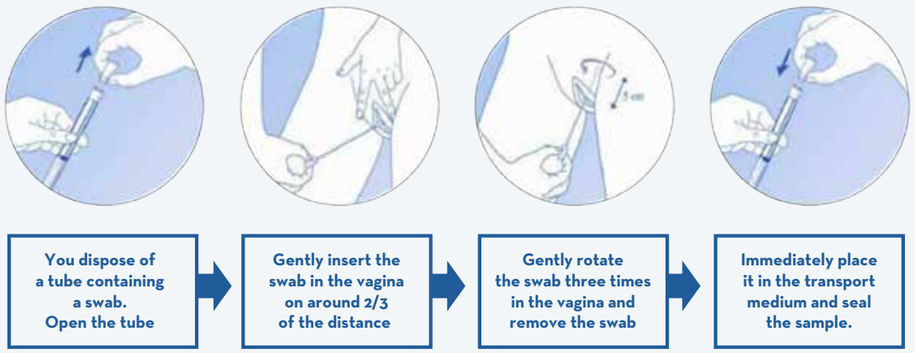
When the HIV infection rates of a country are high, women must be encouraged to test for HIV. It is important to identify where testing is possible.

IV. AVOIDING LOSS TO FOLLOW-UP

The proposed algorithm will not permit all cases to benefit from a 'screen and treat' strategy, thus making projects at risk of high lost to follow-up rates.
All activities must be developed with specific thought of how to reduce these lost to follow-up:

- ➡ Specific focus on counselling
- ➡ Developing a network of community actors for close monitoring
- ➡ Setting up an effective monitoring system.

FIGURE 19: INSTRUCTIONS FOR SELF-SAMPLING



PART 2

CERVICAL CANCER PREVENTION HEALTH SESSIONS

HEALTH SESSION 1
INDIVIDUAL COUNSELLING

MODULE LEARNING OUTCOMES

THEORETICAL KNOWLEDGE:
- Key information to be delivered to various audiences about CC
- Principles of counselling
- Components of counselling about CC in order to foster free and informed choice.

PRACTICAL SKILLS:
- Carry out a counselling session
- Adopt appropriate attitudes and relationship approaches.

SOFT SKILLS:
- Behave in a non-judgmental and sympathetic manner
- Request informed consent from the patient.

I. COUNSELLING

a) What is counselling?[32]

Counselling is a conversation that takes place between a person acknowledged as actor and subject of his/her history and an external player who provides guidance. Both of these two individuals engage in a collaborating relationship. The external player motivates, supports and strengthens. He/she does not direct, nor does he/she adopt a wait-and-see approach, as the aim is to modify behaviours and practices. The aim is that the person identifies what he/she wants and wishes to change within the scope of his/her abilities and resources.

'Counselling is a type of psychological and social guidance and designates a situation in which two people construct a relationship, one explicitly requesting support from the other in addressing, solving and taking ownership of issues he/she is facing. [33]

b) Counselling principles and attitudes

Attitudes

- The basis of counselling is **active listening** so as to encourage better expression of wishes and resources that the person has, with the aim of changing or adopting a new method or practice.
- The professional must have a **positive and unconditional attitude:** regardless of the person's practices and will to change, the professional must not judge or express agreement with the person's opinions and practices.
- His role is that of a **non-expert.** His attitude is what enables the person who knows what he/she wishes to attain, to identify strategies appropriate to his/her situation and that will be achievable.
- The counselling interview increases motivation for change and ability to put it into practice **(empowerment)**.

Natural communication styles

- There are several communication attitudes. Some are authoritarian: the professional enforces his/her opinion. Some are passive: the professional is not set to provoke change. The appropriate attitude in counselling is one that provides **guidance** to a person thereby moving towards a change that the person wants.

DIRECT	GUIDE	FOLLOW
•Inform without permission or without assessing need •Suggest solutions •Question	•Motivate •Support •Steer •Strengthen	•Accompany •Leave one be •Express empathy without guidance

- An interview is **authoritarian,** when there is no listening. The person is being informed but there was no prior assessment of the need for information, and all questions are closed question (answered by YES or NO) that serve no other purpose but to confirm the professional's course of thinking.
- An interview is **passive,** when the user expresses many thoughts but is not being steered, channelled or if he/she does not receive any new information.
- An interview provides **guidance,** when open questions are asked to the person so as to identify his/her thoughts, so that the various available possibilities that would be suitable for his/her wishes and capacities can be given to them. Alternatively, it is also possible de provide the opportunity for the person to come up with these solutions herself.

DIRECT	GUIDE	FOLLOW
• Inform	•**Inform** with choices	• Inform
• Listening	• **Active empathetic listening**	• **Listening**
• Question: Closed questions	• **Question: Open questions**	•Question

Appropriate approach

- During a counselling interview, the relationship is a collaboration and provides autonomy for the user, as opposed to a more 'traditional' approach whereby the professional is an expert, and the user is expected to obey the prescriptions.
- Ideally, counselling should instate trust between the user and the professional.

	« VERTICAL »	MOTIVATIONAL
User	**Passive**	**Actor**
Practitioner	**Expert**	**Guide** « Coach »
Relationship	**Authority Confrontation Prescription**	**Autonomy Collaboration Education**

c) Counselling techniques

Various techniques can be used during a counselling interview. They require effort and practice to be used, as they often are contrary to spontaneous communication reflexes. Thereafter we present the

32. See *fiche pratique counselling – Module de formation [counselling practice sheet - Training module]* – Médecins du Monde 2013
33. C Tourette-Turgis (1996). Le counselling. Ed. PUF, Coll. Que Sais-je? p. 25 (translation by MdM)

main counselling techniques and attitudes:

Listening
This is a core competence for counselling. It is both an attitude and a skill. Listening is a way to engage that implies sensibility and attention to others. It enables to grasp more than the mere content of the conversation. Sometimes this is all a person needs. By reformulating, it enables a person to listen to his/herself and reflect more deeply.

Openness
Openness is a fundamental attitude in counselling. It is directed to others. The practitioner must show that he/she is trying to understand the person and accept him/her. It is shown by verbal expressions and non-verbal attitudes.

Non-judgmental position
Being non-judgemental ensures a trusting relationship that leads to greater authenticity, integrity, and an honest relationship.
Judgment is a major obstacle. It impedes one's empowerment. It may cause dependency and sometimes cause people to run from the relationship.

Empathy
Empathy is a form of understanding defined as the ability to perceive and understand feeling through the eyes of another. The practitioner must bracket his/her own world of references without losing it and focus on the other's view of reality.
Empathy must be expressed to the user. It is about putting words on what we perceive as being a dominant emotion for the person, by listening to his/her immediate needs, seeking to understand his/her perspective, and rephrasing his/her view.
When the user does not feel judged but understood, empathy increases self-esteem. It improves the quality of the dialogue, and fosters the expression of deeper emotions, experiences, and practices. Therefore, it facilitates the identification of weaknesses and resources.

Congruence
I do what I say and what I say is what I think. It is what lies between the professional and his being and emotions, and the thoughts triggered by the user. One should not try to be different. The congruence of the practitioners facilitates the congruence of the user.

Open questions
The practitioner must favour open questions so as to:
- ➡ Introduce the topic in a non-authoritative manner
- ➡ Establish trust and acceptance
- ➡ Be open to the other being
- ➡ Better understand the person's perspective
- ➡ Steer to an aim.

Open questions foster sharing and exploration of attitudes, feelings, values, and behaviours. The form and the tone must not provoke feelings of intrusion.

A list of closed questions tends to put the person in a defender's position, who will then be only partly truthful. Closed questions give a feeling of control and structure for the practitioner, but they keep the user in a passive attitude.
The question 'Why' should be avoided as it can be viewed as a request for justification and can provoke resistance and lead the person to argue for the status quo. Rephrase with open questions.

Mirroring / rephrasing
It is more than a mere repetition of the phrase. It is about trying to say what was just state with one's own words.
Rephrasing helps to:
- ➡ Check that the understanding is correct
- ➡ Ensure the person feels listened to
- ➡ Summarise what is being said
- ➡ Deepen the understanding without judgment or confrontation
- ➡ Demonstrate that you understand and accept the state of mind, experience, and view of that person without judgement or criticism,
- ➡ Show that he/she will not be pushed until he/she is ready.

It is of great help in developing and exploring the relationship.

Clarification
Clarification enables the practitioner to ensure that he/she has correctly understood the person's statement. It shows that the practitioner is interested in what is being said and gives an opportunity to further clarify his/her thoughts. 'What do you mean by...?'. 'Please tell me about...' 'And then...what else?'

d) Counselling for cervical cancer screening

It is important that women understand that this is not a screening test for cervical cancer, but that the test identifies women at risk of developing a cancer in the future.

Objectives
- ➡ Provide clear information and counselling so that each person can acquire new knowledge and adapt this knowledge in practice to make their own decision to get screened or not for cervical cancer.
- ➡ Identify medical conditions that imply specific care or that can influence adherence to screening (HIV, pregnancy, menopause, menstrual cycle).
- ➡ Discuss the possibility of undergoing the screening test.

The counselling step helps screening to be well accepted and followed up, in accordance with each patient's personal context.
Enabling the user to be an actor of her medical pathway has the following advantages:

- ➡ Increased satisfaction
- ➡ Decreased lost to follow-up
- ➡ Higher adherence.

The **steps** to take to help in the choice to screen or not are based on the GATHER model (developed by the WHO):

- ➡ *Greet*
  - Greet the patient and introduce yourself
  - Ensure confidentiality
  - Explain the role, objectives and detail what will happen during the counselling session.

- ➡ *Ask*
  - Ask questions and listen to the patient
  - Explore what she has (state of health), what she does (family, profession), what she knows (in terms of cervical cancer screening), what she believes (about cervical cancer), how she feels (regarding her relationships and sexual life, her gynaecological follow-up), what she needs (projects, wishes, pregnancies).

- ➡ *Tell*
  - Deliver clear, tailored, and relevant information
  - Ensure that the information is well understood
  - Information includes self-sampling, analysis of the presence of HPV, VIA, thermocoagulation, and further possible investigations at a referral centre.

- ➡ *Help*
  - Help her to make her own choices
  - Insist on the fact that the final decision belongs to the users
  - To help with the choice, it is possible to encourage the user to think about her family situation, her preferences, the benefits/risks of carrying out this screening and the consequences of her choice
  - The caregiver encourages the user to respect her choice to be screened and choose if and when to treat precancerous lesions, depending on the context.

- ➡ *Explain*
  - Discuss adherence to CC screening
  - Inform about the nature of cervical cancer and the consequences of an HPV infection
  - Inform of the possibility of self-sampling or sampling by a practitioner
  - Explain the importance and aim of the HPV test and the visual inspection with acetic acid test (VIA)
  - Provide detailed information on the subsequent stages of the screening process (if negative HR HPV, carrying out visual inspection with acetic acid, and possibility of treating precancerous lesions)
  - Offer written material that can help.

- ➡ *Return*
  - Follow-up appointments are to evaluate healing after thermocoagulation
  - Offer the option to continue her gynaecological routine check-ups
  - Repeat screenings regularly all her life.

Favouring a "Motivational Interviewing" approach
"Motivational interviewing" is a directive, client-centred counselling style for eliciting behaviour change by helping clients to explore and resolve ambivalence". (Miller et Rollnick, 1991).

The underpinning principles of the method are the following:
- ➡ An approach based on collaboration rather than prescription
- ➡ Respect for individuals' autonomy and decision
- ➡ Trigger rather than give orders
- ➡ Importance of encouraging the person to suggest change and the way to achieve it
- ➡ Decision to renounce an authoritative role
- ➡ Choice of exploring capacities rather than limitations of the person
- ➡ Express a genuine interest for a person's experience and views.

In other words, this is a communication method where the professional is facilitator that helps the person to set her own course according to her own life aims. The person is the expert of his or her life. Therefore, it is two experts (patient and professional) who collaborate, by sharing their expertise to analyse the situation and make a joint decision regarding the future. The professional directs the course of the interview but not the choice of theperson.

The **principles of Motivational Interviewing** are:
- ➡ Expression of empathy
- ➡ Exploration of ambivalence or dilemma experienced when facing possible change or decision with impact on the life of patients
- ➡ Lead the patient to express her own personal aims
- ➡ Assist her in understanding the contradictions between the current situation and her personal aims
- ➡ Discuss available options (e.g.: different contraceptive methods including emergency contraception) and guide her in finding an adapted and acceptable choice in her view.

e) Pre and post HPV test counselling

Contents of the interview
- ➡ *Information:*
  - Explain the screening algorithm
  - Explain HPV tests
  - Go into detail explaining the sampling procedure and inform of the possibility of self-sampling
  - Depending on the woman's choice, explain

the procedure for self-sampling/sampling by a health practitioner
- Explain the analysis process and waiting times for the delivery of results (48 hours or 3 to 4 hours).
- Reassure the patient on the fact that a positive test result does not mean that she has cancer (especially if the patient is under 30. Explain the clearance phenomenon and how they are more at risk of having a positive HPV test).

➡ *Counselling*
- For the choice to go through with screening
- Assessment of the woman's support (make sure she is not coerced)
- Discussion on the rationale for her discussion, should she wish to
- Counselling leads to a decision to go through with the screening or not.

➡ *Medical history: (to be recorded by the professional/practitioner/midwife)*
- Reasons for contact: pregnancy symptoms, circumstances...
- Obstetric history: number of pregnancies
- Gynaecological history: Date of last period, regularity of the menstrual cycle, any gynaecological affections, contraceptive history...
- **Search for clinical signs of cervical cancer: post-coital bleeding, irregular bleeding...**
- Sexual history: partner(s), STI symptoms, HIV status (if this is unknown, encourage testing).
- Surgical/medical history: chronic illness, surgical interventions
- Treatment and allergies
- Social history: domestic environment, violence, etc.

➡ *Clinical examination:*
- Holistic health assessment
- Abdominal examination
- Pelvic examination: signs of infection, signs of cancer (granular aspect of the cervix)
- Offer a self-sampling test or a test carried out by a professional (using a speculum).

➡ *Laboratory tests: the sample is sent to the laboratory.*

➡ *Communicate test results*
- **If visual inspection reveals a granular aspect leading to suspicion of cervical cancer: explain referral and insist on the importance of an appointment to confirm the cancer diagnosis. Explain that the only way to confirm this diagnosis is biopsy and detail the procedure. Reassure the patient by stating that treatments exist to treat cervical cancer.**
- The test results are negative. This means that the virus that can lead to cervical cancer was not found in the analysis of the sample, and that there will be no precancerous or cancerous lesions in the 5 coming years.
- The test results are positive. This means that you have been in contact with a virus that may cause precancerous or cancerous cervical lesions. Offer VIA.

Patients whose HPV test is positive who have not come to retrieve their test results must be contacted over the phone.

Attention must be given to:
➡ Ensuring confidentiality, respect for intimacy and culture of all users
➡ Protecting users' medical records
➡ Remembering that women are more likely to comply with treatment if it was their choice.

f) Pre and post VIA counselling

Contents of the interview

➡ *Information on:*
- The detailed procedure of visual inspection with acetic acid.
- Duration of the procedure
- Expected sensations that they may experience during the test with acetic acid.

➡ *Counselling:*
- For choices regarding VIA testing
- Assessment of woman's support network (ensure that she is not being coerced)
- Discussion about the reasons for her choice if she wishes to discuss them
- Counselling leads to a decision to get tested or not.

