Chapter 3: Screening

Learning Objectives

On completion of this section, the learner will be able to:
1. Describe who should have a Pap test and how frequently.
2. Identify who should be excluded from Pap tests and who should have increased surveillance.

In 2012, OCSP updated its clinical screening guidelines for cervical cancer. The guidelines were updated to optimize screening for women, while balancing its associated harms and benefits.

Who Should Have a Pap Test and How Frequently? ¹

It is important to be familiar with the timing and frequency of Pap tests. The following section outlines the cervical screening guidelines for eligible clients in Ontario.

General Guidelines

Screening Initiation
- All women who are, or have ever been sexually active (sexual intercourse, digital, or oral sexual activity) should be screened with Pap tests every 3 years, starting at age 21.
- Women who are not sexually active by age 21 should delay screening until sexually active.
- Transgender males who have retained their cervix should be screened according to the guidelines.

Screening Interval
- Screen every 3 years.

Screening Cessation
- Screening can be discontinued if the client is 70 years and older and has had 3 or more Negative Pap tests in the previous 10 years.
- Those 70 years and older who have never had a Pap test, should have three Pap tests one year apart. If these are reported as negative, Pap test screening may be discontinued at the discretion of the caregiver.
- Screening can be discontinued after a total hysterectomy as per the guidelines below.
INITIATION OF SCREENING

Background

Cervical cancer is almost exclusively caused by human papillomavirus (HPV). HPV is highly contagious and is the most common sexually transmitted infection in the world today. Approximately 75% of sexually active Canadians will have at least one HPV infection in their lifetime, with the highest rates of HPV infection occurring in young people aged 15 to 24.

The percentage of abnormal cytology decreases with increasing age, with the highest abnormal rate in women 20 to 29 years of age. While HPV prevalence is highest in this age group, most HPV infections are transient and will clear within two years. Cervical cancer in young women is very rare. Since 1980, 0.18% of invasive cervical cancers were diagnosed in women under 21. As well, there is a long latent period between exposure to HPV infection and the development of precancerous lesions and invasive cervical cancer. Therefore, delaying the onset of screening young women will still provide the opportunity to detect and treat these lesions if they occur.

Recommendation

Screening should be initiated at 21 years of age for all clients who have ever been sexually active. Transgender males and females may also need regular cervical cancer screening. Health care providers should discuss the benefits and harms of screening with their patients.

Rationale

The harms of screening women under 21 years of age outweigh the benefits.

- Pap tests and follow-up procedures, particularly loop electrosurgical excisions (LEEP) or cone biopsy procedures, expose young women to anxiety and harms including reduced reproductive performance (preterm delivery, low birth weight, increased caesarean section rate, and premature rupturing of membranes). “The emotional impact of labeling an adolescent with both a sexually transmitted infection and a potential precancer must be considered because adolescence is a time of heightened concern for self-image and emerging sexuality.”
- Cervical cancer is rare in women less than age 21. From 2003 to 2007, there were on average fewer than 10 cases in a five year period in women aged 15 to 19 across the entire province. No deaths from cervical cancer occurred in this age group for the same time period.
- Early changes in the cervix preceded cervical cancer, usually by many years, and can generally be detected by the Pap test long before invasive cancer develops.
• Delaying the start of screening young clients still provides the opportunity to detect and treat lesions.\textsuperscript{22}

Although the Canadian Task Force on Preventive Health Care recommends not routinely screening women aged 20-24, a “weak recommendation is assigned due to the uncertainty of the evidence. Screening may still be minimally effective to reduce cervical cancer incidence in this age group.\textsuperscript{11} Initiating screening at 21 years of age is consistent with the recommendation made in most other Canadian provinces and territories, and is also the recommendation made by the U.S. Preventive Services Task Force. OCSP will continue to respond to the evolving evidence to support screening guidelines.

Some sexually active clients may choose to delay onset of screening until 25 years of age. The decision to delay should take into consideration patients’ values, preferences and beliefs.

**SCREENING INTERVAL (ROUTINE SCREENING)**

**Recommendation**

In the absence of abnormal cytology, routine screening should be performed every 3 years. Health care providers should discuss the benefits and harms of screening with patients.

**Rationale**

Screening every 3 years maintains the benefits of screening while decreasing the harm from over-screening.

• Shorter screening intervals (1-2 years) do not significantly decrease the incidence of cervical cancer more than screening every 3 years.\textsuperscript{12,13,14,15,16} Annual screening significantly increases the number of women who are sent for further tests which increase the harms of screening.

• Most countries recommend a 3-5 year interval.

OCSP will continue to monitor and follow-up on all abnormal Pap test results where the recommended management is absent. OCSP also sends reminder letters to clients who are overdue for a Pap test.

