Module 3.9

Assessment and referral of women with suspected *cervical cancer* at *primary health care level*
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INTRODUCTION

Cervical cancer is a significant public health problem globally as well as in the South-East Asia (SEA) Region of WHO. It is the second most common cancer among women worldwide and causes a significant number of deaths in the SEA Region. Member States in the Region contribute to nearly 35% of the global burden of disease. In 2008, there were 200 000 new cases of cervical cancer in the South-East Asia Region, giving an incidence of almost 25 per 100 000 and a mortality rate of nearly 14 per 100 000. Cervical cancer is not only preventable but also curable if diagnosed in the early stages. Primary health care providers must know that it is preventable through vaccination and screening. Therefore, health workers must know how to assess women with suspected cervical cancer and refer them early. Besides, health workers should be able to follow up women treated for cervical cancer and give palliative care to those who are not curable. This module addresses the basic skills required of a primary health care provider to suspect, assess and refer suspected cases of cervical cancer in a primary health care setting.

LEARNING OUTCOMES

At the end of the session, participants will be able to do the following:

- Explain the risk factors, symptoms and signs of cervical cancer.
- Explain the importance of prevention, screening, early diagnosis and referral for treatment of cervical cancer to improve survival.
- Make appropriate diagnosis and referrals using the algorithms.
- Follow up women with cervical cancer and provide palliative care where needed.

TOPICS COVERED

- Anatomy of the cervix and natural history of cervical cancer.
- Risks factors for cervical cancer.
- Signs and symptoms of cervical cancer.
- Prevention of cervical cancer.
- Techniques of clinical examination of the cervix.
- Use of an algorithm for early detection of and referral for cervical cancer.
- Patient communication on cervical cancer awareness and relaying results.
COMPETENCY

Participants are able to differentiate signs and symptoms that are similar to cervical cancer and refer women with suspected cancer for early diagnosis and provide follow-up care and palliative care to women with terminal cancer.

TEACHING AND LEARNING ACTIVITIES

Total session time: 120 minutes

Activity 1. Normal cervix and pathogenesis of cervical cancer: 10 minutes

Step 1. Ask few participants randomly what they know about cervical cancer (risk factors early signs and prevention).

Step 2. Present the powerpoint slides of the following.

- Anatomy of the cervix and pathogenesis of cervical cancer
- Burden of and risk factors for cervical cancer
- Signs and symptoms of cervical cancer
- Prevention of cervical cancer (with human papillomavirus [HPV] vaccination)

Activity 2. Screening and treatment of cervical pre-cancer: 15 minutes

Step 1. Share the case story of Mrs Devi given below.

Case story. Why did Mrs Devi, a 45-year-old mother of 6, die of cervical cancer?

Mrs Devi never went to school and was married at the age of 14 years. She delivered her first child at 15 years of age. By the age of 30 years she had 6 children after which she underwent a tubal ligation. Afterwards, she never went to hospital since she was not ill. From the age of 42 years, she had short menstrual cycles with heavy bleeding and post-coital bleeding. She was given iron tablets at a local health centre. Then, she started having low abdominal pain. She was repeatedly treated as a case of urinary tract infection (UTI) till one day she had very heavy bleeding for which she was referred to a district hospital. The doctor did a pelvic examination, including speculum examination, and found that she had an abnormal growth at the cervix and referred her to a centre with facilities in obstetrics and gynaecology where she was diagnosed with stage IIIB cervical cancer at the age of 44 years. She was treated with chemoradiation, but was not cured. She died of obstructive uropathy leading to renal failure.
Facilitator’s explanatory note

Summarize the case story, emphasizing on the importance of prompt diagnosis by proper history-taking, including risk assessment, and doing a proper examination and screening to prevent cervical cancer.

When symptoms occur they usually include irregular vaginal bleeding.