➡ *Clinical examination:*
- Holistic health assessment
- Abdominal examination
- Pelvic examination: signs of infection, signs of cancer (cervix with a granular aspect).

➡ *Gynaecological examination:*
- **Breast examination**
- Pelvic examination
- Speculum examination
- Apply acetic acid, identify lesions and draw them for the patient if necessary, for more precise understanding.

➡ *Delivering test results*
- The test is negative. This means that the patient will not have any precancerous or cancerous cervical lesions in the 3 coming years.
- The test is positive. **This means that the patient has precancerous lesions that may develop into cancerous lesions of the uterine cervix.**
  > Option of immediate treatment with thermocoagulation
  > Referral for further investigations or other possible treatments (LEEP).

If the visual inspection shows a granular aspect of the cervix that leads to suspect cervical cancer: offer referral and insist on the importance of an appointment to confirm the diagnosis of cervical cancer. Explain to the patient that the only way to diagnose cancer is biopsy and explain the procedure. Reassure the patient by telling her that treatments exist for cervical cancer.

g) Care before treatment of precancerous lesions

Objectives
➡ Provide comprehensive information and counselling so that each woman may make her own decision about getting test for cervical cancer.
➡ Identify any medical conditions that would imply specific care or may influence adherence to treatment (HIV, pregnancy, menopause, menstrual cycle).

Content of the counselling interview

➡ *Information about:*
- The details of the thermocoagulation procedure, its risks, and benefits; request the patient's consent
- Expected duration of the procedure
- Risks and possible complications of thermocoagulation in the 2 to 4 weeks following the procedure (e.g., cramps, pain, bleeding similar to menstruation) and available pain relief
- The time required before resuming sexual intercourse, vaginal ring or menstrual cup: one month is necessary for proper healing. If this waiting time is impossible, recommend the use of a condom for that duration.

➡ *Counselling*
- For choices regarding treatment
- Assessment of the woman's support network: ensure she is not being coerced
- Discussion about the reasons for her choice if the woman wishes to discuss them
- Counselling leads to a decision to go through with treatment or not. Clear and accurate information must be disclosed regarding the benefits and drawbacks of the procedure.

➡ *Clinical examination:*
- Holistic health assessment
- Abdominal examination
- Pelvic examination: signs of infection, ...
- Speculum examination: apply acetic acid and identify and characterise the precancerous lesions. Treat immediately with thermocoagulation.

➡ *Discussion about 1 year-follow-up*

h) Post-thermocoagulation care

➡ Objectives
➡ Identify and care for any complications
➡ Provide information about thermocoagulation
➡ Determine whether there is any other need in terms of sexual and reproductive health that might require additional care.

Contents of post-thermocoagulation care
➡ Before discharge from the health facility (following thermocoagulation):

BREAST CANCER

1. Generalities: first female cancer in high-, medium- and low-income countries. The incidence of breast cancer is rising. Early detection is the main tool to fight breast cancer, and this is achieved through clinical examination. Mammography after the age of 50 remains costly and not easily accessible.

2. Clinical examination: It includes inspection and palpation in standing and supine position. It may appear strictly normal when the tumour is small and/or when the breast volume is large (lumps discovered through imaging during screening). The characteristics of the tumour can be identified.
a. Inspection
b. Palpation: hands placed flat on, gentle pressure, soft rotating movements that assess the tissue between the skin and the chest wall. This should be done for each quadrant, with specific attention to the upper outer quadrant (where 60% of cancers are located).

3. Self-examination: Self-examination is recommended as a tool for awareness-raising, rather than as a proper screening method. It enables women to take responsibility and ownership of their health.

- Provide quality counsel, active listening to the woman and her needs
- Deliver clear oral and written information including:
  - ➔ Sexual relations or the introduction of any vaginal item (vaginal ring for example) should be avoided for 1 month
  - ➔ Side effects: possible bleeding and cramps
  - ➔ The woman must consult the health facility if she experiences abdominal pain of increasing intensity, major bleeding, or fever.
- Prescribe iron if necessary (in case of anaemia), pain relief, emotional support if requested.
- Refer to other services after needs assessment (contraception, STI/HIV testing, violence, social needs, etc.).

➡ A follow-up visit should be planned between 9 and 12 months following the treatment.

Attention should be given to:
Referring women to other services that might address other needs.
Staff will raise the subject of prevention of STI/HIV and insist on the importance of condoms and infection control (specially for people at risk).

KEY MESSAGES

➡ **A counselling interview is a collaborative conversation between a person acknowledged as both subject and actor of his/her history and a professional who provides guidance. The professional motivates, supports, and strengthens.**

➡ **Counselling is an essential tool to strengthen individual capacities. It also ensures informed consent and helps identify individual views and encourage adherence to screening and treatment of precancerous lesions.**

➡ **The following attitudes and abilities are essential for adequate counselling: openness, empathy, active listening.**

➡ **The core set of methods for effective counselling interview are open questions, clarification, rephrasing.**

➡ **Confidentiality is crucial and should not be overlooked. Make sure that nobody else is hearing the conversation.**

➡ **The key topics of counselling on cervical cancer screening are:**
- Understanding users' views of cervical cancer
- Providing accurate and adequate information
- Making sure the woman understands the benefits and risks of screening and treatment
- Support the woman's choice.

NOTES

➡ **What do I take away from this session?**
➡ **What elements require further clarification?**

➡ **Understandings to develop?**

HEALTH SESSION 2
HPV TESTING

MODULE LEARNING OUTCOMES

THEORETICAL KNOWLEDGE:
- Articulate the modalities of an HR-HPV test
- List the equipment required to carry out an HPV test or a self-sampling test
- Have basic knowledge of the use of sample analysis equipment.

PRACTICAL SKILLS:
- Explain the procedure to the patient and offer self-sampling
- Carry out sampling for an HPV test
- Plan the sample's pathway from the community or health facilities to centres that are equipped to perform the analysis.

SOFT SKILLS:
- Behave in a non-judgemental and non-discriminatory manner
- Establish a respectful and trusting relationship.

I. INTRODUCTION

An HPV test identifies the presence of oncogenic papillomavirus in cervical cells. This is of high interest as it has been demonstrated that cervical cancer is caused by a virus.

There are various screening methods. A cervical smear test is costly (requires training for cytologists), dependent on the cytologist, and has low sensibility. It has no quality check, which is problematic to ensure quality results. In addition, results are not immediately available. As for VIA (visual inspection with acetic acid) or VILI (visual inspection with Lugol's iodine), techniques for which many staff can be trained, the results are immediately available and easily integrated into primary health care services. However, the specificity is moderate which leads to overtreatment, and it is also a practitioner-dependent method.
The HPV test has a high negative predictive value (NPV). However, it lacks specificity (a positive test result does not mean that lesions are present).

Large scale randomised trials have demonstrated that HPV screening is more efficient (+30%) to detect CIN 3 on the first screening cycle compared to cytology. In a metanalysis of four randomised trials conducted in Europe, the HPV test provided higher protection against invasive cancer than cytology. The risk of cancers within 3 years after a negative HPV test was about 70% lower than after a negative cytology test. For that reason, the WHO recommends that when these methods are available, screening should be carried out using HPV testing followed by VIA to avoid overtreatment.

Sensitivity of the test: the smallest amount of targeted marker (HPV) that can be precisely detected. Excellent predictive value that enables to reassure patients with a negative test and space the screening intervals for these patients.

Specificity: the ability of the method to identify only the targeted marker, probability that a positive test be indeed positive. The HPV test lacks specificity (a positive HPV test does not mean that there are lesions).

The HPV test uses molecular biology to detect the presence of HPV (detection of viralDNA), either in cervical cells or in a vaginal swab. The HPVs that are targeted are the ones usually considered directly associated to cervical cancer (high risk HPV or oncogenic HPV).

While an HPV test will detect more transient infections for woman under 30, the later the test is being used, the more the detection of an HR-HPV infection might be the sign of high-risk persistent infection that might lead to cervical cancer.

II. AVAILABLE METHODS

Virological methods are limited: HPV are hard to grow and serologies are not very useful. This is why HPV is identified through molecular methods, that are more sensitive than cytology[34].
There are different techniques for the **detection of HPV DNA:**
- Solution-phase hybridation
- PCR amplification coupled with immuno-enzymatic detection
- **Real-Time PCR**

Amplification by polymerase chain reaction (PCR) is an in vitro gene amplification technique used in molecular biology.

It selectively amplifies (with a billion-multiplying factor) trace amounts of a known DNA or RNA sequence. This can help detect HPV for example.

The technique is a 3-step technique:
Thermic denaturation of DNA: when the temperature reaches 95°C, hydrogen bonds are broken, and the 2 DNA strands are forced apart. DNA becomes a single strand in the reaction medium.

Hybridisation of the primers: the reaction medium contains 2 primers, that each assemble with one of the 2 strands. The primers will bind to the DNA single strands when the temperature is between 50 and 65°C. The primers are in excess amount and will bind as soon as they meet with complementary sequences.

Extension of the primer: primers are extended by integrating deoxyribonucleic acids that correspond to the sequence of the strand to which the primers are bound. This step takes place at a temperature of 72°C.

III. XPERT HPV TEST

The Xpert® HPV technique takes place inside a cartridge that must be labelled by the technician. The sample is vortexed before 1ml of the solution is poured into the reaction tube using the provided pipette.
The reaction tube is then inserted in the cartridge for automated analysis.

The HPV Xpert® test can identify the region E6/E7 of viral DNA for all 14 high risk HPV. There is a channel that enables the detection of HPV 16, one for HPV18/45 and three others that detect the other 55 high risk HPV: 31, 33, 35, 39, 51, 52, 56, 58, 59, 66 et 68.

The automated system requires a single use cartridge that holds the PCR reagents, houses the sample, and carries out the PCR processing. The first stage is the ultrasound cell lysis which frees nucleic acids from both HPV virus and human cells. The DNA is then

34. Clavel C. Tests diagnostiques HPV : réalisation et interprétation [HPV Diagnostic tests: technique and interpretation]. SPECTRA Biol N°171. March 2009.

purified on a filtration column and eluted. The DNA is thus made ready for real-time amplification and detection, similarly to PCR. Cellular control called control of the adequacy of the sample is performed that enables the detection of a single copy human gene and ensures that the sample holds enough cells to enable the detection of the presence or not of HPV.

The Xpert® HPV test is a single-sample test, it takes 1 minute to prepare the cartridge and launch the test. The analysis lasts less than an hour. Several cartridges can be launched one after the other. There is very little manipulation time by the technicians (less than 2 minutes). It includes the following steps:

- Transfer of the sample into the cartridge
- Scanning barcodes for the cartridge and the sample
- Insertion of the cartridge in the analysis robot
- Unloading of the cartridge at the end of the test
- Retrieve the results in the Xpert® software and transcribe in the LIS (Laboratory Information System).

HR-HPV genotypes will be detected using 5 different fluorescent probes. Five graphs will appear on the results: one graph for HPV 16, another for HPV 18/45 and three for the pooled results for the 11 other HR-HPV, since 3 channels correspond to these genotypes: Canal P3: HPV 31, 33, 35, 52, 58 / Canal P4: HPV 51 et 59 / Canal P5: HPV 39, 56, 66, 68.
In a table over the graph, the Ct will be visible as well as the result stated as POSITIVE or NEGATIVE. The probe check control (PCC) ensure that the probe is active (will appear as PASS) or not (will appear as ERROR and render the analysis invalid).

HPV Testing advantages and drawbacks

Method of choice recommended by the WHO, especially as part of the 'screen and treat' strategy in middle-income countries in addition to or in replacement of direct visualisation methods such as VIA.

IV. SAMPLING PROCEDURE

The sample can be done with or without speculum examination and can be carried out by a health professional or by the woman herself. Indeed, several studies have shown comparable effectiveness of self-sampling versus practitioner sampling.
For the test to be analysed correctly, it must not be carried out in the following situations:

- Menstrual period (can be done in case of light vaginal bleeding)
- Sexual intercourse within 24 hours of sampling
- Vaginal wash within 24 hours of sampling
- Use of any vaginal solution within 24 hours of sampling.

Remember to mark the sample with patient's name, reference number, date, and time of the test.

a) Sampling technique

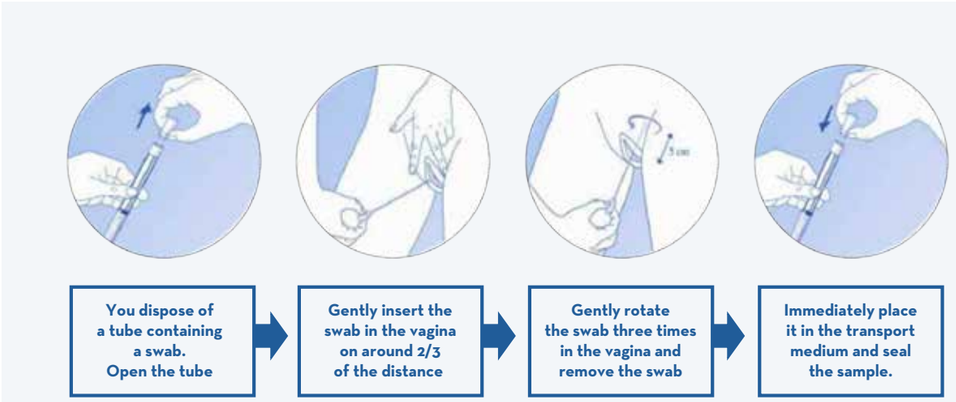
This is the same technique as the one used for pap smear test. It only lasts a few minutes and can cause mild discomfort, some pressure, or cramps, however it is usually not painful.
To carry out the HPV screening test, the practitioner gently inserts a speculum in the vagina. This is to separate the vaginal walls so that the practitioner can see the upper part of the vagina and the cervix. He/she inserts the swab up to the cervix and/or upper vagina and rotates the brush 5 times clockwise.
After sampling the cells, the physician, midwife or nurse puts them in a container. The sample is sent to a laboratory where it is analysed to identify if its DNA is that of an HR-HPV.
There is a possibility of light vaginal bleeding for one or 2 days after an HPV test.

b) Self-sampling

- Self-sampling can be done in a confidential and private location.
- Partially open the packaging.
- Do not touch the cotton or drop the swab. If this occurs, request another sampling kit

ADVANTAGES	DRAWBACKS
Better sensibility	Lower specificity in populations where HPV prevalence is high/young people.
Spacing of screening interval (good NPV)	Cost (human resources and equipment as this is not self-sampling). Cost of the analysis robot and sampling kits, laboratory equipment and electric and water cost.
Objectivity of the test	Need for a laboratory
Possibility of self-sampling	Sampling method
Any health agent can interpret the test after a short training	Delayed diagnosis
	Validation of various rapid tests
	Constraints of transportation: T°, time

FIGURE 20: INSTRUCTIONS FOR CERVICAL SELF-SAMPLING



- Remove the swab from the bag.
- Hold the swab as shown in figure 1, by placing the thumb and the index at the top of the swab.
- Spread your labia with one hand so that the swab does not touch the external parts (see figure 2).
- Gently insert the swab in the vagina to around 2/3 of the distance (see figure 2).
- Gently rotate the swab three time during 10 to 30 seconds. Make sure the swab touches the vaginal mucosa so that the moist is absorbed by the swab.
- Withdraw the swab voiding contact with the skin.
- Immediately place the swab in the container and seal it.

V. CONDITIONING AND SHIPMENT OF SAMPLES

The transportation process must enable to:

- Ensure patient confidentiality and anonymity
- Protect the sample from any damage (fall, leak, etc.)
- Ensure that the conditions are respected for transportation in a timely manner with regards to HPV DNA stability and in appropriate temperature conditions.

