PAP SMEARS: DO OLDER WOMEN REALLY NEED THEM?

Cervical cancer - a concern for midlife and older women

Cervical cancer can be prevented in the vast majority of women. Yet it remains the 9th leading cause of cancer deaths among U.S. women and 12th in Canada.¹ Significantly, as women age, their rate of death from cervical cancer steadily increases. And elderly women are more likely to be diagnosed at a late stage.² Why is this happening? The simple explanation is that while the Pap smear is still the most effective screening tool available for preventing cervical cancer, women over 45 are not having Pap smears done at all, or very infrequently.³

Older women may not understand the important relationship between Pap smears and cervical cancer. They may mistakenly feel that they are not at risk, believing that once they stop having children or reach menopause, a Pap smear is no longer necessary. Across Canada and the U.S., older women as well as women with low incomes, aboriginal women, black women, immigrant women, women with disabilities and women with poor access to screening facilities, such as in rural areas, have Pap smears consistently less often than other women. There are many reasons for this. They may lack necessary resources such as transportation or be unable to afford it. There may be a conflict between work and family commitments and the time of day the service is available. They may not be aware of the reasons for or importance of cervical screening. Women with a language barrier or new to the country may not even know what a Pap smear is. Clinics may not have examining tables designed for women with physical disabilities.

Women may avoid tests because they fear a diagnosis of cancer. Others may be embarrassed or anxious at the thought of an invasive test. Some women have endured past sexual abuse or trauma or have had previous negative experiences with the medical system. Many women prefer a female health care provider and one may not be available in their area. In some cultures, an internal exam, especially done by a male, would be considered inappropriate. Menopause-related symptoms such as vaginal dryness may affect a woman’s decision to forego Pap smears.

Issues of weight and body image may deter some women and some health care providers. Research suggests that women who are obese receive preventive services such as Pap smears and clinical breast examinations less often than average weight women and that some of the disparities in care can be explained by negative attitudes that some providers have towards obesity. Women themselves may be embarrassed about the test because of a negative self-image. Because obesity is associated with higher mortality rates for cervical cancer and breast cancer, barriers to screening and counseling can have serious health consequences.⁴

The important reality is that women, during menopause or postmenopause, regardless of their reasons for not having a Pap smear, are still at risk for developing abnormal cervical cells that could ultimately result in cervical cancer. Having a regular Pap smear is the only way to decrease that risk.

How does cancer of the cervix develop?
The cervix is covered by the epithelium, a thin layer of cells. This layer of tissue has cells of different shapes. Squamous cells are flat and scaly or columnar (column-like). It is in the squamous cells that cell changes, known as cervical dysplasia, most often occur. In most cases, these cell changes are harmless. In certain women, dysplasia can progress, if left untreated over a long period of time, into cancer of the cervix. In most cases, treatment before these cells have a chance to progress, will prevent them from ever developing into cervical cancer.

**Risk factors for cervical cancer**

A primary factor associated with the development of abnormal cells that may lead to cervical cancer is the human papilloma virus (HPV). More than 100 types of HPV are known. Commonly known as the wart virus and found in all parts of the body, only a few types are found on the cervix and fewer still have been identified as risk factors for cervical cancer. Nine strains of HPV are associated with 90% of cervical cancers.

Any woman who is or has ever been sexually active may have been exposed to HPV. Her chances increase with the number of sexual partners that she or her partner has had. It is estimated that up to 80% of women have come into contact with HPV and thus are at increased risk for developing dysplasia and cervical cancer. Women who first had sexual intercourse at an early age are also at risk.

There is no known way to effectively prevent transmission of this virus or treat it once it is acquired. Condoms have not been shown to be reliable against HPV. Since HPV can remain dormant for many years, even if a woman is currently not sexually active, she may have the virus as a result of past sexual activity. Other risk factors include smoking or exposure to smoke, vaginal infections (other than yeast infections) and a compromised immune system.