This should be a red flag to anyone evaluating these patients and stressed in patient education programs. This irregular bleeding most often occurs post coitally. It's because of trauma to the cervix which can be necrotic and friable. Larger cancers are more likely to bleed spontaneously and may cause a foul smelling vaginal discharges. Here the differential diagnosis is a vaginitis vs other etiologies such as cancers. Not only cervical cancer but any cancer within the female reproductive tract. Lastly more advanced widespread cervical cancer can cause obstructive uropathy, back pain due to ureteric obstruction, and leg swelling due to venous or lymphatic obstruction.

Step 2. Ask the participants to discuss the following.

- What do you mean by an opportunistic and organized screening for cervical cancer?
- Is opportunistic or organized screening a better approach to prevent cervical cancer?
- How can the health facility team improve early detection of cervical cancer?
- How should the national cancer control programme gear up towards preventing others such as Mrs X’s from dying?

Step 3. List the discussion on the whiteboard/flipchart. Summarize the key messages on opportunistic and organized screening.

Step 4 Present the powerpoint slides of the following.

- Screening approaches
- Recommendations for cervical cancer screening
- Cervical cancer screening tests
- Pap smear
- Visual inspection with acetic acid
- HPV testing
- Confirmatory tests
- Brief mention of the treatment for pre-cancerous conditions of the cervix
- Organizing a cervical cancer screening programme.

Step 5. Ask the participants to list: screening tests and diagnostic procedures for cervical cancer.
Step 6. Ask the participants to what extent the health facility can play a role in the screening and diagnosis of cervical cancer.

Key messages

- Early detection by screening all women in the target age group followed by treatment of detected precancerous lesions can prevent the majority of cervical cancers.
- Cervical cancer screening should be performed at least once for every woman in the target age group where the most benefit can be achieved: 30–49 years.
- Cervical cancer screening, at least once, is recommended for every woman in the target age group, but this may be extended to women younger than 30 years of age if there is evidence of a high risk for cervical squamous intraepithelial neoplasia (CIN)2+.
- HPV testing, cytology and visual inspection with acetic acid (VIA) are all recommended screening tests.
- For cervical cancer prevention to be effective, women with positive screening test results must receive effective treatment.
- It is recommended to take either a “screen-and-treat” approach or a “screen, diagnose and treat” approach.
- Decisions on which screening and treatment approach to use in a particular country or health-care facility should be based on a variety of factors, including benefits and harms, potential for women to be lost to follow up, cost, and availability of the necessary equipment and human resources.
- In the screen-and-treat approach, the treatment decision is based on a screening test and treatment is provided soon or, ideally, immediately after a positive screening test (i.e. without the use of a diagnostic test).
- The screen-and-treat approach reduces loss to follow up, and can reduce the time lag for women to receive treatment.
- Among women who test negative with VIA or cytology, the interval for rescreening should be 3–5 years.
- Among women who test negative with HPV testing, rescreening should be done after a minimum interval of 5 years.
- If cancer is suspected in women who attend screening, they should not be treated but should be referred to a facility for diagnosis and treatment of cancer.
- Cryotherapy or loop electrosurgical excision procedure (LEEP) can provide effective and appropriate treatment for the majority of women who screen positive for cervical pre-cancer.
Activity 3. Demonstration of speculum examination of the cervix: 30 minutes

Step 1. Provide a Zoe model (or show a video demonstration of speculum examination of the cervix).

Step 2. Explain the steps of speculum examination (including infection control).

### Things needed for a speculum examination

Examination bed, which can be adjusted in the lithotomy position, spotlight, instrument trolley, sterile gloves, bivalve speculum of different sizes, galipot, normal saline, swab sticks, bucket with bleaching powder solution.

Always have an attendant nearby during the speculum examination.

### Steps

1. Explain the procedure to the client and let her lie down on the examination bed with her buttocks at the edge of the bed.

2. Wear sterile gloves, select an appropriate speculum (small size for postmenopausal and nulliparous women and large size for parous women in the reproductive age group), and dip it in normal saline.

3. With the left hand, retract the labia, insert the speculum with the blades closed, directed posteriorly till the cervix is reached. Then open the blades and expose the cervix till it is fully visualized. Then fix the blades by tightening the screws.

