CERVICAL CANCER Questions & Answers

Q1: What is an immune system?

The human immune system is like the body’s internal military defense system. There are many parts to the immune system (different cells, proteins and chemicals) and they work together in a very complicated, but usually coordinated way to eliminate foreign organisms or cells. Antibodies are things that generally block entry of the bacteria or virus into the human cell(s).

Q2: What is a vaccine?

A vaccine generally contains either living organisms or, more commonly, non-living parts of the bacteria or viruses.

A healthy human body makes antibodies in response to the vaccine or in response to the natural infection.

Once someone is vaccinated, it means that their body has produced “antibodies” that usually block entry of the bacteria or virus into the human cell(s).

Depending on the type of vaccine, the protection or amount of “blocking effect” lasts from 5 years to 15+ years. Science is continually giving us more information about how long vaccines actually last, so expect the recommendations for vaccinations and booster shots to change as new evidence becomes available.

Q3: What is human papillomavirus (HPV)?

A virus is a type of organism that needs to live inside of cells in order to survive. Like humans and other organisms, viruses contain building blocks and road maps that give instruction on how to make more of itself and how to live (RNA or DNA). DNA viruses become a part of the human cell and can “take control” of the cell if certain factors exist. In a small percentage of people, some DNA viruses can cause cancer.

Human papillomavirus is a family of DNA viruses that live in skin or mucosal tissues (anogenital, mouth or airways). They generally cause warts and there are over 100 sub-types of HPV.

The virus is covered by an outer shell (capsid). This shell interacts with the human skin or genital cells. If the immune system is not able to defend against this outer shell, then the virus will enter and begin making more of itself and start to cause problems. The HPV vaccine is
designed to help the vaccinated person’s immune system block the entry of this capsid/virus into their cells.

Q4:
What types of diseases are caused by HPV?

Papilloma essentially means warts. HPV very commonly causes skin warts. Very ill people can get warts in their lungs. Anogenital warts are also caused by HPV (warts in the private parts). Some of the HPV also causes cervical cancer. These are known as “oncogenic” or “cancer-causing” HPV types.

Q5:
What types of treatments are available for the warts caused by HPV?

Surgical (cutting it off)

Destruction with cold, heat, lasers or other chemicals

Application of medicines that cause the human immune system to fight the virus more effectively (immune modulators)

Q6:
Is there a cure for HPV?

NO!

Once you have it, it stays in your body. Even if the wart is destroyed, the virus remains in the body and can come back when the immune system is weakened and when a woman is pregnant.

Q7:
How does it cause cancer?

Persistent infection with the oncogenic types of HPV leads to cancers of the cervix, anus, vagina, vulva, penis, mouth and sinuses.

If the immune system is not able to clear the infection, then the virus continues to reproduce in the cells. Over time, abnormalities in the cells occur (see abnormal pap smears). The immune system has a harder time fighting abnormal cells. If not treated, these cells become more abnormal and turn into cancer. Once a cancer starts, the immune system is not able to fight it off alone.
Q8:
How long does it take to develop cancer if the body is not able to fight off the initial infection with the cancer-causing HPV?

Generally, it takes 10-20 years for a HPV-related cancer to develop

Fortunately, there are precancerous stages that are easy to treat. These precancerous abnormalities are what we look for in cervical cancer screening.

Q9:
Which subtypes of HPV cause genital warts, abnormal pap smears and cervical cancer?

Genital warts: HPV 6 and 11 cause about 90%

Low-grade pap smear abnormalities (LSIL): 16, 18, 45, 31 cause over 50% of the low grade lesions. Types 6 and 11 cause about 12%

High-grade pap smear abnormalities (HSIL): 16, 18, 45, 31 cause about 65% of the high grade lesions

Cervical cancers: HPV 16 ≈ 50% ; HPV 18 ≈ 20% ; HPV 45 ≈ 5% ; HPV 31 ≈ 5%. There are at least 11 other “high-risk” types of HPV known to cause cancer.

Q10:
Can people be infected with more than one type of HPV?

YES

A healthy person will make antibodies only against that specific type of HPV, but those antibodies usually do not last more than 3 years

In some populations, over 50% of people are infected with more than one HPV type.