The samples must be placed in plastic bags: one bag per patient.

- Fold the laboratory order and put it in the bag
- Store the sample in a cooler to keep it between 15 and 30°C
- Transfer to a laboratory as soon as possible
- For samples that are transferred by a courier, a transport tracing sheet must also be filled out; the time of delivery at the laboratory must be mentioned by a member of staff in the laboratory or by the courier.
- Upon reception of the samples, the technician and the courier check the traceability, date and time of the sample and the temperature.
- In case of non-compliance, the information must be recorded, and the reasons should be mentioned.

Pre analysis

The HPV Xpert® test is a single-sample test for which only one minute is necessary to prepare the cartridge and launch the test.
The analysis is carried out in less than an hour. Several cartridges can be launched one after the other.

VI. DELIVERY OF TEST RESULTS

Results consist in a simple POSITIVE or NEGATIVE with a colour code (green/red).

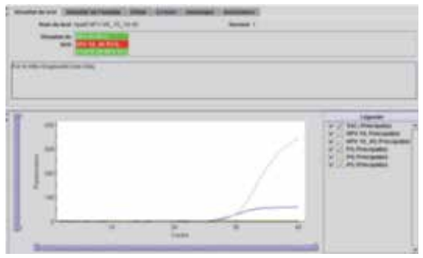


FIGURE 21: SAMPLING PATHWAY PROTOCOL

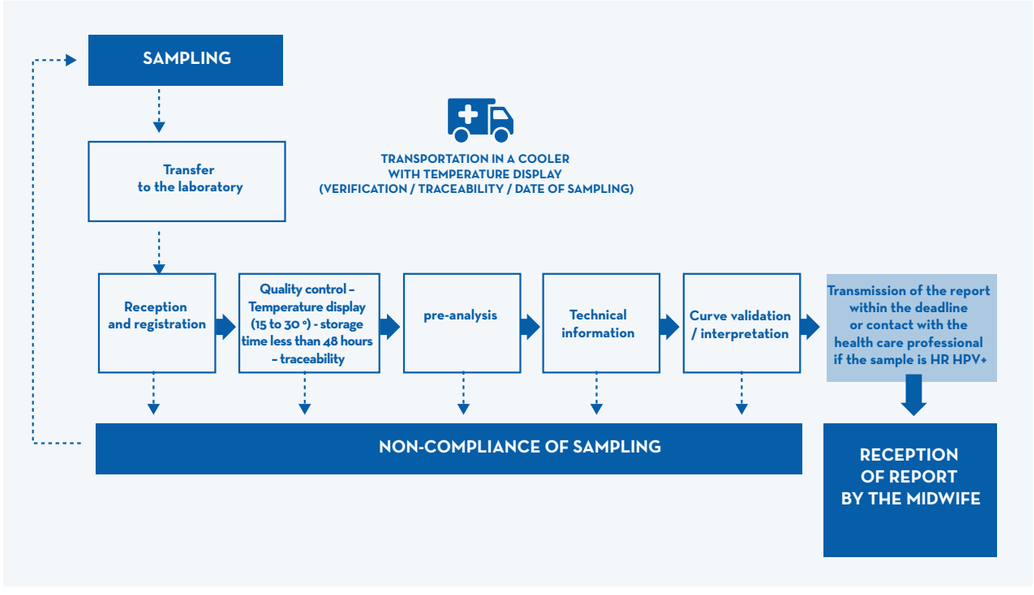
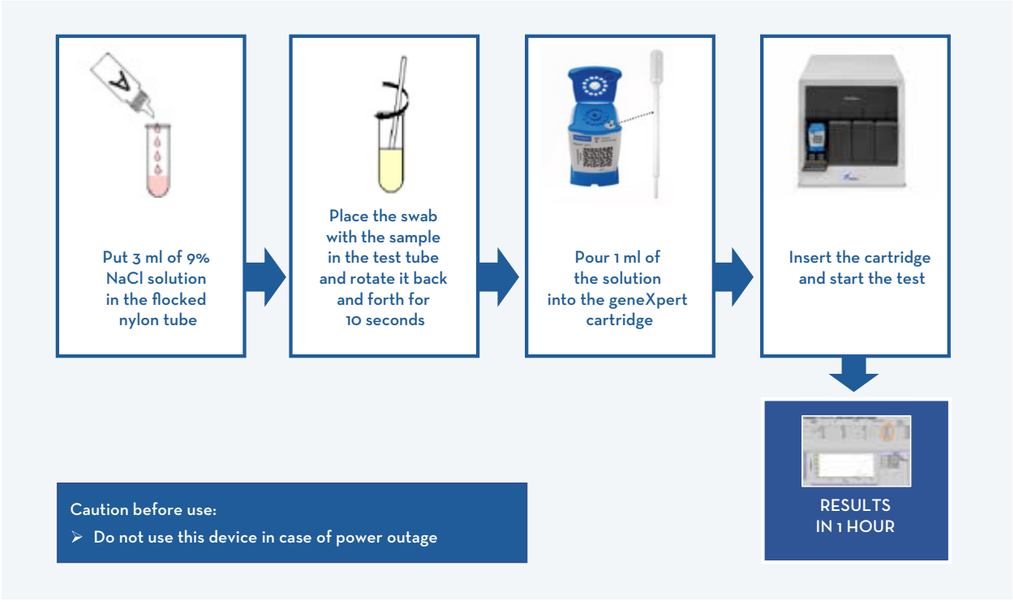


FIGURE 22: HR HPV SAMPLE PRE-ANALYSIS PROCEDURE



How to interpret the results?

The test will come back either positive or negative.

- ➡ Negative result (low risk of developing cervical cancer in the next 5 years)
- ➡ Positive result (contact with a virus that is likely to cause precancerous lesions): offer VIA; reassure, if there is not suspicion of cancer, by explaining that the test does not mean that she has cervical cancer and that a majority of women who have HPV infection will not develop cervical cancer.

KEY MESSAGES

- ➡ Research show that the HPV screening test is very useful for screening cervical cancer. Its association with VIA will avoid overtreatment.
- ➡ Molecular screening methods to screen for HPV infection is based on the detection of HR-HPV DNA in vaginal and/or cervical samples.
- ➡ The sampling can be performed by a health practitioner (with or without a speculum) or by the woman herself.
- ➡ All studies show similar sensitivity between self-sampling and sampling by a practitioner.

NOTES

➡ What do I take away from this session?
➡ What elements require further clarification?

➡ Understandings to develop?

HEALTH SESSION 3
VISUAL INSPECTION WITH ACETIC ACID

MODULE LEARNING OUTCOMES

THEORETICAL KNOWLEDGE:
- State the steps of VIA inspection
- List the necessary equipment for this examination procedure
- Determine the appropriate treatment depending on the results or refer for further investigations
- Articulate the follow-up procedure after a normal examination.

PRACTICAL SKILLS:
- Recognise a normal VIA aspect and identify the presence and extent of the lesions
- Perform VIA.

SOFT SKILLS:
- Establish a trusting and respectful relationship.

I. BACKGROUND INFORMATION

a) What is visual inspection?

Naked-eye visual inspection of the cervix is a simple test for early detection of precancerous lesions and developing invasive cancer. Several techniques exist:
- **Visual inspection with acetic ac**id (VIA)
- **Visual inspection with acet**ic acid and magnification (VIAM)
- Visual inspection with Lugol's iodine (VILI)

Barriers to the implementation of cytological screening in environments where resources are scarce have led to explore the possibility of alternative tests such as VIA or VILI.
The results of VIA or VILI are immediately available and do not require any laboratory service.
The results are classified according to change of colour in the cervix. Perfect knowledge of the anatomy, physiology and pathology of the cervix are a prerequisite to the understanding and interpretation of this test.

b) Anatomical and pathological basis of VIA

Application of 5% acetic acid is believed to cause reversible coagulation or precipitation of the cellular proteins. It also causes swelling in the epithelial tissue, columnar and any abnormal squamous epithelium.

c) Conditions of the test

VIA can be performed at any moment of the cycle and during the menstrual period for a woman suspected of STI or HIV, or in the case of diagnosed infections.

d) Limitations/Strengths

LIMITATIONS	STRENGTHS
Overtreatment (it is not a diagnosis test but a screening test)	Simple and requires minimal equipment
Requires developing stan-dardised training and quality assurance standards	Low cost for setting-up and maintenance
Less accurate for menopausal women	Immediate availability of test results
False positives: immature squamous meta-plasia, leu-koplasia and condyloma	VIA can be integrated in primary health cen-tres
Interpretation depends on the practitioner and requires quality assurance control measures.	Can be performed at any time of the cycle.

II. PROCEDURE

The person in charge of performing visual inspection must have solid knowledge in anatomy, physiology, and pathology of the cervix. He/she must be aware of the clinical aspects of benign affections, inflammation, precancerous lesions and invasive cervical cancer.

a) Material

Biomedical equipment
- Examination table
- Light source
- Sterile bivalved speculum (Cusco's or Grave's)
- Instrument tray.

Medical instruments
- Compress/cotton
- Pickup forceps
- Medical gloves
- Recently prepared acetic acid solution (3 to 5%)
- A plastic container with 0.5% chlorine solution to decontaminate instruments
- A plastic bucket with a polythene bag to dispose of contaminated swabs and other waste items
- Sheet or form to record the events
- Timer.

Maintenance
- Material
- Bleach
- Steriliser
- Preparation of 5% acetic acid solution: add 5ml of glacial acetic acid to 95ml of distilled water.
- If vinegar is used make sure that the concentration of acetic acid is 5%.

b) Procedure

Advice before VIA test
Provide women with the following information:
- Nature of cervical cancer and consequences of an HPV infection
- Risk factors for the illness
- Role and importance of VIA screening
- Consequences of not continuing tests after a negative HPV result
- Options for treatment if the VIA test is abnormal.

Medical interview
Patient's history: bleeding pattern, parity, contraception, risk factors for cervical cancer.

Examination:
- Vulva, vagina, cervix
- Perform a bimanual and rectovaginal examination if necessary. Search for:
  - Cervical motion tenderness
  - Pregnancy
  - Uterine anomaly

- Enlargement or tenderness of the uterine appendages.

Procedure

- Wash hands
- Inspect external genital parts and examine the urethral orifice for any discharge
- Gently insert the speculum until feeling a resistance and gently open it to reveal the cervix
- When the cervix is entirely visible, block the speculum open so that it stays in place and reveals the cervix
- Adjust light source to see the cervix
- Inspect the cervix and look for signs of infection (cervicitis) such as a white purulent discharge (mucopus); ectopy (ectropion); visible tumours or cysts, ulcerations or lesions.
- Use a clean swab to remove any discharge, blood, or mucus from the cervix.
- Identify the cervical os and the squamous columnar junction (SCJ) around it
- Dip a clean swab in acetic acid solution and apply it to the cervix
- After applying acetic acid, wait for at least one minute and inspect the cervix to detect in changes in colour
- Pay careful attention to the SCJ: easy bleeding, any white or thickened areas
- If necessary, apply more acetic acid and swab the cervix to remove mucus, blood or any discharge that might appear during inspection and impede proper visualisation
- After completing visual inspection of the cervix, use a clean cotton swab to remove any remaining acetic acid from the cervix and vagina
- Gently remove the speculum
  - If the VIA test is negative, dip the speculum in a 0.5% chlorine solution for 10 minutes for decontamination
  - If the VIA test is positive and if the patient opts for treatment, place the speculum on a high-level disinfected plate, or in a recipient so as to be able to reuse it for thermocoagulation.

Counselling after negative results:

- Deliver the test results to the woman
- Give the information that the next appointment should be 3 years later (or 1 year if HIV +).

Counselling after positive results:

- Deliver the results to the woman
- Explain recommended further investigations to perform and procedures to follow
- Reassure the woman.

Infection control

- Remove gloves
- Dispose of gloves in a bucket with a plastic bag
- Wash hands after the examination
- Decontaminate instruments in 5% chlorine solution for 10 minutes then sterilise in an autoclave or by immersion in boiling water for 20 minutes.

Information system

- Fill out the register
- Fill out individual records (VIA report and/or personal records).

III. INTERPRETATION OF THE RESULTS

a) Classification

At the interpretation stage, one must carefully observe:

- The intensity of the white colour of the acetowhite lesions: are they shiny white, cloudy white, pale white or dull white?
- The border and demarcations of the white lesions: distinctly clear and sharp or indistinct diffused margins? raised or flat? regular or irregular margins?
- Are the lesions uniformly white in colour or does the colour intensity vary across the lesions or are there any areas of erosion within the lesion?
- Location of the lesion: is it near, or far away from the transformation zone? Is it abutting (touching) the squamocolumnar junction? Does it extend into the endocervical canal? Does it occupy the entirety, or only a part of the transformation zone? Does it involve the entire cervix (which usually indicates early preclinical invasive cancer)?
- Size (extent or dimensions) and number of the lesions.

If in doubt, it is safe to repeat the test a few times, taking care not to induce bleeding. Women with suspected invasive cancers should be referred for further investigations and treatment.

VIA categories

- An acetowhite area is not significant if it is far from the squamocolumnar junction and does not touch it
- An acetowhite area close to the squamocolumnar junction is significant.

VIA OUTCOME	CLINICAL SIGNS
NEGATIVE TEST	**No acetowhite lesions or mildly acetowhite, polyps, cervicitis, inflammation, Nabothian cysts**
POSITIVE TEST	**Distinct, well defined dense acetowhite areas (opaque/dull or oyster-white) with regular or irregular margins close to the squamocolum-nar junction Condyloma and leukoplasia close to the squamocolumnar junction**
SUSPICION OF CANCER	**Visible ulcerated lesions, growths on the cervix that bleed on touch.**

Tools to help identify precancerous lesions.

b) Negative VIA Test results

VIA screening is reported as negative in the case of any of the following observations:

- No acetowhite reaction
- No acetowhite lesions are observed on the cervix
- Polyps protrude from the cervix with bluish white acetowhite areas
- Nabothian cysts appear as button-like areas, as whitish acne, or pimples
- Dot-like areas are present in the endocervix, which are due to grape-like columnar epithelium staining with acetic acid
- Presence of shiny, pinkish white, cloudy white, bluish white, faint patchy or doubtful lesions with ill-defined, indefinite margins, blending with the rest of the cervix
- Angular, irregular, digitating acetowhite lesions, resembling geographical regions, distant (detached) from the squamocolumnar junction (satellite lesions)
- Faint line-like or ill-defined acetowhitening is seen at the squamocolumnar junction
- Streak-like acetowhitening is visible in the columnar epithelium.

c) Positive VIA results

The VIA test result is reported as positive in any of the following situations:

- There are distinct, well-defined, dense (opaque, dull- or oyster-white) acetowhite areas with regular or irregular margins, close to or abutting the squamocolumnar junction in the transformation zone or close to the external if the squamocolumnar junction is not visible
- Strikingly dense acetowhite areas are seen in the columnar epithelium
  - The entire cervix becomes densely white after the application of acetic acid
  - Condyloma and leukoplasia are located close to the squamocolumnar junction, turning intensely white after application of acetic acid.

d) VIA positive for invasive cancer

The result of the test is reported as invasive cancer when:

- There is a clinically visible ulceroproliferative growth on the cervix that turns densely white after application of acetic acid and that bleeds on touch.

