

Pap Smears, HPV & Prevention of Cervical Cancer

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Background

- Pap smears are a simple and highly effective office screening method for preventing cervical cancer
 - Before pap smears became part of women's routine health screening, cervical cancer was a leading cause of cancer death
- Cervical cancer is essentially a sexually transmitted disease
 - Caused by infection with *HPV (Human Papilloma Virus)*
- Pap smears involve brushing cells off of the cervix
 - Evaluated in the lab for presence of abnormal cells (*dysplasia*) that might one day progress to cancer
 - May also test for presence of HPV infection

The Cervix

- The lower part of the uterus- looks much like the neck of a balloon
- Extends into the upper part of the vagina
- The cervix has a narrow canal that connects the vagina and the uterine cavity- allows sperm to enter the uterus and menstrual flow to exit
 - The part that must dilate to 10 cm during childbirth
- The *face* of the cervix is the part of the cervix seen by your doctor when doing a pap smear
 - This is the area most commonly affected by HPV.
 - Pap smears involve brushing both this area and the outer part of the cervical canal.
 - Looking for *dysplasia* (abnormal cell growth, not cancer)- if cancer is found then screening has failed

HPV & Dysplasia

- There are over 100 types(strains) of HPV
 - Most sexually active people will be infected at some time by one of these
 - Only a few strains are known to cause cancer
 - Classified as *high risk* strains
 - These same strains may also cause throat, penile and vaginal cancers

- Like the common cold, most immune systems will clear most *low risk* strains of HPV over a one to three year period
 - May cause temporary, *low grade dysplasia (LGSIL)* before they are cleared- typically does not require treatment
 - *dysplasia* means abnormal cell growth- not cancer
 - 2 out of every 3 cases of LGSIL will be cleared by the body without treatment
 - However, essential that anyone with LGSIL continue yearly pap smears since 2% will one day develop cancer
 - Those with weak immune systems (such as those with HIV) have difficulty clearing all strains making them more likely to develop cervical cancer (even from low risk strains)
- *High risk* strains are not so easily cleared
 - Often cause lifelong infection
 - Can cause *high grade dysplasia (HGSIL)*
 - Left untreated, HGSIL will progress to cervical cancer in up to 70% of women over a 5 – 20 year period
 - Progression to cancer is more likely and more rapid in those infected with HIV

Colposcopy

- An office procedure to evaluate abnormal pap smears
- Required since a pap smear is only a screening & not a diagnostic tool
 - Pap smear results are often wrong meaning that an abnormal pap smear does not always mean dysplasia is present
 - Also, sometimes even those with mildly abnormal pap smears are found to have serious disease
- Done much like the pap smear itself but a little more involved
 - A speculum is placed in the vagina to see the cervix
 - Acetic acid (vinegar) is applied to the cervix
 - May cause a mild burning sensation
 - Causes abnormal cells to turn white
 - Abnormal areas are then biopsied
 - The canal is also biopsied
 - Bleeding typically occurs at the biopsy sites and is controlled with a topical substance- may later be seen as a slight black or brown discharge

Possible Pap Smear Results

- Normal
 - continue yearly pap smears
- *ASCUS (atypical squamous cells of undetermined significance)*
 - Requires colposcopy if high risk HPV is also present
 - Colposcopy is often normal
- *LGSIL (low grade squamous intraepithelial lesion)*
 - Requires colposcopy
 - If confirmed, does not require treatment in most
- *HGSIL (high grade squamous intraepithelial lesion)*
 - Requires colposcopy
 - If HGSIL confirmed, treated in offices with *LEEP* (see below)
 - If colposcopy is normal, requires a *cold knife cone biopsy*
 - 50% will found to have serious disease in the canal
- *CIS (carcinoma in-situ)*- cancer that has not yet invaded
 - Requires colposcopy
 - If confirmed, treated in office with *LEEP*
 - If colposcopy is normal, requires a cold knife cone biopsy
- *AGUS (atypical glandular cells of undetermined significance)*
 - Requires colposcopy
 - Much more serious than ASCUS
 - Disease found in 50%
 - If colposcopy is normal, requires cold knife cone biopsy, biopsy of the uterine cavity and even, depending on age, possible hysterectomy with removal of ovaries & fallopian tubes

Cold Knife Cone Biopsy (CKC)

- Required for large difference between pap smear and colposcopy
- Done in the operating room
- Involves removal of an up to a one inch deep cone shaped section of the cervix
 - Removes part of the canal- may contain disease that cannot be sampled by colposcopy

LEEP

- Loop Electrosurgical Excision Procedure
- Office procedure used to treat HGSIL & CIS
- The cervix is first numbed with lidocaine
- A thin, low-voltage electrified wire is then used to remove the abnormal tissue

When to Start Pap Smears then How Often should they be repeated?

- In adolescents, begin three years after becoming sexually active
- Begin at age 21 even if never sexually active
- Do not start routine HPV screening until age 30 years
- If pap smear is normal, continue yearly pap smears until 30 years old
- At age 30, if in stable relationship, may drop to every 3 years if
 - Pap smear is normal &
 - HPV is negative

Gardasil

- A commercial vaccine given to both adolescent boys and girls to prevent infection with both the most common types of high risk HPV and HPV strains that cause genital warts
- Since not 100% , even those vaccinated with Gardasil should still have regular Pap Smears

When can A Woman Safely Discontinue Pap Smears?

- After hysterectomy if
 - Cervix removed during hysterectomy &
 - All previous pap smears were normal &
 - In stable relationship
- After age 65 – 70 years if in stable, long term relationship
 - Resume pap smears for any new sexual encounter

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