

## **Immunization for Preteens & Teens**

Parents can do a number of things to ensure a healthy future for their child. One of the most important actions parents can take is to make sure their children are up to date on their vaccines. Following the recommended immunization schedule provides the best protection from serious, and sometimes deadly, diseases.

Preteens and teens need Tdap (tetanus, diphtheria, pertussis) vaccine, quadrivalent meningococcal conjugate vaccine, and HPV (human papilloma virus) vaccine to protect against serious diseases. A yearly flu vaccine is also recommended for all children 6 months and older.

Preteens and teens need vaccines because they are at greater risk for certain diseases like meningitis, septicemia (blood infection), and the cancers caused by HPV infection. By making sure vaccines are up to date, parents can send their preteens and teens to middle school and high school – and also off to college – with protection from vaccine-preventable diseases.

Being vaccinated not only helps protect adolescents from getting certain diseases like the flu and whooping cough (pertussis), it also helps stop the spread of these diseases to others in their family, classroom and community. This is especially important to help protect babies too young to be fully vaccinated, people age 65 and older, and people with weakened immune systems due to cancer, heart disease or other health conditions.

#### CONTENTS \_\_\_\_\_

Introduction • 2 Vaccine Information • 4 Frequently Asked Questions • 7

# Vaccines are important for protecting children from serious, and sometimes deadly, diseases.

- Preteens and teens are at risk for diseases like meningitis and HPV cancers and need the protection of vaccines to keep them healthy.
- Vaccines are recommended for preteens and teens because:
  - Some of the childhood vaccines wear off over time, so adolescents need shots to stay protected from serious diseases like tetanus, diphtheria, and pertussis (whooping cough).
  - As children get older, they are at greater risk of getting certain diseases like meningitis, septicemia (blood infection), and infections that can lead to HPV cancers.
  - Specific vaccines, like HPV vaccine, should be given during the preteen (11 to 12) years because they provide more protection when given at that age.
  - Vaccines not only help protect preteens and teens from serious diseases, but also their siblings, friends and the people who care for them, like their parents or grandparents.
- Vaccines do more than protect your child. Some diseases, like whooping cough and the flu, can be deadly for newborns or infants who are too young to be vaccinated themselves. You can help protect our littlest community members from being exposed to vaccine-preventable diseases by making sure your child gets all the vaccines recommended.
- Vaccines are among the safest and most cost-effective ways to prevent disease. Protecting your children from preventable diseases will help keep them healthy and in school.
- When a child comes down with a disease such as whooping cough or the flu, they may
  miss a lot of school while recovering. A sick child may also mean that a parent may miss
  work or other important events.
- Schools are a prime venue for transmitting many vaccine-preventable diseases, and school-age children can further spread disease to their families and others with whom they come in contact.

# Vaccines are recommended throughout our lives. Following the recommended schedule offers the best protection.

- Vaccines offer the best-known protection against many devastating illnesses. Following the recommended immunization schedule is the best way to ensure your preteens and teens are protected from deadly diseases.
- There is no science behind alternative immunization schedules. Delaying or withholding vaccines only increases the amount of time that children are vulnerable to diseases.
- The vaccine schedule is based on the best scientific information available and provides doctors with information on administration of each vaccine.

# Talk to your doctor or other health care professional to make sure your children get the vaccinations they need when they need them.

- As you get ready to send your preteens and teens back to school, educate yourself. Learn about the benefits and possible side effects of vaccinations.
- If you haven't already, check your child's immunization record and schedule a visit to their doctor or clinic. Doing so now will avoid a potential last minute rush and will help make sure there are no surprises on the first day back to school.
- Most schools require children to be up to date on vaccinations before starting school in order to protect the health of all students.
- If you are unsure of your state's school immunization requirements, check with your child's doctor, school, or local health department.
- Take advantage of any visit to the doctor check-ups, sick visits, even physicals for sports, camps or college to ask the doctor about what vaccinations your child needs.
- Vaccines are thoroughly tested before licensing and carefully monitored even after they are licensed to ensure that they are very safe. The benefits of vaccination far outweigh any potential risk of side effects.
- Vaccines are among the safest and most cost-effective ways to prevent disease. They
  could help reduce time missed from school due to illness and save money on expensive
  treatments or hospitalizations