4. Examine the cervix and perform the necessary procedures (collecting samples for cytology/HPV testing or performing VIA/VIA and with Lugol’s iodine [VILI]/cryotherapy, cold coagulation, etc.)

5. Loosen the screws, withdraw the speculum till the cervix is freed, then close the blades and remove the speculum gently. Any solution or discharge/blood on the speculum must be cleaned with a swab stick before removing the speculum. Put the speculum in bleaching powder solution.

### Facilitator’s explanatory note

Observe the participants as they conduct the speculum examination to see if it is correctly done.

Asks participants if they have any questions or need clarification.
Assessment and referral of women with suspected cervix cancer at primary health care level

**Activity 4. Practising the use of the algorithm:** 15 minutes

**Protocol for assessment and referral of women with suspected cervical cancer at the primary health care facility**

- Women who present with the following persistent and unexplained signs and symptoms seeking consultation at a primary health centre:
  - (a) Abnormal vaginal bleeding (i.e. after coitus, between menstrual periods, post menopause)
  - (b) Foul-smelling discharge
  - (c) Pain lower abdomen
  - (d) Any of the above associated with an abnormal growth at the cervix with persistent low backache or abdominal pain

- Assess signs and symptoms (i.e. history, intensity, duration, progression)
- Identify the relevant risk factors: age (21 years old and above who are sexually active for 3 years or more, multiple partners, multiple childbirths, smoking, no screening)
- Speculum examination
- Differential diagnosis: abortion in premenopausal women, infections (e.g. chlamydia, gonococcal, etc.), genital ulcers, cervical inflammation, cervical/uterine polyps, dysfunctional uterine haemorrhage, endometrial or vaginal cancer

- Women presenting with (a), (b) or (c)
  - Clinically examine for cervical growth or ulceration
  - Without cervical growth or ulceration
    - Treat the suspected condition as per available services and relevant standard guidelines and follow up
    - Condition resolves
    - Condition is not manageable, persists or worsens
  - With cervical growth or ulceration
    - Refer immediately to a gynaecologist for further assessment to confirm the diagnosis and refer to an oncologist for treatment.

- Women presenting with (d)
  - Refer immediately to a gynaecologist for further assessment to confirm the diagnosis and refer to an oncologist for treatment.

**Note:**

Referral of women with (a), (b) or (c) may lead to a diagnosis of “early invasive cervical cancer”, particularly in women 30 years old and above.
Assessment and referral of women with suspected cervical cancer at primary health care level

Step 1. Ask the participants to review the above algorithm and raise the points that are unclear to them.

**Activity 5. Screen-and-treat approach:** 15 minutes

Step 1. Ask the participants to discuss whether screen-and-treat approach in their health facility or a district is available.

Step 2. List the preparedness needed to launch the screen-and-treat approach.

Step 3. If screen and treat is not feasible, discuss what role the health facility team can play in mobilizing women for screen and treat in their local context.
Activity 6. Follow up of women diagnosed and treated for cervical cancer: 10 minutes

Step 1. Ask the participants what should be done for patients who are already diagnosed with and treated for cervical cancer.

Facilitator’s explanatory note
- Death after treatment is due to recurrence, which happens in the first 2–3 years after treatment. Follow up should be frequent in the first 2–3 years.
- If women have bleeding/discharge/pain lower abdomen or lower limbs, persistent cough or swelling in the neck, etc. they must report to the nearest health centre.
- Women who have had chemoradiation/radiation may have bleeding per rectum or bladder. This is a side-effect of radiation. They must report this to their treating doctor.
- Whether cervical cancers are treated with surgery or radiation, patients need to be followed up.
- Survival is calculated by 5 years (early stage patients are more likely to survive).

Activity 7. Patient communication and palliative care: 15 minutes

Step 1. Ask participants to share any experience in breaking the news to a patient with cervical cancer.
- How was the diagnosis conveyed? How did the patient respond? What are the lessons learnt during the process?
- Engage participants to do the role-play with one participant acting as the health care provider and one participant acting as the patient.