The greatest reduction in cervical cancer will be achieved by screening eligible women, who have not previously been screened, not by screening women earlier or more often.
CESSATION OF SCREENING

The decision to discontinue screening for clients 70 years and older must take into consideration the individual’s screening history. Screening can be discontinued if a client has had 3 negative Pap tests in the previous 10 years. Clients who are 70 years and older who have never had a Pap test, should have three Pap tests one year apart. If these are reported as negative, Pap test screening may be discontinued at the discretion of the HCP.

The recommendation to discontinue screening in clients 70 years and older is based on evidence that:

- clients with multiple prior consecutive negative cytology results are at low risk for cervical cancer, and
- false positive cytology results incurred from mucosal atrophy in post-menopausal women produces potentially unnecessary follow-up and anxiety in this population.\(^{17}\)

When providing service to clients 70 years and older, HCPs should:

- obtain a thorough health history to determine whether or not Pap tests are still warranted, and
- provide education about the benefits and risks of continuing to be screened past 69 years of age.

INDIVIDUALS WHO HAVE NEVER BEEN SEXUALLY ACTIVE

If the HCP determines that an individual has never had sexual intercourse or skin-to-skin contact of the anus, genitals or mouth, the HCP should focus on educating them about the benefits of regular screening once they do become sexually active. The decision to start screening should be mutually agreed upon between the patient and HCP.

| Important Information | HPV transmission occurs through sexual intercourse as well as through skin to skin genital contact. Sexual activity includes oral sex, sex with fingers or hands, genital rubbing and sex with sex toys. HCPs should be sensitive to circumstances where sexual abuse may have occurred and may prevent a client from discussing, remembering or defining sexual activity as such. |

CLIENTS WHO HAVE HAD THE HPV VACCINE

All clients who have ever been sexually active and have received an HPV vaccine should begin routine screening at age 21. Routine screening should occur every 3 years.
CLIENTS WHO ARE PREGNANT

Women who are pregnant should be screening according to the guidelines. Pregnancy does not alter the recommended screening interval. Only conduct Pap tests during pre- and post-natal care if a woman is due for regular screening.

If the HCP determines a Pap test may be necessary due to the client’s screening history:

- Aim to screen during the first 10 weeks of pregnancy.
- If the client is over 10 weeks pregnant, the benefits of screening should outweigh the potential harms.
- Only the plastic spatula should be used.
  *Note: The cytobrush is contraindicated in pregnancy.

Where a pregnant client’s history is suggestive of cervical cancer the client should be examined. If a visual abnormality is present the client should have a biopsy.
The cytobrush is contraindicated during pregnancy.

Pregnant Client

If registered, check SAR or TPSR

Routine, negative

Overdue for a Pap test

No visual abnormalities or cervical cancer symptoms

< 10 weeks EGA

> 10 weeks EGA

Resume screening at next interval date

Plastic spatula only

Do the benefits of screening outweigh the potential harms?

Yes

No

Plastic spatula only

Screen ≥ 6 weeks postnatally

*The cytobrush is contraindicated during pregnancy.
CLIENTS WHO HAVE HAD A HISTERECTOMY

Screening of the vaginal vault (broom or spatula) is unnecessary if the client meets all of the following conditions:

- They have had a total hysterectomy (as opposed to a subtotal hysterectomy)
- Hysterectomy was performed for a benign disease (pathology negative for high-grade dysplasia)
- They have had no previous high-grade Pap test results

If no previous Pap test record is available and/or no pathology is available from the hysterectomy specimen, the client should have two consecutive, Negative vault results one year apart before discontinuing screening.

LESBIAN WOMEN OR WOMEN WHO HAVE SEX WITH WOMEN (WSW)

Lesbian women and WSW have a lower incidence of HPV and invasive cervical cancer. Nevertheless, this population is still at risk. Screening for cervical cancer among lesbian women and WSW should be consistent with screening guidelines for women who have sex with men; screening should occur every 3 years (routine screening).

THE TRANSGENDERED CLIENT

Screening the transgender client may be necessary. A careful health history should be taken by the HCP to determine if the HCP should proceed with a vault Pap test or a conventional Pap test. Routine screening should occur in the following scenarios:

- Vault Pap test
  - Male-to-Female (MTFs) with history of genital warts and “penile inversion vaginoplasty” (penis inverted to line the new vagina)
  - Female-to-Male (FTMs) who have had their cervix removed but have history of cervical cancer or high-grade cervical dysplasia

- Pap test
  - MTFs who have had vaginoplasty where the head of the penis was used to create a neo-cervix
  - FTMs who have ever been sexually active and have not had their cervix removed