Cervical dysplasia is relatively common in women whether or not they have the above risk factors. Most dysplasia will not progress at all and abnormal cells will return to normal without treatment. However, a regular Pap smear, taken and interpreted by a qualified health care provider, is the only way that women can be certain that any abnormal cells they may develop can be dealt with appropriately.

**Who should have a Pap smear?**

All women should have regular Pap smears once they become sexually active. A woman continues to be at risk of cervical dysplasia even though she may currently be in a monogamous relationship or sexually inactive.

Little research has been done into the risk for cervical cancer among lesbians. However, lesbians or bisexual women who have ever had sex with a man, or if their partners have, are at risk and need regular Pap smears.

If a woman has never been sexually active at any time in her life, her risk of developing dysplasia or cervical cancer is uncommon. Some health providers feel Pap smears are unnecessary for women who have not been sexually active. Others recommend that all women have a Pap smear as part of a regular pelvic exam (examining the uterus, fallopian tubes and ovaries by hand to rule out cancer or other abnormalities) and well-woman check-up.

If a woman has had a hysterectomy due to cancer or if she had a past history of cervical dysplasia, regular Pap smears of the top of her vagina are still indicated. If the hysterectomy was performed for a benign reason such as fibroids (and laboratory pathology confirms no dysplasia), continuation of Pap smears may not be necessary. A woman who has had the top of the uterus removed, but her cervix remains intact, should continue to have Pap smears.
Guidelines vary among programs and practitioners regarding how frequently women should have regular Pap smears and whether or when women might safely stop having them. Since this is related to the accuracy of the test, we address this below.

**What is a Pap smear?**

Developed by Dr. George Papanicolaou and introduced in the 1940s, a Pap smear is a test where a sample of cells is taken from your cervix by a doctor or health care provider and examined under a microscope. The cervix is the lower part of the womb or uterus, joining the uterus with the vagina. It is through the cervix that menstrual blood flows and through which a baby passes from the uterus to the vagina.

The purpose of the Pap smear is to screen for abnormal cells (called dysplasia), before they develop into cancer. A Pap smear is usually performed as part of a pelvic exam. It only takes two minutes to complete and is usually (should be?) painless, although some women may experience slight discomfort.

During a Pap, a speculum is placed in your vagina. Plastic or metal, a speculum comes in various sizes and is used to open up your vagina so that the cervix can be seen clearly. Cells are taken from your cervix using a tiny brush or swab and a spatula. These cells are spread on a glass slide, fixed and sent to a laboratory for examination.

To Get Ready for a Pap smear...

- Your vagina and uterus should be in their normal, natural state. Do not douche or use vaginal creams or jellies for 48 hours before the Pap. Do not have sex for 24 hours before hand.
- For women still menstruating, do not have a Pap during your period. Mid-cycle is best. Know the date of your last menstrual period.
- Let your provider know if you have had any abnormal bleeding, spotting or pain prior to your visit or if you have had any abnormal Pap smear results in the past.
- After your test, ask how you will be notified of the results. Know what to expect before you leave.
- If you are anxious, try relaxation exercises like deep breathing. Consciously relax your thigh muscles or wiggle your toes. You may want to alert the care provider beforehand to discuss some helpful strategies. Request that someone else be present with you, if you wish.

Remember that this test takes two minutes and it could help save your life!

**How accurate and effective is the Pap smear?**
While no other screening test has been as effective for detecting the cell changes that may lead to cervical cancer, the Pap smear is not perfect. A single Pap smear cannot be considered 100% reliable for several reasons:

- While doing the Pap smear, the health care professional may have missed abnormal cells or handled the slide incorrectly.
- Abnormal cells on the slide may have escaped detection at the lab.
- Cells may have been “washed” away by douches, vaginal creams or sexual intercourse in the 24-48 hours prior to the test.