KEY MESSAGES

- ➡ VIA is one of the methods for early detection of cellular alterations of the cervix, lesions which become visible to the naked eye after application of acetic acid on the cervix during a speculum examination.
- ➡ As part of the defined screening algorithm, it is used as triage and takes place after a positive HR-HPV test.
- ➡ Training and guided practice is necessary to ensure competent performance of VIA.
- ➡ Possibility to train for VIA.
  http://screening.iarc.fr/digital/cdVIAen/cdVIAen.html

NOTES

➡ What do I take away from this session?
➡ What elements require further clarification?

➡ Understandings to develop?

HEALTH SESSION 4
TREATMENT OF PRECANCEROUS LESIONS AND FOLLOW-UP

MODULE LEARNING OUTCOMES

THEORETICAL KNOWLEDGE:
- List the different treatment techniques for precancerous lesions (cryotherapy, thermocoagulation, LEEP and cold-knife cone) and their indications.
- Articulate basic principles of the implementation of thermocoagulation and LEEP.
- List the possible complications of these various treatments.
- List the required equipment to carry out thermocoagulation and LEEP.
- Enunciate the modalities for follow-up monitoring and treatment of precancerous lesions.

PRACTICAL SKILLS:
- Carry out treatment using thermocoagulation.

SOFT SKILLS:
- Establish a trusting and respectful relationship.

I. OVERVIEW OF AVAILABLE METHODS

Early detection through targeted screening followed by treatment of the diagnosed precancerous lesions can prevent most cases of cervical cancer.

As per the 'screening and treatment' approach, the decision of treatment is based on a screening test and not a diagnostic test, and the treatment must take place as soon as possible if the test is positive.

Decision for treatment is based on a VIA positive outcome and does not require a histological confirmation (diagnosis). WHO recommendations for the treatment of precancerous lesions are:

- Cryotherapy/ thermocoagulation
- LEEP
- Cold-knife cone

a) Cryotherapy

Cryotherapy treats precancerous lesions by freezing precancerous cells and causing cellular dehydration. This is achieved by applying a low temperature cryogenic probe on the abnormal zone. Cervical tissue heals in around a month.

Principle: Application of a low temperature probe on the surface of the lesions to freeze abnormal areas by cellular dehydration.

Technique: Use of carbonic snow (CO_2) or liquid nitrogen (N_2O).

Indications:
- Visible lesions
- Lesions covering less than 75% of the cervix
- Lesions covering less surface than the probe
- Visible SCJ.

Contra-indications:
- Endocervical lesions
- Invasive cancer
- Pregnancy.

Procedure:
- 15 minutes
- No anaesthesia
- Probe is positioned on the cervix
- Apply gas twice for a duration of 3 minutes with a 5-minute interval between both applications.

Side-effects: Cramps (2 to 4 weeks) / Uncomfortable discharge (2 to 4 weeks).

Customary advice:
- No vaginal douche
- No tampons
- No sexual intercourse for a month
- Use condoms for 6 weeks.

b) Thermocoagulation

Thermocoagulation treats precancerous lesions by causing tissue necrosis. A high temperature probe is applied to the abnormal area. Cervical tissue heals in around a month. Indications are the same as for cryotherapy.

Principle: Application of a high temperature probe to the surface of a lesion to cause necrosis of abnormal areas.

Technique: Application of the probe at 100°C on the uterine cervix while exerting pressure on the cervix for 1 minute.

Indications:
- Visible lesions
- Lesions covering less than 75% of the cervix
- Lesions covering less surface than the probe
- Visible squamocolumnar junction (SCJ)

Contra-indications:
- Endocervical lesions
- Invasive cancer
- Pregnancy.

Procedure:
- 2 minutes of procedure
- No anaesthesia
- Probe is positioned on the cervix
- Apply the probe at 100°C on the zone for 1 minute.

Side-effects: Cramps (2 to 4 weeks) / Uncomfortable discharge (2 to 4 weeks).

Customary advice:
- No vaginal douche
- No tampons
- No sexual intercourse for a month
- Use condoms for 6 weeks.

c) Loop electrosurgical Excision Procedure (LEEP)

The Loop Electrosurgical Excision Procedure uses a wire loop that cuts the tissues so as to remove abnormal zones while ensuring haemostasis. This haemostasis is ensured with a ball electrode. The tissue can be sent for anatomopathological analysis to assess of the extent of the lesion.

Principle: Electrosurgical removal of a part of the cervix (with the aim of sparing as much tissue as possible).

Technique: Use of a thin electrosurgical loop to remove abnormal areas to entirely eliminate the lesion and the transformation zone.

Indications:
- Lesions covering over 75% of the cervix
- Endocervical lesions
- SCJ not visible.

Contra-indications:
- Invasive cancer
- Pregnancy.

Procedure:
- 15 minutes without anaesthesia
- Anaesthesia (local, locoregional or general)
- Partial removal of the cervix using an electrosurgical loop
- Haemostasis with a ball electrode.

Side-effects:
- Bleeding
- Foul-smelling discharge
- Abdominal pain
- Risk of preterm labour

Customary advice:
- No vaginal insertion for 1 month
- No sexual intercourse for 1 month.

d) Cold Knife Cone (CKC)

Principle: Surgical removal of a cone-shaped part of the cervix (hence the name) and biopsy.

Technique: Uses a scalpel to remove abnormal zones of the cervix. The cone must extend the abnormal zone by at least 3 mm and be sufficiently deep.

Indications:
- Lesions covering over 75% of the cervix
- Endocervical lesions
- SCJ not visible.

Contra-indications:
- Invasive cancer
- Pregnancy.

Procedure:
- 15 minutes without anaesthesia
- Anaesthesia (local, locoregional or general)
- Performed using a scalpel.

Side-effects:
- Bleeding
- Foul-smelling discharge
- Abdominal pain
- Infection
- Risk of preterm labour.

Customary advice:
- No vaginal insertion for 1 month
- No sexual intercourse for 1 month

The following table summarises the key characteristics of the different treatments.

	INDICATIONS	PROCEDURE	ADVANTAGES	LIMITATIONS
CRYOTHERAPY	• .Visible lesions • Covering less than 75% • Lesions no wider than the probe • Visible squamocolumnar junction	• 15 minutes • No anaesthesia • Probe on the cervix • Apply gas twice for 3 minutes with a 5-minute interval	• Affordable, no need for consumables (gas) • Short duration 15' • No need for electricity	• Lower success rates with large lesions • No histological confirmation • Unreliable supply (requires liquid nitrogen or dry ice)
THERMOCOAGU-LATION	• Visible lesions • Covering less than 75% • Lesions no wider than the probe • Visible SCJ	• 2 minutes • No anaesthesia • Probe on the cervix • Apply 100°C probe on the zone for 1 Minute	• Affordable since no need of consumables • Short duration (2') • Minimal equipment needs • Easy procedure • Few complications	• Lower success rates with large lesions • No histological confirmation
LEEP	• Lesions covering more than 75% • Endocervical lesions • Non-visible SCJ	• 15 minutes excluding anaesthesia • Anaesthesia (local, locoregional or general) • Partial removal of the cervix using an electrosurgical loop • Haemostasis with ball electrode	• Possibility of a biopsy • Few side effects and complications	• Local anaesthesia (paracervical block) • Costly equipment • Advanced technical facilities
COLD-KNIFE CONE	• Lesions covering more than 75% • Endocervical lesions • Non-visible SCJ	• 15 minutes excluding anaesthesia • Anaesthesia (local, locoregional or general) • Use of a scalpel	• Possibility of a biopsy	• Costly equipment • Advanced technical facilities

II. THERMOCOAGULATION

Thermocoagulation should not be performed during pregnancy. Pregnant women will be asked to come back 3 months after their delivery for a new assessment and treatment, if still necessary.

a) Background information

Effectiveness:
- Comparable to cryotherapy, CKC or LEEP
- Little perspective regarding evaluation.

Recovery rates:
- 96% for CIN 1
- 95% for CIN 2 and 3.

Advantages:
- Affordable as it does not require consumables (gas)
- Effects comparable to cryotherapy for 100°C thermocoagulation
- Easy-to-use equipment
- No anaesthesia required
- Easy procedure
- Few complications.

Limitations:
- Lower success rates with large lesions
- No histological confirmation.

Indications:
- Positive screening test
- Lesions not more than 2 mm larger than the probe
- Entirely visible lesions not extending to the endocervical area or towards the vaginal wall.

Exclusion criteria:
- Suspicion of glandular dysplasia or invasive carcinoma
- Lesions more than 2 mm larger than the probe
- Pregnancy
- Menstruation.

b) Counselling

All patients can freely decide to accept or refuse treatment. If it is refused, offer the patient screening one year later (see chapter on Counselling).
- Provide detailed information on the procedure, the risks, the benefits
- Encourage the patient to ask questions
- Ask the patient to confirm her consent to treatment
- Expected side-effects:
  - Cramps
  - Vaginal discharge (abundant, aqueous)
  - Light bleeding

c) Equipment and material

- Examination table
- Light source
- Bivalve speculum (Cusco or Graves)
- Instrument plate or recipient
- Thermocoagulation machine
- Cotton swabs
- Unused examination gloves or high-level disinfection surgical gloves
- Unused wooden spatula and/or a condom
- 0.5% chlorine solution to decontaminate the instruments
- A sheet to record the events.

d) Procedure

- Warn the patient that speculum is going to be inserted and that she may feel some pressure
- Gently insert the speculum entirely until feeling a resistance and open it to see the cervix
- When the cervix is entirely visible, fix the speculum in open position so that it stays in place with the cervix visible
- Adjust the light source to see the entirety of the cervix
- Use a cotton swab to remove any discharge, blood, or mucus from the cervix

Médecins du Monde (2019), Photo taken by the teams, Internal document

- Identify the cervical os, the SCJ and the location and size of the lesion
- If required, apply acetic acid to reveal the lesion

➡ Hold the thermic probe perpendicular to the cervix
➡ Hold the trigger for one minute
➡ Remember to exert pressure on the cervix
➡ At the end of the procedure, carefully observe the cervix to make sure a white ball-shaped area appears.

e) Complications and customary advice

Complications:
➡ Abdominal pain (2 to 4 weeks)
➡ Foul-smelling discharge (2 to 4 weeks)
➡ Bleeding
➡ Infections.

Customary advice:
➡ How to take care at home (paracetamol)
➡ No vaginal douche
➡ No tampons
➡ No sexual intercourse for 1 month
➡ Use a condom for 6 weeks
➡ Contact a health practitioner in case of fever exceeding 48 hours, heavy bleeding and severe abdominal pain.

III. LEEP PROCEDURE

Loop Electro Excision Procedure (LEEP) is the partial removal of the area of the cervix comprising the junction zone between the columnar epithelium and the squamous epithelium, using a thin loop connected to an electrosurgical generator. This removal must prevent the development of precancerous lesions into cervical cancer.

It is adapted to patients with a theoretical indication for destructive treatment but whose lesions extends beyond 75% of the cervix or extend to the endocervical area, or in cases where the SCJ is not entirely visible.

LEEP is not recommended in the case of suspected invasive cancer. It is also contra-indicated during pregnancy. Pregnant women will have to come back 3 months after delivery for a new assessment followed by treatment if this is still necessary.

a) Background information

Recovery rates: Depending on the size of the lesion, between 80 and 96%.

Advantages:
➡ Possibility of a biopsy
➡ Few side effects and complications.

Limitations:
➡ Requires local anaesthesia (paracervical block)
➡ Costly equipment
➡ Requires advanced technical facilities.

b) Equipment and material

➡ LEEP electrosurgical unit and energy source
➡ Smoke evacuator and filter
➡ Trolley
➡ Examination table
➡ Halogen lamp
➡ Speculum covered with nonconducting material covered with a condom
➡ Pickup forceps
➡ Needle holder/Long surgical scissors (in case of bleeding)
➡ Loop electrode and ball electrode
➡ Electric scalpel
➡ Neutral electrode
➡ Suction tube
➡ Local anaesthetic (syringe, needles)
➡ Sterile gloves
➡ Cotton swabs
➡ 3 to 5% acetic acid
➡ Monsel's paste (for haemostasis)
➡ Tamponade gauze
➡ 0-polysorb suturing thread
➡ Formol (if anatomopathological investigation).

c) Procedure

LEEP is achieved by using an electrode to cauterise the cervix:
➡ An alternating electric current with low tension and high frequency is applied to a thin electronic looped wire
➡ The electrode is slowly inserted into the cervix
➡ The cauterisation of the lesion is achieved with the ball-shaped end electrode.

d) Complications

➡ Bleeding
➡ Foul-smelling discharge
➡ Abdominal pain
➡ Risk of preterm labour.

IV. FOLLOW UP

When treatment for cervical cancer has been successful, follow-up monitoring must be set up to ensure the continuum of care. This must be adjusted to the situation and will notable help address side effects of the treatment and ensure that a good quality of life is recovered. It also aims at early detection of a possible relapse.

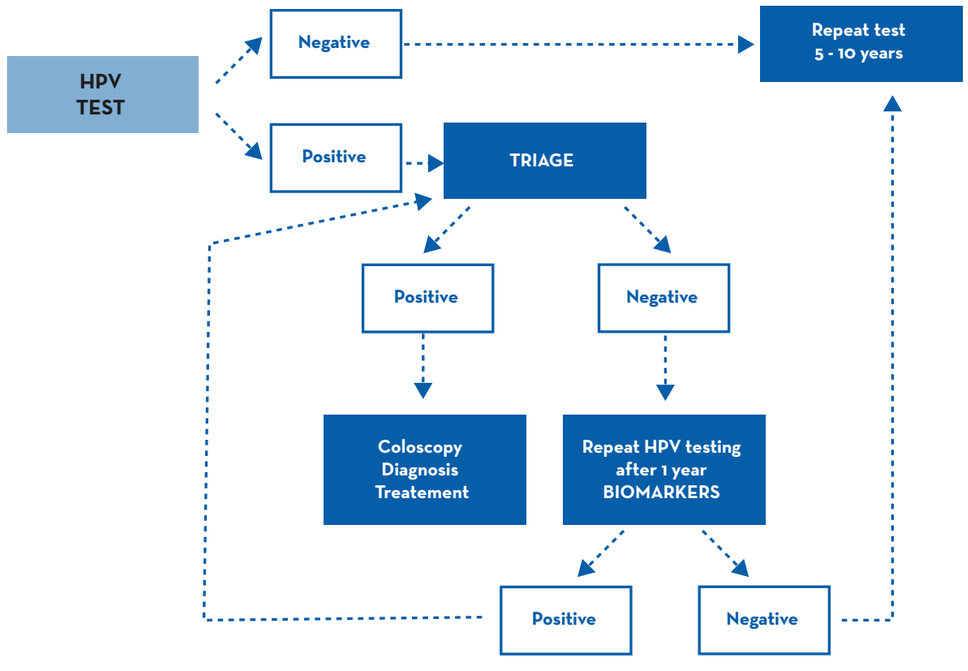
Regarding patients treated with thermocoagulation
A follow-up visit must be planned at 4 to 6 weeks after treatment. This visit will include:
➡ Gynaecological examination to ensure cervical healing
➡ Delivery of information insisting on the importance of regular gynaecological check-ups. Gynaecological check-ups aim at:
  - Guaranteeing personalised contraception
  - Preventing and screening for STI
  - Detecting female cancers such as breast and cervical cancer.

Follow-up visits will be planned 1 year after the treatment and will include a VIA Screening test.
If the lesion evolves or persists, the treatment will be repeated, maximum once. After that the follow-up visit must be carried out in a higher-level facility.