## **Vaccine Information**

#### HPV vaccine is cancer prevention.

- HPV is short for human papilloma virus. There are more than 40 HPV types that infect human mucosal surfaces, mostly the genitals and mouth/throat. Although most infections will go away naturally, some infections that don't go away can cause cancers in men and women.
- HPV vaccine is a life-saving vaccine that protects against HPV infections that cause most cases of cervical cancer and many cases of other cancers, including cancers of the anus, penis, vulva, vagina, and oropharynx (back of the throat, including the base of the tongue and tonsils).
- Preteens need the HPV vaccine now to prevent HPV cancers later in life.
- About 79 million people in the U.S., most in their teens and early 20s, are infected with HPV. About 14 million people become infected every year.
- CDC, the American Academy of Pediatrics and the American Academy of Family Physicians strongly recommend HPV vaccination at ages 11 to 12 for the best protection against HPV cancers.
- HPV vaccine protects against HPV infections that cause HPV cancers and disease. For teens who have not started the series at 11 or 12 years, it's not too late. It is still beneficial to get the vaccine as soon as possible during the teen years.
- HPV vaccine works best when it is given to boys and girls at age 11 or 12 years. For HPV vaccines to be effective, they should be given before one is exposed to HPV. Very little exposure to HPV infection occurs at 11 and 12 years of age. Also, HPV vaccine produces the most antibodies, or infection-fighting proteins, during the preteen years.
- The HPV vaccine has a very good safety record. Like any vaccine or medicine, HPV vaccines can cause side effects. Common side effects are pain, redness, or swelling in the arm where the shot was given, as well as dizziness, fainting, nausea and headache
- The benefits of HPV vaccination far outweigh any potential risk of side effects.
- Take advantage of any visit to the doctor checkups, sick visits, even physicals for sports, camps, or college – to ask the doctor about what vaccines your preteens and teens need.

For more information about HPV vaccine: <a href="www.cdc.gov/vaccines/who/teens/vaccines/hpv.html">www.cdc.gov/vaccines/who/teens/vaccines/hpv.html</a>

#### Influenza: Get a flu vaccine every year.

- The single best way to prevent the flu is to get the flu vaccine, which protects against the influenza viruses that are most likely to cause illness that year.
- Everyone 6 months and older including preteens and teens should get a flu vaccine every year, both to protect themselves and to help keep from spreading illness.
- Flu vaccines protect against flu illness and the other health problems that flu can cause, like pneumonia, dehydration (loss of body fluids), bronchitis, and even worsening of existing conditions like asthma or diabetes.
- It takes about two weeks after vaccination for antibodies to develop for protection against influenza. Children should get the flu vaccine every year soon after it becomes available in their community. Ideally they should be vaccinated by October in order to increase their chances of being protected once flu begins spreading in their community.
- Even healthy preteens and teens can get very sick from the flu and spread it to others. While all preteens and teens should get a flu vaccine, it's especially important for those with chronic health conditions such as asthma, diabetes and heart disease to get vaccinated.
- Flu seasons are unpredictable and can be severe. Annual flu vaccination should begin soon after vaccine becomes available, and continue throughout the flu season. Flu season can begin as early as October and last as late as May. Seasonal flu activity usually peaks between December and February.
- Flu vaccines will not protect against flu-like illnesses caused by non-influenza viruses.
- Complications of flu can include bacterial pneumonia, ear infections, sinus infections, dehydration and worsening of chronic medical conditions, such as congestive heart failure, asthma, or diabetes.
- The seasonal flu vaccine prevented more than 40,000 flu-associated deaths in the United States during a nine year period from 2005-06 through 2013-2014.