Step 2. Discussion on the care of women with incurable cancers

Facilitator’s explanatory notes
- If women have bleeding/discharge beyond 3 months after treatment, it may be a sign that treatment has failed.
- These women will need palliative care, which may even include chemotherapy.
- They also must be helped by giving them pain medications.
- For foul-smelling discharge, women may be advised to undergo douching or Sitz baths with crushed metronidazole tablets.
Help prevent bedsores. If already present, you may do a dry dressing after applying crushed metronidazole tablets with/without honey).

Give advice on family planning and sex where appropriate.

Health workers must also give psychological support to caregivers.

Help give spiritual support to patients nearing death.
1. **Show two photos on a flipchart: normal and abnormal cervix.**

Ask the participants to identify the microscopic appearance of the normal cervical epithelium: columnar epithelium, subcutaneous junction (SCJ), transformation zone from pictures on a flipchart. Ask them to identify the abnormal appearance of cervix before and after applying acetic acid from the pictures. (Participants must recognize Nabothian cysts, polyps, an inflamed cervix and cancers before application of acetic acid. Abnormalities like CIN are seen after applying acetic acid.)

*Figure 1: Normal cervix on speculum examination*

*Figure 2: Precancer after application of acetic acid*
2. Based on the services available in your health facility, what will be your strategies for cervical cancer prevention and screening?

3. Which of the following statements are true (multiple choice possible)?
   (a) Organized screening is better than the opportunistic screening for cervical cancer.
   (b) All women presenting with pain in the lower abdomen and foul-smelling vaginal discharge should be referred to a higher centre.
   (c) Women with abnormal vaginal bleeding without any cervical growth should be initially managed at the primary health centre.
   (d) All women with a palpable abdominal mass with persistent low backache or abdominal pain should be referred to a higher centre.

4. All of the following statements are true except...
   (a) Cervical cancer is caused by poor female hygiene or by using sanitary pads more than once.
   (b) Cervical cancer is not a sexually transmitted disease.
   (c) Women with many sexual partners are at higher risk of HPV infection.
   (d) Intrauterine device and oral contraceptive pills are not a risk factor for cervical cancer.
5. **Demonstrate the steps of speculum examination on a ZOE gynaecological simulator**

<table>
<thead>
<tr>
<th>Step Description</th>
<th>Correct</th>
<th>Incorrect</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Position of the model</td>
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<tr>
<td>2. Selection of the speculum</td>
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<td>3. Exposure of the cervix</td>
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<td>4. Speculum blade fixation</td>
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<td>5. Speculum withdrawal and cleaning after use</td>
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Assessment and referral of women with suspected cervical cancer at primary health care level

Activity 1: Step 2

Anatomy of uterine cervix

- Cervix is 3-4 cm in length and 2.5 cm in diameter. Varies with age, parity, menstrual and hormonal status
- Ectocervix is covered by pink multilayered squamous epithelium and endocervix is lined by single layered columnar epithelium and is red in appearance.
- Squamo-columnar junction (SCJ) where 2 epithelium meet.
Assessment and referral of women with suspected cervical cancer at primary health care level
Squamous metaplasia (columnar epithelium replaced by squamous epithelium)

- This occurs in spurts: in fetal life, at menarche’ and during first pregnancy. HPV infection within a few years of menarche’ carries a very high risk of developing cancer. That is why, early age at the first sexual debut is the single most important risk factor for cervical cancer.
- In the absence of HPV infection, the metaplastic epithelium matures and is almost indistinguishable from the original one. Its outer border or the old SCJ is marked by the presence of Nabothian follicles or gland openings.
Human papilloma virus (HPV) infection of the TZ

HPV infects the new dividing cells in the squamous metaplastic epithelium, which is most immature near the new SCJ. This is the beginning of the abnormality in the cervix. If there are no cofactors like other STIs, immunosuppression etc., most of these infections disappear. In presence of these factors, HPV infection persists it can progress on to CIN (cervical intraepithelial neoplasia) and if not treated, to cancer later on.