Regarding patients whose tests were negative
Patients with negative results must be screened again at 5 to 10 years in the case of a negative HPV test.
Patients with negative VIA results following a positive HPV test should repeat an HPV test at 1 year.

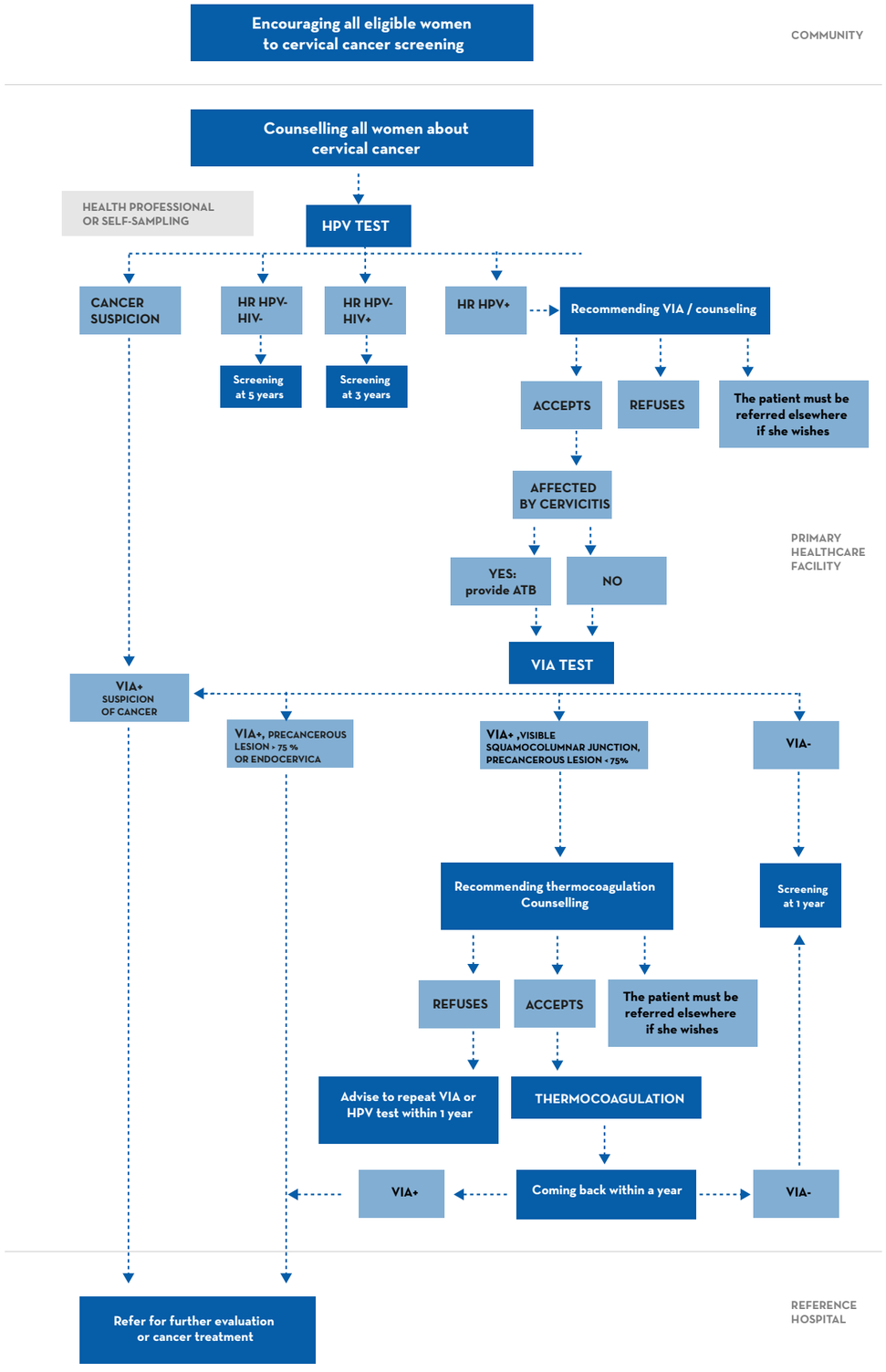
Of course, these recommendations are to be adjusted to each project's financial resources.

FIGURE 23: ALGORITHM FOR SCREENING FOLLOW-UP*



* WHO - *guideline for screening and treatment of cervical pre-cancer lesions for cervical cancer prevention* (2021)
** Médecins du Monde (2019), *Figure summarising the sampling procedure, CC*

FIGURE 24: ALGORITHM FOR SCREENING FOLLOW-UP (DETAILED VERSION)*



* Médecins du Monde (2019), *Figure summarising the sampling procedure*, CC

KEY MESSAGES

- In order for cervical cancer prevention to be effective, women whose screening test is positive must receive efficient treatment.
- There are several types of recommended treatments depending on the context and available resources and depending on the size of the lesions: Cryotherapy / Thermocoagulation are a first line treatments and loop electrosurgical excision procedure (LEEP) is adequate for any lesion covering over 75% of the cervix or in cases where the SCJ is not visible.
- These various treatments can be carried out at different levels of care depending on national recommendations.
- Using a 'screen and treat' approach helps reduce the number of lost to follow-up and may reduce the waiting time before the woman benefits from treatment.
- Importance of follow-up to ensure early detection of relapse.
- It is important to maintain medical care on a lifelong basis, even in the absence of severe illness.

NOTES

➡ What do I take away from this session?
➡ What elements require further clarification?

➡ Understandings to develop?

HEALTH SESSION 5
TREATMENT OF CANCEROUS LESIONS AND REFERRAL

MODULE LEARNING OUTCOMES

THEORETICAL KNOWLEDGE:
- List the different treatment options for cancerous lesions and their indications.
- Explain the modalities for each treatment.
- Articulate the follow-up strategy following treatment of cancerous lesions.

PRACTICAL SKILLS:
- Organise a referral and counter-referral system to facilities that are equipped to care for cancerous lesions.

SOFT SKILLS:
- Deliver care in a respectful, empathetic, non-judgmental manner that is supportive of women.
- Respect confidentiality and protect medical data at all times.

I. CLINICAL FORM AND CANCER DIAGNOSIS

When a woman accesses health services to complain about irregular blood loss, post-coital bleeding or postmenopausal bleeding, or even persistent vaginal discharge (despite treatment of STI), they must be offered a speculum examination to identify any unusual aspect and refer the patient in case of suspected cervical cancer.

Cervical cancer is caused by the development of abnormal cells in the uterine cervix, characterised by their ability to proliferate.
The cervix is composed of three types of tissues:
- Ectocervical squamous epithelium: it covers the external part of the cervix called ectocervix.
- Endocervical columnar epithelium: it covers the internal part of the cervix called endocervix.

Connective tissue or supporting tissue: covered by both previous tissues that meet on a line named the 'junction zone' or 'transformation zone'.
Cervical cancer develops from one of the three following elements:
- Squamous cell carcinoma (85%): initiates in the ectocervix. It is by far the most frequent cervical cancer
- Adenocarcinoma (15 %): initiates in the endocervix
- Sarcoma: initiates in the connective tissue. This type of cancer is extremely rare.

'In situ' cancers are caused by cervical dysplasia: only superficial epithelium is affected. The basal membrane and underlying connective tissue are not affected.

Squamous cell carcinoma and adenocarcinoma are considered invasive when they pass the basal membrane separating them from connective tissue and progress into the underlying connective tissue.

Risk factors
- Sexual activity: early first intercourse (<17 years old) and number of sexual partners are major risk factors.
- Tobacco consumption: currently seems to be the second factor
- Oral contraception: the effect of oestroprogestogens is debated. They seem to facilitate carcinogenesis.
- Immune deficiencies are new elements that have been identified as risk factors, such as kidney transplants and HIV seropositivity.

a) Symptoms of invasive cervical cancer

There is a possibility for cervical cancer to go unnoticed at the first stages of the illness, causing no sign or symptoms. Indeed, cancer may be a silent illness; symptoms usually appear when the tumour has developed in the neighbouring tissues and organs.

Other medical disorders may cause similar symptoms. This is why it is necessary to refer patients to a referral facility to perform a biopsy that will lead to a diagnosis. Signs and symptoms of cervical cancer include the following:

EARLY SIGNS
- Unusual, sometimes foul-smelling, vaginal discharge
- Irregular bleeding (of any kind) during reproductive life
- Bleeding after sexual intercourse whatever the age, even in the case of young women
- Post-menopausal bleeding
- In the perimenopausal period, any unusual bleeding must lead to suspecting cervical cancer, especially if bleeding persists despite adequate treatment.

DELAYED SYMPTOMS
- Frequent and urgent needs to urinate
- Back pain (may be severe)
- Lower pelvic pain
- Weight loss
- Decreased urine output (ureteral obstruction or kidney failure)
- Urinary incontinence or faecal vaginal incontinence (caused by a fistula)
- Oedema of the lower limbs
- Breathing difficulties (dyspnoea) caused by anaemia or rarely by pulmonary metastasis or pleural effusion.

b) Clinical assessment and cancer diagnosis

Medical history and interview
Clinical examination must be carried out after a comprehensive interview of the patient's medical and gynaecological history and risk factors. This examination comprises a gynaecological examination (speculum examination, vaginal and rectal examination) and palpation of abdomen and lymph nodes.

Gynaecological examination
During speculum examination, extensions in the vaginal walls will be evidenced when the speculum is being opened.

Vaginal examination aims at assessing volume, cervical motility and vaginal fornices.
Rectal examination can detect parametrial invasion of cervical cancer. Bimanual inspection can help assess the lateral extent of the tumour along the uterosacral ligaments.

Cervical cancer can be suspected in the presence of an abnormal screening (gynaecological examination and/or VIA) or in the presence of symptoms. Further investigations are required to confirm the diagnosis.
The aim of these investigations is threefold:
- Confirm the diagnosis of cancer and identify the

PHOTOS: UTERINE CERVIX BEFORE TREATMENT



histological type of cancer
- ➡ Assess the extent of the illness (its stage)
- ➡ Identify any contra-indications to some of the treatments.

This may seem a time-consuming stage but conducting precise assessment is crucial in choosing an adequate treatment.

Diagnosis

Since women whose results are positive for the screening tests do not necessarily have precancerous lesions, it is normally expected that they undergo a diagnostic test that will confirm or not the presence of lesions, and possibly assess the stage of the illness.

Colposcopy is an examination of the vulva, vagina and cervix using a powerfully lit and magnifying instrument. This can be paired with digital cameras. The colposcope is a costly equipment and its use requires training. It is used after screening to guide biopsies and may help in the choice of the most adapted treatment (cryotherapy/LEEP).

The most commonly used diagnostic examinations are:

- ➡ **Biopsy:** this is a sample of cervical tissue that is sent for anatomopathological analysis, which helps confirm the presence of the precancerous or cancerous lesion and assess their extent (CIN 1 to 3, in situ tumour or invasive tumour). It is the gold standard. It can be performed on lesions visible during VIA or using colposcopy if no lesions are visible.
- ➡ **Endocervical curettage** in case extension of lesions in the endocervical area are suspected, or if the squamocolumnar junction is inside the endocervix.

Biopsy is necessary to assert the diagnosis and define the histological type. Biopsy consists in removing small samples using a biopsy forceps. The sample is sent to histopathology for analysis. Biopsy can be carried out without anaesthesia. Bleeding is usually minimal.

c) Announcing suspected cervical cancer

The sooner the diagnosis is made, the better the chances of healing with limited heavy treatment. The welcome the patient receives at first point of contact in the pathway of care and the quality of listening and information provided upon announcement of the diagnosis are major elements that will influence the rest of the pathway.

The announcement of a suspected cancer is a difficult moment for any patient.

Adherence to care and treatment is improved by adequate and timely information delivered to the patient. Therefore, the announcement must include a medical step that will detail the stages that are to be followed. The information delivered must be clear and understandable. The patient must be provided with contact details for the facility or organisations that she might need to support her during the course of care.

PHOTOS: UTERINE CERVIX AFTER TREATMENT




Aims

- ➡ Provide understandable information and counselling so that each woman may make her own decisions.
- ➡ Explain the upcoming stages of care and treatment.

Contents of care

- ➡ Announce the suspicion of cancer
- ➡ Explain what will happen in the hospital (confirming the diagnosis and stage of the cancer)
- ➡ Further examinations (blood sample, biopsy).
- ➡ Upon confirmation, specialists will explain and discuss procedures and treatment
- ➡ Make an appointment with the hospital
- ➡ Provide contact details of the facility and organisations so that she has adequate support when needed.

Counselling

- ➡ Discussion with the patient (and her family if she so wishes)
- ➡ Listening capacities = powerful therapeutic tool
- ➡ Request permission to discuss the situation before speaking
- ➡ Be clear and straightforward when announcing a suspected cervical cancer, and state that the only diagnosis tool is biopsy.
- ➡ Give people time to understand what you are saying.
- ➡ Remember to say that all women can be treated for cervical cancer with existing treatments
- ➡ If patients do not understand very well, use drawings or sketches, and let them know that you will be available for further questions that may arise.
- ➡ Evaluate the patient's understanding, listen to what her feelings are about the diagnosis, her fears, her expectations, and her knowledge of existing treatments.
- ➡ Be ready to explain that unless treated, the cancer will develop and eventually cause death.
- ➡ Assess psychological support and offer the help of support groups.
- ➡ Other aspects to consider:
  - Discuss with her to find out whether she intends to use traditional healers
  - Do no judge, but rather use combined efforts for optimised care.

KEY MESSAGES

- ➡ **A woman who is diagnosed with invasive cervical cancer at an early stage can usually recover if provided with effective treatment.**
- ➡ **Without treatment, invasive cervical cancer is almost always lethal.**
- ➡ **Definitive diagnosis of invasive CC is provided by histological examination of a biopsy sample.**
- ➡ **It is essential that health professionals in primary healthcare facilities be able to identify and quickly refer women presenting with symptoms and frequent signs of CC.**

II. STAGING SYSTEM FOR CERVICAL CANCER DEVELOPMENT

Cervical cancer treatment includes surgery, radiotherapy, chemotherapy, which can be used combined or individually.

a) Surgery

Principles:
Major surgery practiced under general anaesthesia that consists in removing the cervix, the uterus (with or without ovaries), parametrial tissue, the upper area of the vagina and the pelvic lymph nodes.

Indication:
The choice of treatment is based on the size and clinical form of the cancer:
Surgery as primary treatment: Surgery is used as primary treatment option and consists in the removal of a variable portion of tissue depending on the development of the cancer in the pelvis and other individual characteristics of each patient.
Surgery as secondary treatment: This can still aim at healing the patient. It consists in radical hysterectomy including removal of a portion of the upper vaginal to reduce the risk of relapse of the cancer.
Surgery as palliative care: This is sometimes carried out when the cancer is at an advanced stage to reduce intestinal obstruction or treat fistula (abnormal communication between the vagina and the urinary tract or the rectum) resulting from the irradiation or extension of the primary cancer.

Treatment duration: 10 to 14 days of hospital stay

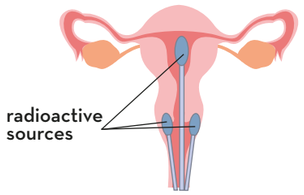
Complications:
- Infection
- Haemorrhage
- Lesions of neighbouring organs
- Risk of thromboembolic event
- Hysterectomy leading to sterility and bladder and/or intestine dysfunction.

b) Radiotherapy

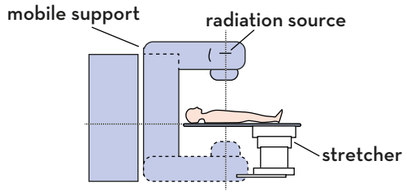
Principle:
It consists in using ionising radiations to destroy cancerous cells. It may be used to treat both early and advanced stages of cancer. It is a completely painless procedure, that only lasts a few minutes. There are two types of radiotherapy treatments.