Thus, in a certain number of cases, Pap smears are reported as negative or free of abnormalities when in fact there are cells present that may be of concern. While a 10-20% false negative rate is to be expected, the percentage of false negatives varies widely from one region to another. Discrepancies are related to variables such as volume of Pap smears done by a care provider or read by a lab and whether or not any quality assurance standards are in place.

False negative results are another reason why health care providers recommend women have regular Pap smears – to ensure abnormal cells missed at one test will likely be picked up the next time. After a woman has a number of annual Pap smears that are normal, health care providers may recommend less frequent repeat tests. Recommendations about how many normal Pap smears are sufficient prior to decreasing the frequency vary from region to region and from smear taker to smear taker. In Manitoba, Pap smears are recommended every two years, following three normal tests, one year apart.

Where there is no regional screening program or registry to track Pap smear utilization, annual Pap smears are recommended. Where there is a central registry, recommendations are for 2 or 3 annual, normal Pap smears before decreasing the frequency to either every 2 or 3 years. A registry typically contains the data on all or most women in a region who then may be tracked as to length of time since their last Pap smear and follow-up of abnormal results. A registry also addresses quality assurance issues such as the number of Pap smears done by health professionals and labs and their associated accuracy rates. A woman has less chance of falling through the cracks and thus a longer interval between Pap smears becomes a viable option. Cervical cancer screening programs can use a registry to target areas of a region that have lower participation rates and develop ways to reach women at high risk. It can also identify providers and labs that may need to improve their rate of false negative results.

Health care professionals may recommend that frequency of Pap smears may decrease once a woman reaches 69 or 70 years if she has a history of regular and normal Pap smears. If a woman has never had a Pap or has not had one recently, it is suggested she have at least three normal Pap smears, one year apart, before decreasing the frequency of screening. If a woman has had abnormal Pap smears in the past, health care professionals will likely recommend annual tests indefinitely.

It is important to note that should a woman develop any symptoms at all, including unusual vaginal bleeding, especially after intercourse, abnormal discharge, pain or anything else unusual, she should contact her health care provider immediately and not wait for the next scheduled Pap smear, even if a recent smear was normal.

**Abnormal results - What do they mean?**

For most women, Pap smear results will be normal. However, small percentages are not. The vast majority of these abnormal results will never progress to a serious stage.
The Pap smear will detect pre-malignant cervical cell changes that range from mild to moderate to severe to carcinoma in situ. For a very small number of women, malignant cells may be present. Smears are usually classified as normal; atypical squamous cells of undetermined significance (ASCUS); low-grade squamous intraepithelial lesions (LSIL); high-grade squamous intraepithelial lesions (HSIL); atypical glandular cells of unknown significance (AGUS); malignant disease. Pap smears will also detect abnormal cells that are due to inflammation, viruses, yeast, trichomonas and others and have nothing to do with dysplasia.

In some instances, a Pap smear comes back from the lab marked “unsatisfactory” and a repeat smear is required. This may be due to inflammation that obscures the smear, blood in the sample or too few cells on the slide to allow accurate interpretation.

In postmenopausal women, decreased levels of estrogen produced by the ovaries may make the cervix and the vagina drier and thin the vaginal walls (called atrophic vaginitis). As well, as women age, the cervical opening (os) tends to move further up into the cervical canal, making it more difficult for health care practitioners to visualize. Because of these cervical changes, cells collected during a Pap smear may appear atypical when examined by a lab, when in fact they are not (a “false positive” result). When women are on hormone replacement therapy, the incidence of atrophic vaginitis tends to decrease and, as a result, there are fewer false positives due to that condition. While any positive results can be worrisome, it helps to know that there may be many reasons for this that are not serious.

The next steps

Mild dysplasia is usually considered minor and will not require further investigation unless it persists on repeat smears. In most cases, the cell changes revert to normal without any treatment whatsoever.