CLIENTS WHO REQUIRE INCREASED SURVEILLANCE

The following outlines patient characteristics that warrant increased surveillance and provides management recommendations for each of these characteristics.
<table>
<thead>
<tr>
<th>Patient Characteristics</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recent abnormal Pap test result</strong></td>
<td>Follow up as per the Ontario Cervical Screening Guidelines Summary</td>
</tr>
<tr>
<td><strong>Previous high-grade cervical pathology result</strong></td>
<td>Screen every year <em>once discharged from colposcopy</em>. There is no evidence to support how long a client should be screened annually. A conservative approach would be to screen annually until the client is 69 years of age and can discontinue if results are Negative in previous 10 years.</td>
</tr>
<tr>
<td><strong>Immunosuppressed or HIV positive.</strong> Immunosuppression is:</td>
<td>Screen every year</td>
</tr>
<tr>
<td>o CD4 count of &lt; 400 in HIV-positive women, or</td>
<td>All cytological abnormalities (including low-grade lesions) should be referred to colposcopy</td>
</tr>
<tr>
<td>o Transplantation with immunosuppressive therapy &gt; 3 years</td>
<td></td>
</tr>
<tr>
<td><strong>Exposure to Diethylstilboestrol (DES)</strong> in utero</td>
<td>Screen every year with cytology and colposcopy of cervix and vagina</td>
</tr>
<tr>
<td><strong>Previous endometrial cancer</strong></td>
<td>Screen annually for five years after treatment. Screening can discontinue if all Pap test results are negative</td>
</tr>
<tr>
<td><strong>Previous ovarian cancer</strong></td>
<td>Screening can be discontinued following complete hysterectomy</td>
</tr>
<tr>
<td><strong>Previous cervical cancer</strong></td>
<td>Continue screening annually for as long as the client is biologically healthy</td>
</tr>
</tbody>
</table>

*Cervical histopathology specimens have historically been reported using a variety of terminology systems. Squamous abnormalities have generally been reported using terms including “dysplasia”, “cervical intraepithelial neoplasia” (CIN) and “squamous intraepithelial lesions”. Recently, the Pan-Canadian Cervical Screening Network (Canadian Partnership Against Cancer) reported on and published Canadian consensus statements for reporting on histopathology specimens from the cervix and vagina19. Ontario labs have adopted and modified these consensus statements. The following table provides the current cervical histopathology nomenclature.*
Cervical histopathology nomenclature

<table>
<thead>
<tr>
<th>Cytology Result</th>
<th>Ontario Modified Bethesda System</th>
<th>LifeLabs Bethesda System</th>
<th>Dynacare Bethesda System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsatisfactory</td>
<td>Unsatisfactory specimen for evaluation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td><strong>NILM</strong>: Negative for intraepithelial lesion or malignancy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low-grade abnormal</td>
<td><strong>LSIL</strong>: Low-grade squamous intraepithelial lesion</td>
<td><strong>ASCUS</strong>: Atypical squamous cells of undetermined significant</td>
<td><strong>ASCUS-H</strong>: Atypical squamous cells of indeterminate significance; cannot rule out high grade</td>
</tr>
<tr>
<td></td>
<td>CA: Squamous cell carcinoma, adenocarcinoma, other malignancies</td>
<td>SCC: squamous cell carcinoma Adenocarcinoma</td>
<td></td>
</tr>
<tr>
<td>High-grade abnormal</td>
<td><strong>HSIL</strong>: High-grade squamous intraepithelial lesion</td>
<td><strong>AIS</strong>: Adenocarcinoma in-situ</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>ASC-H</strong>: Atypical squamous cells, cannot exclude high-grade squamous intraepithelial lesion</td>
<td><strong>SIL</strong>: Squamous intraepithelial lesion, ungraded</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>AGC</strong>: Atypical glandular cells</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Previous High Grade Cytology Results: What’s the Recommended Interval?