- **Intracavitary radiotherapy** is the most frequently used type of radiotherapy for cervical cancer. It consists in introducing an applicator to apply radioactive substance in the vagina or uterus.
- **External beam radiotherapy** involves using an external treatment device close to the body that directs high intensity X-radiations towards the tumour.

INTRACAVITARY RADIOTHERAPY



EXTERNAL BEAM RADIOTHERAPY



Duration of treatment:
The number of irradiations as well as the duration of the treatment are subject to various factors: stage of the cancer, overall health condition, other treatments. Treatment is spread so as to protect normal tissues.

Side-effects:
The most frequent side effects are:
- Skin alterations
- Tiredness
- Loss of appetite

Complications:
- Menopause
- Infertility
- Dyspareunia

c) Chemotherapy

When chemotherapy is used to treat cervical cancer, it is often associated with radiotherapy. This combination is the reference treatment of tumours that are larger than 4 cm or that have extended beyond the cervix into the pelvis.

Principle:
Chemotherapy treatment is based on the administration of anti-cancer drugs. It is also referred to as medical treatment. It is a general treatment that affects the whole body. It can affect cancerous cells regardless of their location, even if they are isolated and were not identified during diagnosis. Chemotherapy treatments destroy cancerous cells by impeding their division process.

Recommendations:
Chemotherapy is not offered routinely. Its use and effectiveness vary depending on the stage of the cancer and its extent.

It will be chosen to treat cancers with metastasis beyond the pelvis. In that case it may be used alone or combined with radiotherapy (external, most times). It can slow down or stop the development of cancer.

Duration of the treatment:
The total duration can vary. It may take place continuously, every day for a given period of time, or it can be fractioned into cycles whereby cures are spaced with a resting period.

Side effects:
Side effects of chemotherapy depend on the drugs that are used, as well as the dosage and the patients (who may react differently to the same treatment). Some side effects can be reduced or avoided by preventative treatments and practical tips.

- Hair-loss
- Nausea and vomiting
- Diarrhoea
- Musculoskeletal pain
- Tiredness
- Mouth sores

The following table summarizes these treatments:

	RADICAL SURGERY	EXTERNAL BEAM RADIOTHERAPY	INTRACAVITARY RADIOTHERAPY	CHEMOTHERAPY
DESCRIPTION	Major surgery requiring general anaesthesia and removal of the cervix, uterus (possible ovaries), para-metrial tissue, upper vagina, and pelvic lymph nodes.	Consists in targeting the tumour using a radiation beam from an external source, also called teletherapy.	Consists in delivering radiation using radioactive sources place in specific implants in the cervical canal and vaginal fornices.	Cisplatin or Carboplatin by intravenous (IV) injection are the most frequently used chemotherapy drugs.
INDICATIONS	Early stages (Stage I and some cases of stage IIA).	All stages including palliative care.	All stages including palliative care.	Advance stages (in association with radiotherapy). Palliative care. Relapse.
DURATION OF TREATMENT	Between 10 and 14 days.	Daily treatment lasts 10-15 minutes. The regimen requires around 20-25 cures spread over 4 to 5 weeks (5-6 weekly cures).	Low-dose brachytherapy requires only one hospitalisation of 2-3 days.	Chemotherapy can be administered in ambulatory care/ outpatient clinic in weekly cures for 5 weeks.
SIDE-EFFECTS	Infertility	Skin alteration Tiredness Loss of appetite. Pain.	Skin alteration Tiredness Loss of appetite Pain.	Hair loss Nausea and vomiting Diarrhoea Musculoskeletal pain Tiredness.
COMPLICATIONS	Infection Haemorrhage Lesions of neighbouring organs Thromboembolic risk Hysterectomy causes infertility and dysfunction in the bladder and/or intestines.	Menopause Infertility Dyspareunia.	Menopause Infertility Dyspareunia.	
LEVEL	Treatment of cancer is centralised and provided by tertiary health facilities.			

Effective care of women with cervical cancer ought to be multidisciplinary (gynaecologist, oncologist, radiotherapist, etc.). Follow-up is recommended after treatment for 2 to 5 years to monitor the effectiveness of the treatment and prevent relapse.

d) Prognostic factors

Survival depends on the stage of the cancer. Usually, the earlier the diagnosis and treatment, the better the chances of survival for cervical cancer.
There is no available statistical data on the various stages of cervical cancer. The following information was drawn from multiple sources and may include data from different countries:

STAGE	SURVIVAL RATE AT 5 YEARS
IA	93 %
IB	80 %
IIA	63 %
IIB	58 %
IIIA	35 %
IIIB	32 %
IVA	16 %
IVB	15 %

The prognosis is influenced by many determinants, among which the following:

- Medical history
- Type of cancer
- Stage of the cancer
- Specific characteristics of cancer
- Treatment options
- Response to treatment.

e) Differential diagnosis

A non-cancerous or benign tumour is a cervical growth that does not extend to other body parts (no metastases). A non-cancerous tumour is usually not life-threatening.
This section details the non-cancerous tumours that can be found in the uterine cervix.

Cervical polyp

Cervical polyp is the most frequent non-cancerous tumour in the cervix. Most of them are benign but some can become cancerous or malignant.
Cervical polyp is usually found in women over 20. It is rarely found in young girls before menstruation. It is a red shape resembling a finger. It initiates in the endocervical canal (that links the uterus to the vagina), sometimes protruding into the vagina.

Cervical polyps do not systematically cause symptoms. Some women may have unusual vaginal bleeding or yellow to white vaginal discharge. The polyp is diagnosed during pelvic examination.
It usually does not require any treatment. If it is large or if it seems abnormal, it can be removed:

- With a gentle twisting movement
- By circling it using a special thread to stop blood supply
- By grasping it with specific forceps
- By applying heat produced by electric current (electrocauterization) or a laser beam at the base of the polyp.

Nabothian Cyst

Nabothian cysts usually appear on the surface of the cervix. Endocervical cells produce mucus. Sometimes, squamous cells that are usually found in the ectocervix begin to develop on cells that produce endocervical mucus. They trap the mucus in the cervix, and this mucus continues to be produced and accumulates in a round smooth growth called a Nabothian cyst. This can be diagnosed during a routine pelvic examination. It does not usually require any treatment. In some cases, it can become big enough to modify the shape of the cervical canal and prevent adequate pelvic examination. In that case, it is possible to drain the cyst to evacuate the mucus.

Cervical fibroma

Cervical fibroma, also known as leiomyoma, initiates in the muscular tissue of the uterine cervix. Its aspect is similar to the uterine fibroma, but it is less frequent. Cervical fibroma is usually small, measuring 0.5 to 1 cm wide. It can be found in women of any age.
Most women with a cervical fibroma present with no clinical signs or symptoms. Usually, there is no need for treatment except if it causes symptoms such as bleeding or pain. Some women will use medication to control these symptoms. Others may require surgery to remove the fibroma.

KEY MESSAGES

- **Treatment options include surgery, radiotherapy, and chemotherapy; they can be used as a stand-alone treatment or combined.**
- **Without treatment, invasive cervical cancer is almost always lethal.**
- **A multidisciplinary approach is required to ensure efficient care for women with cervical cancer.**
- **With appropriate treatment, the survival rate at 5 years is over 80% for stage I cancers, 70% for stage IIA, 50% for stage IIB, and less than 10% for stage IV.**

NOTES

➡ What do I take away from this session?
➡ What elements require further clarification?

➡ Understandings to develop?

HEALTH SESSION 6:
INFECTION CONTROL AND UNIVERSAL PRECAUTIONS

MODULE LEARNING OUTCOMES

THEORETICAL KNOWLEDGE:

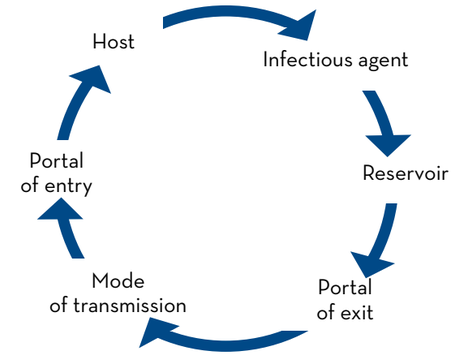
- Articulate the different universal precautions to implement in order to prevent infections during screening, treatment and follow-up.
- Explain the sterilisation procedures for various instruments and equipment used for screening and treatment of precancerous and cancerous lesions.

I. BACKGROUND INFORMATION AND TRANSMISSION CYCLE

Definition

A nosocomial infection is a local or general infection caused by an infectious agent that was not present on admission in the health facility. Any microorganism may cause infection.
All human beings are sensitive to most infectious agents if they are not immune (vaccine).

Infection transmission cycle



Infectious agent: pathogenic organism that may cause an infection.
Reservoir: Environment where the infectious agent can survive, whether it develops there or not (human, animal, equipment).
Portal of exit: the means by which a pathogen exits from the reservoir (respiratory, genital, urinary, mucosa, blood, etc.).
Mode of transmission: an infectious agent can be transmitted through one or several routes. Direct contact (person to person) or indirect (via an inanimate object or surface) such as airborne transmission, vector-born transmission (insect) or via a vehicle (food, drugs, droplets, sneezing).
Portal of entry: respiratory tract, genital or urinary tract, digestive tract, mucosa, parenteral transmission, transplacental transmission.
Host: a person that lacks sufficient resistance to a specific microorganism.

II. BASIC PRINCIPLES OF UNIVERSAL PRECAUTIONS

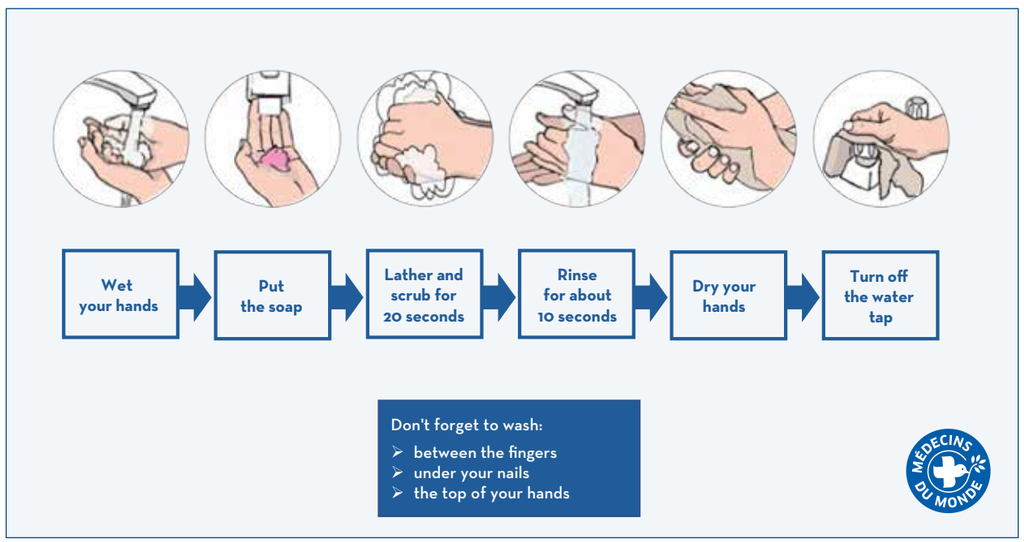
Universal precautions are a set of simple measures to prevent infection transmissions during service provision. This includes minimising the risk of severe infections (hepatitis B, hepatitis C and HIV) from or to:

- Patients
- Service providers
- Other members of staff such as cleaning and maintenance staff.

This is all the more important since many infections are asymptomatic. Thus, prevention is essential regardless of the status of the patient, and each person must be considered at risk of being contagious and/or being infected.
The measures are based on several components:

- Hand washing is the main practical technique to avoid cross-contamination
- Use physical barriers (mask, apron, protection goggles)
- Use safe working procedures
- Isolate patients in case they cannot be protected against airborne transmission
- Practice equipment maintenance in accordance with recommended practice on infection control.

FIGURE 25: PREVENTING INFECTIONS BY WASHING YOUR HANDS



a) Hand washing

Hand washing is the easiest way to prevent cross-contamination.
Wash hands with water and soap, before and after each action.

- Patient examination
- After removing gloves (possible holes in gloves)
- After touching blood or other body fluids, even with gloves.

b) Protective equipment

Gloves
Wear gloves before touching a wounded skin, mucosa, blood or any body fluid, or soiled instruments.
Use new gloves for each patient to avoid cross-contamination.
Keep gloves on when touching soiled instruments or material or when disposing of contaminated waste.

Protection goggles, aprons, and masks
In the event of splashes of body fluids like during delivery.

c) Manipulating instruments and material

Single-use material and contaminated surfaces

- Dispose of single-use items soiled with blood or body fluids using a sealed plastic bag.
- Place sharp instruments and needles in safe containers.
- Never reuse a needle and syringe.
- Do not recap, twist, or break needles before discarding them.
- Dispose of medical waste with the usual precautions, etc.
- Clean sheets, reusable linen with detergent, sundry them and iron them if possible.
- Clean and disinfect working surfaces such as examination tables and floors.

Non-disposable instruments and gloves

- Any instrument that was in contact with the vaginal and cervix (speculum, forceps, gloves, etc.) must be decontaminated, cleaned, and sterilised or undergo high level disinfection after each use.
- Thermic probes must be decontaminated, cleaned, and subjected to high level disinfection.
- Examination tables must be decontaminated after each patient. Other instruments (thermocoagulation device, light) must be decontaminated at least daily and if they are soiled.

III. EQUIPMENT MONITORING AND MAINTENANCE

Instrument maintenance is subject to three steps:

- Decontamination
- Cleaning
- Sterilisation or high-level disinfection.

a) Decontamination

Decontamination is the process that enables instruments and gloves that have already been used to be manipulated without risk.
This step inactivates hepatitis B and HIV viruses.
It is achieved by immersion of instruments and gloves immediately after use in a big plastic bucket containing a 0.5% chlorine solution for 10 minutes (no longer because chlorine is corrosive), then rinse them with clear water.
Chlorine solution is obtained by putting together 1 volume of bleach with 9 volumes of water. The solution must be prepared every day and destroyed as soon as it is soiled.
This solution can also be replaced by ethanol or 60-90% isopropanol to decontaminate surfaces.

b) Cleaning

Soon after decontamination, the instruments must be cleaned. This is achieved by scrubbing them with a brush under running water and with detergent.
The staff in charge of that step must wear a mask or protection goggles and cleaning gloves.
When thoroughly cleaned, the instruments are rinsed with boiled water. Instruments with teeth-shaped or screw-shaped components, or articulated devices must receive particular attention at that stage.

c) Sterilisation / High-level disinfection

Sterilisation
Sterilisation consists in the destruction of all microorganisms. Instruments that are in contact with sterile parts of the body, i.e., that penetrate the skin, or the uterus must go through that sterilisation stage.
To achieve sterilisation, there are two options:

- **Autoclave steam sterilisation:** 20 minutes for unwrapped instruments, 30 minutes for wrapped instruments. It is the method of choice.
- **Chemical sterilisation:** soak instruments for 8 to 10 hours in a 2-4% glutaraldehyde solution or 24 hours in an 8% formaldehyde solution, then rinse them with sterile water.