For more information about the flu vaccine: <a href="http://www.cdc.gov/vaccines/who/teens/vaccines/flu.html">www.cdc.gov/vaccines/who/teens/vaccines/flu.html</a>

### Tdap: Help keep whooping cough from spreading.

- Tdap vaccine is a booster recommended at age 11 or 12 to help protect against three serious diseases: tetanus, diphtheria, and pertussis (also called whooping cough)It is also recommended for any teen (13 to 18 years old) who hasn't had this shot yet.
- The Tdap vaccine takes the place of one tetanus booster (Td vaccine).

- Tdap vaccine is especially important for older children and adults who will have close contact with babies younger than 1 year.
- Tetanus, diphtheria, and whooping cough are all caused by bacteria.
  - Both diphtheria and whooping cough are spread from person to person.
  - Tetanus enters the body through cuts, scratches or wounds.
- More than 28,000 cases of whooping cough were provisionally reported to CDC during 2014Data show that more than 48,000 cases of whooping cough occurred in 2012, a nearly 60-year high.
- CDC's current estimate is that Tdap vaccination protects about 65 out of 100 adolescents who receive it.

For more information about Tdap vaccine: www.cdc.gov/vaccines/who/teens/vaccines/tdap.html

# Quadrivalent Meningococcal Conjugate Vaccine: Protection against meningococcal disease.

- The quadrivalent meningococcal conjugate vaccine is recommended for all preteens at age 11 or 12 for protection against some of the bacteria that cause meningococcal disease. The two most severe and common illnesses caused by meningococcal disease are infections of the fluid and lining around the brain and spinal cord (meningitis) and the bloodstream (septicemia or bacteremia).
- Meningococcal disease can be very serious, even fatal.
- A second shot is recommended for teens at age 16 to continue providing protection when their risk for meningococcal disease is higher.
- Teens who didn't receive quadrivalent meningococcal conjugate vaccine for the first time until age 13 through 15 years will also need a second dose at 16.
- Teens who haven't received any quadrivalent meningococcal conjugate shots should get one as soon as possible.
- If your teen missed getting the vaccine altogether, ask his or her health care professional about getting it now.

For more information about the quadrivalent meningococcal conjugate vaccine: <a href="http://www.cdc.gov/vaccines/who/teens/vaccines/mening.html">http://www.cdc.gov/vaccines/who/teens/vaccines/mening.html</a>

## **Frequently Asked Questions**

#### **HPV Vaccine**

#### Why is HPV vaccine needed?

HPV vaccine is needed because it prevents cancer. About 79 million Americans are infected with human papillomavirus, or HPV. Although most HPV infections will go away on their own, some HPV infections can lead to cancer. HPV vaccine is safe, effective, and can protect people from infection with the types of HPV that can cause certain cancers.

#### How many types of HPV are there?

More than 40 HPV types can infect males and females. Most people who become infected with HPV do not know they have it.

#### How common is HPV?

About 79 million Americans, or one in four, are infected with HPV. About 14 million people become newly infected each year. HPV is very common. In fact, it is the most common sexually transmitted infection in the U.SHPV is so common that nearly all sexually active men and women will get at least one type of HPV at some point in their life. Most people never know that they have been infected and may give HPV to a partner without knowing it.

#### If HPV infection is so common, is it really that bad?

Most people with HPV never develop symptoms or health problems. Sometimes, however, HPV infections will persist and can cause certain cancers and other diseases. Diseases that can be caused by HPV include:

- Genital warts (warts on the genital areas)
- · Cervical cancer (cancer on a woman's cervix)
- A type of head and neck cancer called oropharyngeal cancer (cancer in the back of the throat, including the base of the tongue and tonsils) in women and men
- Anal cancer (cancer on the anus) in women and men
- Vulvar and vaginal cancer (cancer on the vulva or vagina) in women
- Penile cancer (cancer on the penis) in men

#### How many people get cancer and/or genital warts from HPV?

Every year approximately 17,600 women and 9,300 men are affected by cancers caused by HPV. About 180,000 women and 160,000 men are affected by genital warts caused by HPV every year. Also, about one in 100 sexually active adults in the U.S. have genital warts at any given time.