When mild dysplasia persists or if the Pap smear is moderate or greater, further testing is necessary. A colposcopy is a test performed by a specially trained gynecologist where the cervix and vagina are examined with a lighted magnifying instrument (colposcope). A speculum holds the vaginal walls apart and the colposcope is placed near the vaginal opening. A solution of diluted vinegar is applied to the cervix to determine the location and extent of the abnormality. The doctor may remove a small piece of tissue (biopsy) from the cervix for further examination of the abnormal cells. Colposcopy takes only a few minutes to complete and does not require anesthesia.

Any further treatment depends on the diagnosis. Women should make sure that they clearly understand what will happen after the colposcopy, how they will get their results and any follow-up that might be indicated.

Overcoming barriers

If you or someone you know has been putting off having a Pap smear for several years or longer, try to understand the reasons. Identify needed supports. Ask others to suggest a sympathetic nurse practitioner or physician and a program that is accessible to you.

Having a Pap smear is intimidating to many women. Practitioners who are sensitive to the barriers that many women face when accessing preventive care can help. A gentle touch, a clear explanation, a kind word and an appreciation that there may be fears and discomforts that are not easily spoken can go a long way to reducing a woman’s anxiety about Pap smears and pelvic exams. Some medical schools teach these skills by having programs in which trained lay women serve as patients to provide feedback as students examine them. Culturally sensitive outreach programs can help women feel welcome in a health care setting. No woman, anywhere, should die of cervical cancer.
Hormone replacement therapy allows the transformation zone to be more accessible for screening with a resulting decrease in the rate of false positive results. Atrophic vaginitis is related to a decrease in hormones in older women and is a common cause of false positive results. Replacing the hormones via therapy thus reduces the incidence of atrophic vaginitis and the rate of false positive results decreases.

Improving Accuracy of the Pap Smear: Some New Technology

New technologies are being developed with the aim of decreasing the rate of false-negatives in cervical cancer screening. Each of these is directed at either sampling error or detection error.

Liquid-based cytology, or thin-layer cytology, focuses on improving the rate of sampling errors. The sample is collected like the conventional Pap smear. Instead of smearing the sample onto a slide, the specimen and brush are dropped directly into a vial where the cells are suspended in a fixative solution. The cells are dispersed in the solution and selectively collected on a filter, then transferred to a slide for cytological examination. The process removes (such artifacts as) blood and mucous and (has been shown to) improves sensitivity compared to conventional Pap smears. Cost effectiveness is being evaluated.

Computerized rescreening targets detection error by one of two methods. (1) Papnet® uses neural-network computerized rescreening of Pap smears to examine slides initially read as negative by a cytotechnologist. The system identifies cells or clusters of cells that require review. It can display over 100 views of the slide. A cytotechnologist decides whether or not to review the slide. (2) Algorithm-based decision-making technology identifies slides exceeding a certain threshold for the likelihood of abnormal cells. The laboratory can select different thresholds such as 10, 15 or 20% that correspond to the review rates. The population of slides selected by the system should, at a 10-15% sort rate, contain 70-80% of the slides containing abnormalities missed by manual screening. (One such system is AutoPap® 300 QC.)

DNA testing for human papillomavirus (HPV). Research is ongoing into the efficacy of HPV DNA testing in reducing the incidence and mortality of cervical cancer. (It is being used to help distinguish risk of progression.) Unfortunately the information is not reliable to predict relative risk.

HPV Vaccine. Still investigative, vaccines for HPV are being evaluated to assess their ability to reduce the incidence of cervical dysplasia and potentially, cervical cancer.

Cervicography is a simple procedure, taking about two minutes once the Pap smear has been performed. Pictures are taken of the cervix after it has been washed with a 5% acetic acid solution. The pictures are examined by specially trained colposcopists. This may be faster and more accurate (than the conventional way of reading Pap smears,) but studies of cost-effectiveness are needed.
References


NOTE: DES (diethylstilbestrol)-exposed women require special screening to detect abnormalities. (See DES ACTION VOICE. Spring 2000: 84-5.)

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A Friend Indeed….for women in the prime of life
Volume XVII. NO. 3 / June-July-August 2000