High-level disinfection
HLD destroys all micro-organisms excluding bacterial spores. It is an alternative when there is no sterilisation equipment or when the instruments are too fragile for sterilisation. The following options can be used:

- Boil instruments for at least 20 minutes in drinking water. The water must be renewed daily. Ensure that it covers the instruments and set the timer when boiling is effective. Do not add anything in the container after setting the timer.
- Soak instruments for 20 minutes in a 0.1% chlorine solution or 2% glutaraldehyde solution. An alternative is to soak them for 30 minutes in 6% oxygenated water. Thoroughly rinse with boiled water, leave to dry, and wrap in a sterile cloth. Chemical products are corrosive and may reduce the duration of the use of instruments that are regularly disinfected with this method.

IV. MEDICAL WASTE DISPOSAL

Bad management of medical waste may cause serious illnesses for health professionals and staff in charge of waste disposal, as well as the general population. It is therefore necessary to prevent infection of all staff members in contact with the waste.

Contents of medical waste

- 80% of waste in health facilities is not contaminated (paper, boxes, plastic containers).
- 20% only is contaminated (blood, body fluids, outdated vaccines, bottles, mercury from thermometers), part of which are considered hazardous waste. Its elimination requires specific technical and organisational procedures.

MEDICAL WASTE	NOT HAZARDOUS	HAZARDOUS	PHARMACEUTICAL	TOXIC
EXAMPLES	Compresses, syringes, gloves, infusion line.	Needle, tube, scalpel, glass vial, etc.	Outdated drugs or vaccines, vial containing residues of drugs.	Chemical waste: solvent, detergent, disinfectant, engine oil, Cytotoxic (chemotherapy) Mercury (thermometer, fluorescent lamp), radiological fluid.
RISKS	Infectious	Wounds Infectious Accidental Blood Exposure (HIV, hepatitis B or C)	Toxic Transmission of resistant pathogens.	Carcinogenic properties, teratogenic properties, Toxic for the environment.
PROTECTION MEASURES	Gloves, handwashing, procedure for waste disposal.	Gloves, handwashing Containers for infectious waste Avoid bad habits (like recapping needles).		Never mix toxic solutions Waste should be disposed of in hermetic waterproof con-tainers.

Waste should be sorted on the place of use, based on waste management protocols.

KEY MESSAGES

- ➡ Infectious diseases continue to be a major cause of death on a global scale.
- ➡ Health professionals and their patients are at risk of contracting these diseases.
- ➡ Transmission of infections within health facilities is mainly caused by lack of respect for handwashing and universal precautions.
- ➡ Inadequate waste management in care facilities can be the starting point of serious illnesses for health professionals, for staff in charge of waste disposal, for patients and for the wider community.
- ➡ Infection control is EVERYONE's responsibility.

NOTES

➡ What do I take away from this session?
➡ What elements require further clarification?

➡ Understandings to develop?

HEALTH SESSION 7

PALLIATIVE CARE: PAIN MANAGEMENT AND END-OF-LIFE CARE

MODULE LEARNING OUTCOMES

THEORETICAL KNOWLEDGE:

- Awareness of the ethical framework in terms of end-of-life care and palliative care.
- Knowledge of the most frequent clinical signs in end-of-life patients.

PRACTICAL SKILLS:

- Use recommended methods for pain assessment and explain the modalities of pain management, including indications and administration regimens of pain relief treatments.
- Explain activities to set up, in partnership with local civil society partners, to develop community-based care.
- Articulate the basic principles of home and community care.

SOFT SKILLS:

- Behave in a respectful, empathetic, non-judgemental manner, supportive of women.
- Discuss representations of illness, end-of-life, and death.

I. PALLIATIVE CARE: DEFINITION, KEY COMPONENTS

a) Definition

The WHO defines palliative care as a means to improve quality of life for patients and families faced with the issues associated with illnesses. It is not reduced to end-of-life care, as it encompasses interventions throughout the development of the illness. It aims at providing care for all distressing symptoms, notably pain, and takes account of the emotional and spiritual needs of patients and their close ones. Palliative care can be delivered by members of the community, health staff, and can take place in the patients' homes or in health facilities.

Each year, an estimated 40 million people require palliative care, and 78% of them live in low- or middle-income countries.

On a global scale, need for palliative care will continue to rise, caused by an increasing number of non-communicable diseases and aging populations.

Palliative care is considered a fundamental human right and is stated in international human right statements.

b) Key components

Palliative care is meant to improve quality of life for patients and their close relatives who face issues associated to life-threatening diseases. These issues may be physical, psychosocial, or spiritual. Palliative care is characterised by the following items:

- Provides pain relief treatments and address other distressing symptoms
- Affirms life and regards dying as a normal process
- Intends neither to hasten or postpone death
- Integrates the clinical, psychological, and spiritual aspects of patient care
- Enables patients and their close ones to be as empowered as possible in their decision-making
- Provides a support system for families during the course of care
- Improves quality of life and may positively influence the course of the illness
- Must be offered early in the course of the illness, as soon as the advanced stage of the illness is confirmed.

The resolution on palliative care was adopted during the World Health Assembly in 2014 and commits governments worldwide to further develop norms and services at national level to increase access to palliative care for all patients.

II. PAIN MANAGEMENT

« Access to pain relief is a human right »
Pain has a strong impact on quality of life and psychological well-being, as patients find their suffering increased by a vicious circle of pain-apprehension-suffering. For these reasons, **treatment of pain caused by cervical cancer must be integrated in care.**
Since pain is a **subjective sensation,** its intensity can be experienced differently depending on the individual. For that reason, to provide efficient **pain relief,** the starting point is always **to assess it** as precisely as possible, and to achieve this, one must have an **understanding of the complexity of pain.**

a) What is pain?

Definition
The International Association for the Study of Pain (IASP) defines pain as **'an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage'.**

Characteristics of pain

- **Acute pain** is associated with sudden damage of tissues or organs.
- **Chronic pain** is pain that last over 3 months, either persisting or recurring. Pain then shifts from becoming the symptom of an illness to being the illness itself, as it will impact the person's functional, relational capacities and therefore will have an effect on daily activities.

Types of pain

- **Nociceptive pain,** caused by lesions of a body part (burns, fractures, inflammation...). This type of pain is part of the body's warning mechanisms to alert that something is wrong.
- **Neuropathic pain** is caused by the effects on sensitive nerves of lesions that may be caused by compression or tear due to trauma, or compression by a cancerous tumour. Neuropathic pain is chronic by nature and is described as an electric pulse, stabbing pain, or burning in the body parts linked to the nervous lesions. This type of pain can persist after the lesion is healed, as is the case for persistent **pain after cancer recovery.**
- **Idiopathic pain** or pain of unknown origin is probably linked to an alteration of pain control systems.

Cervical cancer pain
A majority of women with advanced cervical cancer will experience pain at a point of the development of their illness. This is a complex type of pain that includes both nociceptive and neuropathic components with various origins, intensity, and duration.

Pain can be caused by the cancer itself (compression by the tumour, by infiltration of malignant cells or metastasis...), but also by the treatments of the cancer.

In fact, many cancer drugs, notably chemotherapy and radiotherapy have neurotoxic effects. These treatments can cause nociceptive pain at the time of treatment and neuropathic pain later.

Examples of pain linked to cervical cancer
Pelvic pain, severe back pain, dyspareunia (caused by the reduction of size of the vagina after surgery or hardening of vaginal tissue following radiotherapy etc.).

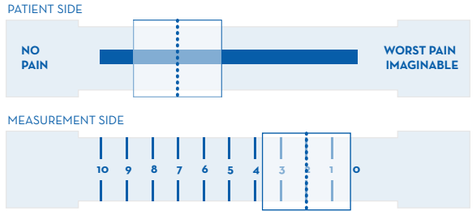
b) Pain assessment

Pain is a subjective and personal experience that cannot be measured but can be assessed. It requires personalised treatment and therefore its management is time consuming.
Pain assessment is conducted by interviewing the patient and evaluating pain. Pain evaluation must be carried in a **non-judgemental** manner, the reality of pain being the patient's perception.

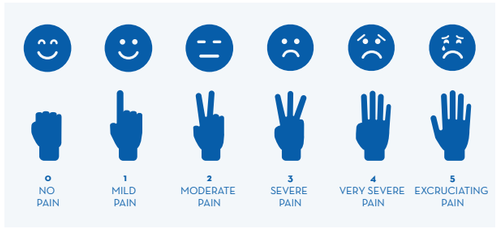
Medical interview
- ➡ Where is the pain located? (use body diagrams)
- ➡ What improves or worsens pain? How is it progressing with time?
- ➡ How long has the pain been present?
- ➡ What pain relief medications have been used?
- ➡ What is the intensity of the pain?
- ➡ Is there any psychological or spiritual element that adds to the physical issues of the illness? Is the patient worried, anxious, depressed, or sad?
- ➡ Does pain limit normal physical activity? (sitting, standing up, walking, running, interacting socially).

Quantify the intensity of pain
Pain intensity is ideally evaluated when the patient is not in pain so that her concentration is not affected. This may require beginning medical pain relief prior to the interview.
- ➡ If the patient is communicative and cooperative, it makes sense to use **self-assessment tools** such as a VAS (Visual analogue scale).

To have a better grasp of the intensity of the pain that is experienced, health professionals commonly use a **visual analogue scale (VAS),** in the form of a ruler graduated from 0 (no pain) to 10 (highest possible pain).



Pain assessment using facial expressions and gestures
- ➡ If the patient is unreactive, does not communicate or if her behaviour is hard to interpret, **hetero-assessments** (where pain is assessed by the practitioner) can be used. This requires additional training (Doloplus Algoplus scales).



As soon as the treatment is delivered, the team carries out a new evaluation to ensure that it is effective. If pain does not decrease after the adequate time for the medication to be efficient, the drug or its dosage are inappropriate and must be questioned. **Thus, pain must be regularly assessed.**

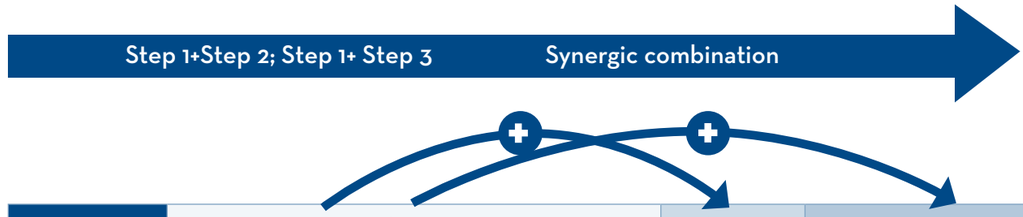
Disparities between pain as assessed by the practitioner and pain expressed by the patient can be reduced through discussion.

c) Pain relief

Key elements:
In 2010, the International Narcotics Control Board state that there were 121 countries where the opioid consumption levels were insufficient or very insufficient to satisfy basic medical needs. In 2011, this represented 83% of the world population living in these countries with insufficient access to opioids.

Therapeutic principles:
- ➡ Provide early treatment of the cause of the symptom
- ➡ Prevent the pain by continuous drug intake (fixed hours)
- ➡ Relieve the symptom completely and remove its memory
- ➡ Keep the patient valid as so far as is possible
- ➡ Protect the patients' intellectual capacities (avoid sedative treatments)
- ➡ Favour oral or rectal treatments
- ➡ Personalised prescription.

WHO PAIN RELIEF LADDER



	STEP 1			STEP 2	STEP 3
	NON-OPIOID PAIN RELIEF			WEAK OPIOID	STRONG OPIOID
	PARACETAMOL	SALICYLATE	NSAID	CODEINE	MORPHINE
INDICATIONS	Analgesic, antipyretic	Analgesic, antipyreptic, anti-inflammatory at high dose anti-platelet agent at low dose	Analgesic, antipyretic, anti-inflammatory at high dose, antiplatelet agent at low dose.	Analgesic for moderate pain	Analgesic for severe pain
DOSING REGIMEN	500 mg 2 every 4 to 6 hours	600 mg every 4 hours	400 mg every 6 hours	30 to 60 mg/4h	2.5 mg to 5 mg every 4 hours, double the dose if the pain persists.
PHARMACEUTI-CAL FORMS	Oral, rectal, IV	Oral	Oral	Oral	Oral or rectal
COMMENTS	Well tolerated, can be associated with other pain relief treatments.		Maximum dose of 3000 mg (7.5		No upper limit, the in-tensity of the pain guides the dosage.
SIDE-EFFECTS	Hepatotoxicity	Digestive disorders, stomach ulcer, allergy, asthma, haemorrhage, tinnitus.	Digestive disorders, kidney disorders, cutaneous affections.		Nausea and vomiting (decrease with 8 to 10 days), constipation (prevent with laxative treatment and monitor bowel function), Drows-iness, Sedative effect, Nightmares, Hallucina-tions, Respiratory de-pression, redness and pruritus. OVERDOSE antidote: naloxone.
CONTRA-INDICATIONS	Liver failure, known allergy.	Peptic ulcer, anti-coagulant treat-ment			

The use of the pain relief ladder for the administration of pain relief treatment is efficient in addressing pain. Symptoms are sometimes **difficult to control at all stages of the illness and must be closely monitored.** To relieve pain, the WHO ladder (see table above) must be used in link with national protocols.

Pain relief treatment administration
- ➡ Begin by Step 1 analgesics (paracetamol, aspirin, or ibuprofen).
- ➡ If pain increases or persists, use a weak opioid such as codeine, which may be associated with a step 1 analgesic. In order to prevent the side-effects of opioids, laxative and antiemetic treatments should be administered.
- ➡ If pain continues to increase, administer morphine, associated or not with opioids.

d) Care of distressing symptoms

Women with advanced cervical cancer can present with **foul-smelling and bloody vaginal discharge** due to bacterial proliferation. The following solutions can be offered:

- ➡ Sitting baths with warm water. Gently dry the zones using zinc oxide cream or petroleum jelly.
- ➡ Absorb the discharge with clean cloth or menstrual pads.
- ➡ Carry out vaginal douche with one of the following solutions made with boiled water:
  - 1 tablespoon of sodium bicarbonate (baking soda) in 2 cups of water
  - Half a cup of vinegar in 2 cups of water
  - 5 to 10 crushed tablets of metronidazole dissolved in two cups of water.
- ➡ Pack the vagina with clean cloths soaked in one of these solutions, twice daily.
- ➡ Broad-spectrum antibiotic should be prescribed with caution (only temporarily effective and at risk of vaginal yeast infection). The patient should complete the course of treatment otherwise this may worsen the symptoms.

Fistula (abnormal passage between the vagina and the urinary bladder or the rectum). This may be caused by extension of the cancer into these organs or by radiotherapy.
Fistulas cause foul-smelling irritating discharge. In that case the vagina should not be douched or packed. Alternative solutions may be offered:

- ➡ Sitting baths with warm water. Gently dry the zones using zinc oxide cream or petroleum jelly.
- ➡ Absorb the discharge with clean cloth or menstrual pads.
- ➡ Broad-spectrum antibiotic should be prescribed with caution (only temporarily effective and at risk of vaginal yeast infection). The patient should complete the course of treatment otherwise it may worsen the symptoms.

Vaginal bleeding may result of the insertion of any item in the vagina. Vaginal douches and vaginal packing are not recommended. Alternatives to sexual penetration should be preferred. In the case of bleeding, the woman should:

- ➡ Lie down and monitor the bleeding in case of light bleeding
- ➡ Access a health facility in case of heavy bleeding.