HPV

• It is the most prevalent STI in the world, occurring in some 75% of sexually active women. HPV infection is the necessary cause of cervical cancer
• It is a transient infection in most of the women. There is no treatment for HPV, but it is controlled by the immune system of the host
• It infects whole of lower genital tract, pubic area, urethra and anus of both sexes (condoms do not offer 100% protection against HPV).

Seed, soil and nutrient’ model for cervical cancer carcinogenesis
Etiopathogenesis of cervical cancer

Transformation zone:

Epithelium covering vagina and ectocervix is squamous stratified and is pink in color whereas the one layered columnar epithelium lining the endocervix is red. The boundary between the 2 epithelia is known as the original squamocolumnar junction (SCJ). Before puberty, this SCJ lies inside the cervical canal in most of the girls. At puberty, the cervix expands under the influence of estrogen and the endocervical mucosa gets everted onto the ectocervix (referred to erroneously as erosion by most). This columnar epithelium is further.

Transformation zone

Injured by the acidic pH of the vaginal fluid. During repair, the columnar epithelium is replaced by a multilayered squamous epithelium. This process is known as squamous metaplasia. The junction between the original columnar epithelium and the upper end of this metaplastic epithelium is known as the new SCJ. The area between this and the original SCJ is known as the transformation zone.
Natural history of cervical cancer

- Women get infected with HPV in their twenties, but get cancer after 8 to 15 years.
- Most of the mild dysplasia (CIN I) will regress in time. Few progress onto high grade CIN.
- CIN 2 and 3 (high grade CIN) are the true precancers. These are mostly seen in women in late thirties to early forties. A substantial number will progress onto cancer over time.
- If women get screened during those 8 to 15 years and get treated, they will not get cancer and this forms the basis of Pap smear or other screening methods.

Burden of cervical cancer

- Cervical cancer is the second most common cancer among women in developing countries.
- In rural areas, it is more common than breast cancer.
- There is a big burden of cervical cancer in SEA region due to high prevalence of risk factors and no access to screening.
- Cervical cancer is preventable and curable if diagnosed early.

Risk factors

- Early age at marriage
- Multiple sexual partners of a woman or her partner
- Having HPV and other STIs
- Immunosuppression
- Cigarette smoking
- Prolonged OCP use
- Multiple child births.
Assessment and referral of women with suspected cervical cancer at primary health care level

Sign and symptoms of cervical cancer

- Many women with cervical cancer have no symptom (especially in early stages)
- Bleeding in between periods
- Bleeding after sexual act
- Postmenopausal bleeding
- Foul smelling discharge
- Low abdomen pain
- Low back pain.

Prevention of cervical cancer

- **Primary prevention**
  - Education of women on risk factors
  - Vaccination against HPV
- **Secondary prevention**
  - Screening
  - Early detection
- **Tertiary prevention**
  - Treat and avoid complications.

HPV vaccination

- Should be given to girls before menarche and before exposure to sexual contact.
- Many other countries have started at state/province or district levels either as horizontal program or as demonstration projects.
- Example in SEA region, Bhutan has a national school based HPV vaccination programme which is given to class VI girls regardless of age.
HPV vaccination

- Vaccine contains viral proteins against HPV 16 and 18 only, because they cause more than 70% of cervical cancers worldwide.
- Vaccine may also help decrease HPV related oral and oropharyngeal cancers.
- Regardless of vaccination status, all women must undergo screening according to the protocols of their respective countries.

Three important things in prevention of cervical cancer

- Information
- Screening as many women as possible (high coverage)
- Treating all women with high grade lesions

*If any of these is not working, programme will fail.*

Activity 2: Step 4
Assessment and referral of women with suspected cervical cancer at primary health care level

Screening approaches

- Opportunistic screening: Not recommended
- High risk group screening: Not recommended
- Organized screening: It is proven to be effective in decreasing and incidence of and mortality from the cervical cancer in target populations in countries that have maintained high quality programmes for a number of years in comparison to other two.