In the colposcopic management of high-grade (ASC-H/HSIL) or persistent low-grade Pap test results, a sample of cervical tissue (biopsy) is typically obtained to confirm the diagnosis. A significant proportion of histology outcomes, however, do not correlate with the cytology result. The following chart provides management recommendations for Pap test results that were over-called (the cytologic impression was more severe than the histological diagnosis), under-called (the cytologic impression was less severe than the histological diagnosis), not correlated (no histological diagnosis is available), or correlated (the cytological impression correlated with the histological diagnosis).
<table>
<thead>
<tr>
<th>Cytology Result (Pap test)</th>
<th>Histology Result (biopsy/ECC)</th>
<th>Recommended screening interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-grade (ASC-H/HSIL)</td>
<td>≤Low-grade squamous intraepithelial lesion (NILM/LSIL)</td>
<td>Every 3 years once discharged from colposcopy</td>
</tr>
<tr>
<td>High-grade (ASC-H/HSIL)</td>
<td>≥High-grade squamous intraepithelial lesion (HSIL/AIS/SCC)</td>
<td>Every year once discharged from colposcopy. There is no evidence to support how long annual screening should continue. A conservative approach would be to screen annually until the client is 69 years of age and can discontinue if the results are negative in previous 10 years.</td>
</tr>
<tr>
<td>High-grade (ASC-H/HSIL)</td>
<td>≤Low-grade squamous intraepithelial lesion (NILM/LSIL)</td>
<td>Every 3 years once discharged from colposcopy (the client may have been pregnant and not referred for colposcopy until result was explored post postpartum, the Pap test may have been overcalled)</td>
</tr>
<tr>
<td>High-grade (ASC-H/HSIL)</td>
<td>No biopsy/histopathology</td>
<td>There is no evidence to support a recommended interval. A very conservative approach would be to screen every year. The clinician may consider extending the interval after a few years if all results are negative. This decision should be made in consultation with the client and align with their values and preferences.</td>
</tr>
<tr>
<td>High-grade (ASC-H/HSIL)</td>
<td>Cervical cancer</td>
<td>After treatment for cervical cancer, clients should continue screening annually as long as they are biologically healthy. The age of screening cessation for those with a history of cervical cancer is not well defined.</td>
</tr>
</tbody>
</table>
Key Messages for Health Care Providers

- 90% of HPV infections will spontaneously regress within 2 years.
- High grade lesions and cervical cancer are very rare in young clients <21 years of age.
- There is a long latent period between exposure to the HPV infection and the development of precancerous lesions and invasive cervical cancer.
- Annual screening offers little benefit over screening performed at 2 to 3 year intervals and exposes clients to unnecessary risks and anxieties.
- The sensitivity of the Pap test is about 51% and the specificity is about 98%.

Benefits and Harms of Cervical Screening: Facilitating Information Decision Making

The Ontario Cervical Screening Program guidelines aim to ensure clients receive the greatest benefit from cervical cancer screening and avoid unnecessary tests. This balance is achieved when we can identify cervical cancer precursors likely to progress to invasive cancer (maximizing the benefits), and avoid the detection and unnecessary treatment of transient HPV infection and its associated benign lesions that are not destined to become cancerous (minimizing the potential harms).

HCPs should facilitate a discussion with clients about the benefits and harms of screening with Pap tests. The goal of the client-HCP discussion is to:

- foster an understanding of the Pap test, its benefits and potential harms, and
- support client participation in the clinical decision; one that is informed and consistent with the individual’s preferences and values.

For example, a 21 year old female who only recently became sexually active is very anxious about her first Pap test. After reading a brochure about cervical cancer, she realizes her risk for developing cervical cancer at her age is very low. She wonders if she needs to be screened this year given that this is the recommendation, but her fear about the test continues to make her very anxious.

A discussion between the HCP and the patient would highlight the individual’s fears and anxieties about the Pap test, as well as the individual’s recent onset of sexual activity. With these factors under consideration, and after a discussion about the benefits and harms of screening with the Pap test, the HCP and client decide together to delay screening for another year. In the meantime, the HCP provider will continue to educate and counsel them about the Pap test, ensuring that when the time comes for the first Pap test, they are informed and feel ready to perform the procedure.
OCSP can support HCPs to discuss the benefits and harms of Pap tests with patients. The following chart outlines the benefits and harms of screening with the Pap test:

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Harms</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Observational data have shown declines of up to 80% in cervical cancer mortality following introduction of organized screening with Pap tests</td>
<td>• False positives</td>
</tr>
<tr>
<td>• Cervical dysplasia can be removed with procedures during colposcopy</td>
<td>• False negatives</td>
</tr>
<tr>
<td>• Detecting cancer at an early stage may result in simpler treatment, more treatment options, and less need for chemotherapy</td>
<td>• Screening and follow up may cause anxiety</td>
</tr>
<tr>
<td></td>
<td>• Discomfort or bleeding may result from the Pap test or colposcopy</td>
</tr>
<tr>
<td></td>
<td>• Treatment with cold knife conisation and large loop excision of the transformation zone (LLETZ) may increase a woman’s risk for pre-term delivery, low birth weight, caesarean section, and premature rupturing of membranes during future pregnancies</td>
</tr>
</tbody>
</table>

**Recommended Reading**

**OCSP Resources**

Ontario Cervical Screening Guidelines Summary (Revised October 2016 - based on current (2012) screening guidelines):


Screening/Surveillance in Primary Care After Discharge from Colposcopy – Questions and Answers:


**Chapter 3 Self-Test**

1. Who should have a Pap test and how frequently?
2. Describe the screening guidelines for pregnant women.
3. What are the requirements for not screening the vaginal vault after a hysterectomy?
4. Who should be excluded from Pap tests?
5. Who should be on increased surveillance?
References