The following table summarises how to manage the most frequent symptoms at advanced stages of cervical cancer.

e) Holistic health support

Following a healthy diet, exercising, and avoiding risky behaviours such as tobacco and excess alcohol consumption will enhance health and well-being.

Achieving a healthy diet

Nutrition advice and support in following a healthy diet are neglected aspects of care during illness. Nutritional balance can be modified during treatment for people with cancer. Tiredness, loss of appetite, nausea, vomiting, aversions to food, modified sense of taste and smell... are some of the most frequent complaints.

A few key actions can be taken in such situations:

- ➡ Drink 1.5 litres of water each day
- ➡ Have set number of daily rations of vegetables, fruit, and wholegrain products (wholegrain bread, pasta, rice...)
- ➡ Ensure sufficient protein intake
- ➡ Avoid excess fat, salt, and sugar.

This advice should be followed wholeheartedly. Feeling coerced into a healthy diet will result in a loss of energy. This may have negative impact on nutritional status and therefore on quality of life.

Maintaining a good nutritional status is important in the fight against cancer and improves chances of success in the treatment. Good nutritional status is first and foremost guaranteed by **sufficient protein and calorie intake.** At that point, these calories or proteins may come from a less healthy diet, which is not of primary importance. Women should be encouraged to eat food that is appealing to them, even if they do not crave for healthy and balanced diets.

Physical exercise

More and more studies demonstrate the benefits of physical exercise as tertiary prevention, notably for patients with cancer. Physical exercise reduces stress, nausea, constipation, and may improve appetite. Patients with cancer have altered cardiorespiratory and muscular capacities. These modifications may lead to a state of intolerance to exercise, causing diminished autonomy, quality of life, self-esteem, and increased physical and psychological signs of tiredness.

If the patient is well enough to allow it, exercising for 5 to 10 minutes a day is recommended for people with little previous exercise habits. For people who already regularly exercised, they should maintain their habits as long as possible.

The sooner physical exercise can be introduced (or maintained) in the pathway of care, the more beneficial the effects on the patient.

Avoid risky behaviours

- ➡ Quit smoking or reduce tobacco consumption
- ➡ Avoid passive smoking by no staying in a room with smokers
- ➡ Limit alcohol consumption.

SYMPTOMS	CAUSE	PREVENTION	MEDICAL CARE	HOME CARE
VAGINAL DISCHARGE	Tumoral necrosis Fistula Bacterial proliferation	Hard to prevent Palliative radiotherapy or surgical removal of the tumour.	Vaginal packing soaked with solution twice daily. Antibiotic or antifungal treatment.	Frequent sitting baths Menstrual pads Douches
FISTULA	The tumour causes a passage	Hard to prevent	None	Frequent sitting baths Menstrual pads Douches Zinc oxide cream or petroleum jelly.
VAGINAL BLEEDING	Caused by the tumour	Palliative radiotherapy	Transfusion in case of heavy bleeding	Avoid physical efforts and sexual intercourse Resting
NAUSEA AND VOMITING	Opioids Sever pain Radiotherapy Chemotherapy Fever	Antiemetic treatment from the onset of the cancer / Pain relief treatment	Metoclopramide or promethazine	Small regular sips of fluids (cola tea, ginger)
DIARRHOEA	Gastroenteritis Parasites Radiotherapy	Good food hygiene Handwashing Boiled drinking water	Treat the cause Loperamide	Rehydration solution Food on demand Keep patient clean Avoid skin disorders
CONSTIPATION	Opioids Dehydration	Drink fluids High fiber diet Laxative treatment	Associate opioids with laxative treatment	Change diet
LOSS OF APPETITE	Illness Treatment	Frequent, light meals Fresh food	Possibility of using co-steroids	Possibility of using co-steroids
WEAKNESS TIREDNESS	Illness Post-operative period Anaemia	General care	Treat cause if possible	General care

f) Non-pharmacological treatment

Most types of pain can be efficiently treated using a broad association of medical and non-medical approaches. Cultural and traditional approaches may be used as an addition to modern medicine **but should never replace it.**

Psychological support to patient and families
Drugs have limitations in the treatment of complex types of pain linked to cancer or cancer treatment. It is necessary to listen to patients, take account of their personal, family, and professional issues. Thus, psychological support can be as useful as pain relief treatments. Each treatment must be personalised, adjusted to the needs and characteristics of a patient and her family. The aim is to relieve pain or make it bearable to minimise impact on daily life and alteration of quality of life.

Therapeutic education consists in explaining the illness, its treatments, and expected side effects.

Support the patient in developing self-care skills and adaptations skills that will be useful in improving and maintaining health, quality of life for him/her and his/her family.

Alternative medicine
A number of patients make use of complementary methods as an addition to medical treatment. Such treatments are taken alongside the classical treatment. Some of these methods contribute to improve well-being and quality of life during and after treatment. Some methods who claim to be substitutes to modern medicine are not recommended.

Some of these complementary methods are listed below:
- ➡ Cultural traditions/local customs (in addition but not substituted to pain relief)
- ➡ Emotional support: family's care and support are essential
- ➡ Physical methods (massage)
- ➡ Distractions (music, art therapy, expression, relaxation, etc.)
- ➡ Meditation or prayer as per the patients' habits
- ➡ Massage therapy.

Unharmful practices can turn out to be very beneficial. Choice of a possible complementary method will be made after personal discussion with the patient in a non-judgmental manner. Thus, every practitioner should be aware of the importance of:
- ➡ Empathetic listening
- ➡ Patients' various emotional states (different stages: shock, why me? etc.)
- ➡ Not imposing a point of view
- ➡ Encouraging family to support the patient.

III. END-OF-LIFE CARE

a) Preparing for death

End-of-life is a very difficult period for everyone. Sadness can leave close ones lost or helpless. Families as well as the patient may feel like the efforts came to nothing. Even if they are made aware of the severity of the illness, members of the family are often surprised and feel like they had not been properly warned and prepared for this time.

Therefore, it is important to prepare for death with the family by:
- ➡ Encouraging family members to discuss things to make death less harrowing and facilitate grieving
- ➡ Informing family members of mood that may affect the patient (for example when she expresses anger towards her family), explaining that these crises must be accepted
- ➡ Discussing things with the patient in light of the cultural context.

The caregiver can support the patient by:
- ➡ Relieving her pain
- ➡ Helping her to overcome her feelings of guilt and regret
- ➡ Offering referral to spiritual or religious support, or to a support group
- ➡ Remembering to ask where and with who she wishes to die
- ➡ Being available to discuss and respond her questions when needed
- ➡ Reassuring that her wishes will be respected.

b) Death

At the time of death, it is important to respect local traditions and rites, as well as the patient or the family's wishes regarding body hygiene, funeral, etc.

c) Grief

The family has a great need for support in these painful moments. Caregivers may also provide a listening ear, support, and comfort to families. This will help them come to terms with the loss of the patient. Caregivers and/or community agents who participated in the patient's care may suggest discussion or reminiscence of memories.

KEY MESSAGES

- ➡ **Pain relief is a core part of care.**
- ➡ **Most types of pain can be efficiently relieved using a broad combination of medical and non-medical approaches.**
- ➡ **Symptom management strongly relies on access to drugs, material, and equipment both in health facilities and at home.**
- ➡ **End-of-life care is a key element of the fight against cervical cancer.**
- ➡ **Palliative care aims improving women and families' quality of life when they are faced with CC and can help people at advanced stages to face this difficult time in peace and dignity.**
- ➡ **Prerequisites to palliative care such as education and availability of drugs must be strengthened.**

NOTES

➡ What do I take away from this session?
➡ What elements require further clarification?

➡ Understandings to develop?

APPENDICES

APPENDIX 1: FIGO CLASSIFICATION OF CERVICAL CARCINOMA

Stage I
Stage 1 carcinoma is strictly confined to the cervix. Extension to the uterine corpus should be disregarded. Diagnosis of stages IA1 and IA2 is based on microscopy, preferably with a cone encompassing the entire lesion.

Stage IA: Invasive carcinoma that can be diagnosed only by microscopy. Stromal invasion does not exceed 5 mm depth and 7mm width.
Stage IA1: Stromal invasion does not exceed 3mm depth and 7 mm width.
Stage IA2: Stromal invasion is between 3 and 5 mm deep and its width does not exceed 7mm.

Stage IB: Clinical lesions are confined to the cervix, or subclinical lesions are more important than stage IA. Any visible lesion even superficial is classified IB.
Stage IB1: Lesions do not exceed 4 cm.
Stage IB2: Lesions exceed 4 cm.

Stage II
Stage II carcinoma invades beyond the uterus but has not extended onto the lower third of the vagina or to the pelvic wall. It involves the upper two-thirds of the vagina.
Stage IIA: Invasion is limited to the upper two-thirds of the vagina without parametrial involvement.
Stage IIB: Parametrial involvement but not up to the pelvic wall.

Stage III
The carcinoma has extended to the pelvic wall. Rectal examination confirms there is no zone between the tumour and the pelvic wall that has not be invaded. The tumour involves the lower third of the vagina. All carcinoma causing hydronephrosis or non-functioning kidney are stage III cancers.
Stage IIIA: No extension to the pelvic wall, involves lower third of the vagina.
Stage IIIB: Extension to the pelvic wall, hydronephrosis or non-functioning kidney.

Stage IV
The carcinoma has extended beyond the pelvis or has involved the mucosa of the bladder and/or rectum.
Stage IVA: Spread to adjacent pelvic organs.
Stage IVB: Spread to distant organs.

Source: TNM Classification of malignant tumours. L. Sobin and Ch Wittekind (eds.), UICC International Union against Cancer, Geneva, Switzerland. pp155-157; 6th ed. 2002.

APPENDIX 2: INFORMED CONSENT

INFORMED CONSENT

The doctor/health practitioner has explained in sufficient detail the tests with vinegar (VIA) and iodine (VILI) that will enable early detection and prevention of cancer in my cervix. I am aware that the surface of my cervix will be observed after application of vinegar (5% acetic acid) or iodine solution, to detect precancerous lesions or cancer. I know that these procedures are not painful but may cause irritation or light bleeding that will disappear spontaneously.

I have understood that, if the test is positive, I will be offered further investigations such as visual inspection with a magnifying device named colposcope, and the analysis of a sample of cervical tissue (biopsy) before I am offered any treatment.

In the event of anomalies (infection, precancerous lesions, cancer, or complications), I have been informed that I might require medical treatment or thermocoagulation (destruction of the abnormal part of the cervix using a thermal probe) or undergo a surgical procedure that may be followed by radiotherapy.

By signing this form, I agree to submit to the above-mentioned tests and treatment if necessary* / I do not wish to submit to these tests. *

Signature:

Date:

Name:

Address:

* Delete as appropriate

APPENDIX 3: CLEANING AND STERILISATION OF INSTRUMENTS AND EQUIPMENT USED FOR EARLY DETECTION AND TREATMENT OF CERVICAL NEOPLASIA

INSTRUMENT/MATERIAL	PROCEDURE	SUGGESTED TECHNIQUE
Speculum, vaginal spacer, biopsy forceps, tissue forceps, pickup forceps, Cheatle forceps.	Decontamination and cleaning followed by sterilisation or HLD (High level disinfection).	Immersion for 10 minutes in a 0.5% chlorine solution followed by cleaning with water and detergent, clean instruments can then be immersed for 20 Minutes in boiling water (HLD) or sterilised in an autoclave before being reused.
Gloves	Decontamination, cleaning, and sterilisation.	Immersion for 10 minutes in a 0.5% chlorine solution followed by cleaning with water and detergent, sterilisation in an autoclave before wrapping.
Examination table, halogen, electric lamps, trolley, trays.	Low- or medium-level disinfection.	Wipe with 60-90 % ethanol or isopropanol or with 0.5% chlorine solution.

PREPARATION OF A 0.5% CHLORINE SOLUTION

The formula to prepare diluted chlorine solution using chlorine bought in a shop is the following:
Total number of doses of water = [% of concentrated solution / % diluted solution] -1.

For example, to prepare 0/5% chlorine solution using household 5% chlorine solution is
= [5,0% / 0,5%] - 1 = 10 - 1 = 9 doses of water; thus, you must add one dose of bleach to nine doses of water.

If the chlorine bought in the shop is powder, use the following formula to calculate the dose of power (in grammes) that you will need to prepare 0.5% chlorine solution:
Grammes / litre = [% diluted solution / % concentrated solution] x 1000.

For example, to prepare a 0.5% chlorine solution using a 35% calcium hypochlorite powder
= [0,5% / 35%] x 1000 = 14,2 g. You must add 14.2 g of power to 1L of water or 142 g to 10L of water. The instruments should not stay in the bleach for over ten minutes and must be cleaned with boiling water immediately after decontamination, to avoid fading colour and corrosion of the metal.

Decontaminating the floor of the screening centre:
This must be carried out daily using chemical detergents such as iodophors (e.g. 10% povidone iodine).

APPENDIX 4: PREPARATION OF 5% ACETIC ACID SOLUTION, LUGOL'S SOLUTION AND MONSEL'S PASTE

a) 5% Acetic Acid solution

Ingredients Amounts
1. Glacial acetic acid 5 ml
2. Distilled water 95 ml

Preparation: Carefully add 5 ml of glacial acetic acid in 95 ml of distilled water and mix.

Storage: Any unused solution must be disposed of at the end of the day.

Label: 5% acetic acid

Caution: Glacial acetic acid should always be diluted, otherwise it may cause serious chemical burning if applied to the epithelium.

b) Lugol's solution

Ingredients Amounts
1. Potassium iodide10 g
2. Distilled water 100 ml
3. Iodine 5 g

Preparation
A. Dissolve 10 g of potassium iodide in 100 ml of distilled water
B. Gradually add 5 g of iodine with constant mixing
C. Filter and store in an amber glass bottle in the dark.

Storage: 1 month

Label: Lugol's solution; Use by: (date)

c) Monsel's paste

Ingredients/Amounts
1. Ferric sulphate 15 g
2. Ferrous sulphate power
3. Sterile water for mixing 10 ml
4. Glycerol starch (see preparation below) 12 g

Preparation
Caution: the reaction is exothermic (emits heat)
A. In a glass beaker, add a few grains of ferrous sulphate powder to 10 ml of sterile water. Shake.
B. Dissolve the ferric sulphate base in the solution by stirring with a glass stick. The solution should become crystal clear.
C. Weigh the glycerol starch in a glass mortar. Mix well.
D. Gradually add the ferric sulphate solution to the glycerol starch, constantly mixing to get a homogeneous mixture.
E. Place in a 25 ml brown glass bottle.
F. Most practitioners prefer to leave the stopper of the bottle loos to allow the mixture to evaporate until it has a sticky paste-like consistency and looks like mustard. This may take 2-3 weeks depending on the environment. The top of the bottle must be secured for storage. If necessary, sterile water can be added to the paste to thin it.

Note: This solution contains 15% of iron.

Storage: 6 months

Label: Monsel's paste; Shake before use; External use only;
Use by: (date)

d) Glycerol starch (ingredient in Monsel's paste)

Ingredients/Amounts
1. Starch 30 g
2. Sterile water for mixing 30 ml
3. Glycerine 390 g

Preparation
A. In a china crucible, dissolve the starch in the sterile water.
B. Add glycerine. Shake well.
C. Heat the crucible and its contents over a Bunsen burner. Mix constantly with a spatula until the mass takes on a thick, swelling consistency. Do not overheat or the mixture will turn yellow.

Storage: 1 year

Label: Glycerol starch; Store in a cool place; For external use only; Use by: (date)

Caution: Do not overheat or the mixture will turn yellow.

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