Organized screening requirements

- All women aged between 25-60 years should be screened for cervical cancer and interval between tests should be 3-5 years.
- Adequate facilities exist to ensure the high coverage and attendance, including invitation and recall if test is missed.
- Adequate facilities should be available for diagnosis and appropriate treatment of confirmed neoplastic cases and follow up of treated women.
- Monitoring and evaluation need to be organized to determine the impact on incidence and mortality rate.

Screening methods

- Pap smear
- VIA (visual inspection with acetic acid)
- VILI (visual inspection with Lugol's iodine)
- Thin layer Prep
- Automated Pap smear
- HPV testing
- VIAM (VIA with magnification)
- Cervicography.
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Reduction in cervical cancer rates with different screening intervals

<table>
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<th>Frequency of Screening</th>
<th>% reduction in cumulative rate</th>
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<td>1 year</td>
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<td>2 years</td>
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<td>3 years</td>
<td>90.8</td>
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<td>5 years</td>
<td>83.7</td>
</tr>
<tr>
<td>10 years</td>
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Pap smear

It is the gold standard for prevention of cervical cancer. Where there is high coverage, good quality cytology along with high adherence to follow up and treatment, it has brought down the cervical cancer incidence and mortality by 90% (USA and N. Europe). But, due to involvement of too many levels of people, it has the high probability of failure. It did not work somehow in the developing countries due to various factors!!!

Pap smear procedure

1. Obtain informed consent.
2. Hold the speculum blades together sideways and slip them into the vagina. Be careful not to press on the urethra or clitoris because these areas are very sensitive. When the speculum is halfway in, turn it so the handle is down. Gently open the blades and look for the cervix. Move the speculum slowly and gently until you can see the entire cervix. Tighten the screw (or otherwise lock the speculum in the open position) so it will stay in place.
Pap smear procedure

3. Insert the long tip of the spatula or brush into the cervical os, and rotate it through a full circle (360 degrees).
4. Smear both sides of the spatula onto the glass slide with one or two careful swipes (or roll the brush onto the slide). If you see any abnormalities outside the area sampled, take a separate specimen and smear it onto another slide.

Pap smear procedure

5. Immediately fix each slide, even before removing the speculum from the vagina; it only takes a few seconds: either use a spray fixative, at a right angle to and a distance of 20cm from the slide, or immerse the slide in a container of 95% ethanol and leave it there for at least five minutes (while you proceed with the next steps).
6. Gently close and remove the speculum.

VIA, a new method of screening

- It is an alternative method for screening of cervical cancer in low resource settings.
- Cervix is painted with 5% acetic acid and observed after one minute. Any abnormal area becomes white (VIA positive). Target population is women 30-45 years age group.
- VIA can be done by nurses and treatment with cryotherapy, offered at the same visit (single visit approach).
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VIA negative and positive cervix

Advantage of VIA

- Test is simple and non-invasive. Can be done anywhere. Sensitivity is better than that of Pap smear
- There is immediate report. Nurses can do it. It is very cheap
- Treatment can be given at the same visit
- More convenient for clients. Women with VIA negative are recalled after 5 years only for a repeat test.

Disadvantages of VIA

- Age limit: it cannot be done in women older than 45 years (SCJ inside canal)
- Intensive training and quality control needed
- Low specificity. Danger of over treatment (but there is no harm)
- No tissue for histopathology for retrospective studies.
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HPV testing

- It is the only test that detects presence of high risk HPV infection
- Positive result means there is infection with at least one type of high risk infection and does not mean presence of CIN
- Further testing with genotyping will reveal presence of HPV 16 or 18 indicating higher risk of developing cancer
- Test is done on women older than 30 years
- Sample is taken with a brush and emmersed in a medium and transported to a Lab where it is read.

Who should not do HPV testing?

- Women younger than 30 years
- During menstruation
- During pregnancy
- Within 6 weeks postpartum
- After hysterectomy for benign conditions.