Q11:
What are important components of a public health approach to cervical cancer awareness, prevention and early detection?
Effective public awareness and education

Patient willingness and ability to come in for screening

Enough health providers trained to do education, counseling and screening

Trained health providers based in the communities as opposed to one centralized location

Private areas, appropriate supplies and equipment to perform the cervical cancer screening

Resources to perform or analyze the screening test (personnel, facilities, mailing/shipping/contractual costs (if not analyzed locally))

Information tracking system to ensure that test results are recorded, shared with the appropriate health provider, that the patient can be contacted if an abnormality is found and/or reminded to come in for her next check-up

A plan to maintain and sustain the equipment, supplies and health workforce so that there is enough to do screening according to the most appropriate recommendations for your jurisdiction.

Q12:
RISK FACTORS: Who can get cervical cancer?

People infected with the oncogenic virus types who are not able to clear the infection AND who are not able to get screening or treatment of precancer lesions. Even with tests that can tell us what type of HPV virus, we cannot predict if a person’s body will develop the cancer

About 89% of worldwide cervical cancer cases occur in developing countries with inadequate screening and treatment programs

More cervical cancer tends to occur between age 15-25 years old OR in the 50-70 year olds

In unscreened populations, cervical cancer tends to be diagnosed earlier and at more advanced stages

The following are other risk factors and behaviors which make it more likely to develop cervical cancer:

Multiple sexual partners

Persistent infection with multiple types of HPV

Chlamydia infections
Tobacco use

Multiple births

Long-term use of oral contraceptives

HIV infection

Other cancers (weakened immune system)

Family history of cervical cancer

**Q13:** How do I protect myself from getting HPV infection?

Condom used during sex can be helpful, but only if the warts are on the part covered by the condom.

A spermicide/special detergent (SDS) combination could be helpful in preventing transmission of HPV.

Spermicides alone do not protect against any form of sexually transmitted infection.

The HPV vaccine presently available protects against 4 of the most common subtypes of HPV. However, there are at least 13 other subtypes that cause cervical cancer (that are not in the Gardasil) and over 100 other subtypes that cause warts.

**Q14** What usually happens once someone gets infected with HPV?

About 75-90 percent of HPV infections will clear within a year of initial infection.

If someone has persistent infection with a high-risk HPV type for more than 2 years, they have a higher cancer of progressing to cervical cancer. For someone persistently infected with HPV-16 after 3-5 years, they have a 40% chance of developing a precancer lesion.

Precancer is more likely in women infected with more than one type.

Early precancer changes can often be detected within 5 years from infection.

If someone has an untreated precancer, they have a 20-30% chance of developing cervical cancer within 5-10 years.
Q15
What is cancer screening?

Screening is a public health intervention used on a population at risk, or target population. Screening is not undertaken to diagnose a disease, but to identify individuals with a high probability of having or of developing a disease. Women targeted for screening for cervical cancer may actually feel perfectly healthy and may see no reason to visit a health facility. For screening to be effective, accurate, easy to apply, simple, inexpensive, culturally acceptable, and safe, the disease screened must be common and should have a detectable preclinical stage, for which effective treatment should be available; a large proportion of people at risk should participate in screening, investigations and treatment; the local health services infrastructure should be sufficiently developed to provide the diagnostic, treatment and follow-up services.

Screening programmes will only be successful if the following elements are present:

- high coverage (80%) of the population at risk of the disease;
- appropriate follow-up and management for those who are positive on screening.

Efforts to increase coverage will be wasted if those who test positive are not followed up correctly;

Effective links between programme components (e.g. from screening to diagnosis and treatment);

High quality of coverage, screening tests, diagnosis, treatment, and follow-up;

Adequate resource

Q16
What are the U.S. recommendations for cervical cancer screening?

The following is a summary of various US organizations, because different organizations recommend different intervals. In general, cervical cancer screening should be done in any woman who has been sexually active for three or more years or is 21 years of age. The cervical cancer screening should be performed annually until around age 30, then can be spaced out to every 2-3 years if the female is in a monogamous/low risk relationship. Cervical cancer screening can stop at age 65-70 if the patient has had a normal pap smear within the past 5-10 years. Additionally, cervical cancer does not need to be done in a woman who has had a hysterectomy for a problem other than cancer (fibroids, bleeding after child birth, endometriosis, etc.)
Q17
Do I still need to get screened for cervical cancer if I received the vaccine?

Absolutely.

The vaccine is not 100% effective in preventing cervical cancer caused by the types in the vaccine. Additionally, the protection may not last forever and it does not protect against 30-50% of the other HPV types that cause cervical cancer.

It is possible for a vaccinated person to develop cervical cancer from another type of HPV. Because of this and because the vaccine is not perfect, educational programs, messages and public expectations need to be managed accordingly.

Cervical cancer screening and treatment precancer lesions is the only protection against the types of virus not in the vaccine and against existing infection with high-risk HPV types.

Q18
How do I get checked (screened) for cervical cancer?

Screening requires collection of cervical cells. This generally means lying on an examination table with the legs spread apart so that a trained health provider can insert a speculum into the vagina. This is important so that they can see the cervix and collect the sample properly. There are other self-sampling kits which are being researched. These can be done in the privacy of your home.

Pap smears are used most commonly in the U.S. and are required for CDC-funded Breast and Cervical cancer screening programs. There are several ways to do pap smears (conventional slide or liquid-based). Each has its advantages. Liquid-based pap smears are more costly to process, but can give more consistent results regardless of the health provider’s skill. Liquid-based pap smears might reduce the need to repeat a pap because of an inadequate sample. Additionally, HPV-typing can be done on liquid-based samples.

Q19
How long and how often should I get regular cervical cancer screening?

In general, women should be screened regularly (at least every 2-3 years) from 3 years after the onset of sexual activity until age 65.

How does my doctor decide what type of cervical cancer screening to offer?

The type of test depends on what is available, what the insurance company will pay for and/or what the standard of care is in that community.
Q20
What are the different treatment options (and possible side effects) for cervical cancer?

Depending on the stage of cancer and your other health conditions (such as severe heart or kidney disease), the doctor may recommend one or more of the following:

- Surgery (hysterectomy for stage IA1; radical hysterectomy and pelvic lymph node dissection for stage IA2-IIA; complete removal of most of the pelvic organs, including the bladder and parts of the rectum and colon for recurrent cervical cancer)
- Radiation therapy: beam or internal radiation to stop the cancer cells from growing
- Chemotherapy: medications that stop the cancer cells from growing
- Palliative treatment: aimed at relieving symptoms, not aimed at curing the cancer

For precancer and early cancers (Stage 0 or IA), surgery can be done by freezing (precancer or preinvasive cancer only), laser (preinvasive cancer), conization (precancer or early cancer).

Please refer to the American Cancer Society information for more detailed information on treatment options and side effects.

Q21
Once I am diagnosed with cervical cancer, what additional tests will be required?

Staging refers to the process of finding out how far a cancer has spread. This is important to direct appropriate treatment.

Cervical cancer staging is based on how big and deep the cancer extends into the cervix and surrounding tissues.

Depending on the clinical examination, additional tests to look into the bladder and rectum may be required. Sometimes a CT scan is required to look for distant metastases.

Q22
What is the cervical cancer vaccine (Gardasil)?

Gardasil targets HPV 6, 11, 16 and 18
At best, it can protect against 90% of genital warts and 70% of cervical cancers

The best efficacy is in girls before they start having sex

It must be given in 3 doses, ideally over a 6 month period

It was primarily tested in girls age 9 – 26, but has also shown to be effective in preventing new infections in women up to age 45.

A recent study published in the New England Journal of Medicine, August 21, 2008, questions the cost-effectiveness of giving the vaccine to women over 18 years of age.

If someone is already infected with one of the virus types in the vaccine, the vaccine will still help to protect against the other types.

The vaccine does not treat existing HPV disease nor does it promote regression or healing of existing HPV disease.

Q23
**How long does the vaccine protect women against the HPV?**

Available research shows a good protection up to 5 years. Studies are being done now to determine how effective the vaccine is at 10 years after vaccination. Mathematical modeling suggests long-term efficacy.

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RESOURCES AND REFERENCES


Centers for Disease Control and Prevention website: Cervical cancer Centers for Disease Control and Prevention website: HPV vaccination

American Cancer Society website

National Cancer Institute website

IARC Screening website

2006 WHO Comprehensive Cervical Control: Guide to essential practice