Management of HPV positive women

- If HPV negative, repeat in 5-10 years
- If positive, either cytology or VIA is done.
- If VIA positive, treat with cryotherapy if eligible at same visit
- If not eligible for cryotherapy, refer for colposcopy
- If VIA negative, repeat HPV testing in one year.
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**Modalities of treating cervical precancers (CIN)**

- All women with abnormal smears must undergo colposcopy to confirm the presence of CIN.
- CIN I (including HPV infection) is followed up in women younger than 30. If persistent or women are unreliable, treat it with cryotherapy.
- All women with CIN 2 and 3 or carcinoma-in-situ, (the true precancer) must undergo excisional therapy with LEEP (loop electrosurgical excision procedure).

**Modalities of treating cervical precancers (CIN)**

- Conization and TAH are rarely used, especially in young women who has yet to complete family.
- Laser is expensive for a low resource country like ours.
- Diathermocoagulation is not advised where there are better modes of treatment like LEEP and cryotherapy.
- Cold coagulation: exploring.

**Cryotherapy**

- Freezing the cervix with carbon dioxide or nitrous oxide. In Bhutan, we use carbon dioxide. The aim is to create a 4-5 mm ice ball from the margin of the probe. This ensures that cryonecrosis occurs up to a depth of 5 mm. We use the double freeze method to enhance its efficacy (3 minute freeze, 5 minutes thaw followed by 3 minute freeze again).
**Assessment and referral of women with suspected cervical cancer at primary health care level**

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**Appearance of cervix after cryotherapy**

![Image of cervix after cryotherapy]

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**LEEP or LLETZ (large loop excision of TZ)**

- The transformation zone (TZ) bearing the CIN is excised with a wire loop, through which electric current is passed. It cuts and coagulates at the same time. About 7 to 10 mm of endocervix is also removed. Any bleeding point is then fulgurated with a ball cautery. Monsel's solution (ferrous oxide) is applied to ensure hemostasis and a tight pack is put in. This is removed after 2-4 hrs. The tissue is sent for histopathology to ensure margins.

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**Loop Electrosurgical Excision Procedure (LEEP)**

- LEEP can be done as an OPD procedure under local anesthesia, which is injected at all 4 quadrants of cervix with a dental syringe. Treat infections if present and do the procedure right after a menstrual period. With these precautions, bleeding is almost nil and patients sent home after a few hours. If vaginal pack is put in, she may remove it after 4-5 hrs at home.

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Assessment and referral of women with suspected cervical cancer at primary health care level

Information to be given after LEEP/Cryotherapy

- There will be vaginal discharge for 3-4 weeks
- Expect bleeding after 10-14 days. If heavier than a menstrual period, come back to hospital
- If fever/pain abdomen/prolonged/heavy bleeding occur, come back
- No sexual intercourse for 4 weeks
- Pap smear and Colposcopy after 1 year (if invasive cancer on HPE. After 3 or 6 months.

Comparison between LEEP and cryotherapy

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<tr>
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<th>Cryotherapy</th>
<th>LEEP</th>
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<tr>
<td>Effectiveness</td>
<td>86-95%</td>
<td>91-98%</td>
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<tr>
<td>Complications</td>
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<td>8%</td>
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<tr>
<td>Bleeding</td>
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<td>Effect on fertility</td>
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<td>Relative cost</td>
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<td>Tissue for Histopathology</td>
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</table>
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Factors affecting treatment failure

- Big lesion covering more than 75% of ectocervix
- Age more than 30 years
- Persistent HPV infections
- Previous treatment for CIN.

Conclusion

Cervical cancer is a killer of relatively young women, but it is preventable. A well designed screening program backed up by simple, but effective methods of treatment can decrease the incidence and deaths due to this cancer. If Pap smear does not work, look for other simpler methods like VIA.

According to experts, where girls are vaccinated, HPV testing is more appropriate as the screening method. Cost is the barrier to introducing this screening method in developing countries.