#### How do people get HPV?

People get HPV from another person during sexual activity. Most of the time people get HPV from having vaginal and/or anal sex. Men and women also can get HPV from having oral sex and other sex play. A person can get HPV even if their partner (straight or same-sex) doesn't have any signs or symptoms of HPV infection. A person can have HPV even if years have passed since he or she had sexual contact with an infected person. Most people do not realize they are infected. They also don't know that they may be passing HPV to their sex partner(s)It is also possible for someone to get more than one type of HPV.

#### What are some other ways someone could get HPV?

It's not very common, but sometimes a pregnant woman with HPV can pass it to her baby during delivery. In these cases, the child can develop recurrent respiratory papillomatosis, a rare condition in which warts caused by HPV (similar to genital warts) grow in the throat.

#### Can you get HPV from the toilet seat?

There haven't been any cases of people getting HPV from surfaces in the environment, such as toilet seats. However, someone could be exposed to HPV from objects (such as sex toys) shared during sexual activity if the object has been used by an infected person.

#### Who should get HPV vaccine?

All girls and boys who are 11 or 12 years old should get the recommended series of HPV vaccine. Teen boys and girls who did not get the vaccine when they were younger should get it now. Young women can get HPV vaccine through age 26, and young men can get vaccinated through age 21The vaccine is also recommended for:

- gay and bisexual young men (or any young man who has sex with men) through age 26
- young men with weakened immune systems (including HIV) through age 26, if they did not get HPV vaccine when they were younger

#### Why is the vaccine recommended at such a young age?

For HPV vaccines to be effective, they should be given before one is exposed to HPV. Preteens should complete the HPV vaccine series long before they begin *any* type of sexual activity and are exposed to HPV. Also, HPV vaccine produces the most infection-fighting proteins, or antibodies, during the preteen years.

#### Should boys get HPV vaccine too?

Two HPV vaccines—Gardasil® and Gardasil® 9—are also recommended for boys. These vaccines help prevent boys from getting infected with the types of HPV than can cause cancers of the throat, penis, and anus. The vaccine also prevents genital warts. When boys are vaccinated, they are less likely to spread HPV to their current and future partners.

#### How well does HPV vaccine work?

The HPV vaccine works extremely well. Clinical trials showed the vaccines provided close to 100% protection against pre-cancers and for Gardasil® and Gardasil® 9 genital warts. Since the vaccine was first recommended in 2006, there has been a 56% reduction in vaccine type HPV infections among teen girls in the U.S., even with very low HPV vaccination rates. Research has also shown that fewer teens are getting genital warts. In other countries such as Australia where there is higher HPV vaccination coverage, HPV vaccine has also reduced the number of cases of pre-cancers of the cervix in young women in that country. Genital warts have also decreased dramatically in young women and men (85% and 71% respectively) in Australia since the HPV vaccine was introduced.

#### Is the vaccine still effective if you have had sexual intercourse?

Even if someone has had sex already, they should still get HPV vaccine. Even though HPV infection usually happens soon after someone has sex for the first time, a person might not be exposed to any or all of the HPV types that are in the vaccine. Males and females in the age groups recommended for vaccination are likely to get at least some protection from the vaccine.

#### How long will protection from the HPV vaccine last?

HPV vaccine offers long-lasting protection against HPV infection and HPV- associated disease. Protection produced by HPV vaccine lasts at least eight to 10 years according to data from clinical trials and ongoing research. There is no evidence to suggest that HPV vaccine loses the ability to provide protection over time.

#### Will the vaccine require a booster?

In the U.S., the HPV vaccine series requires three shots given over six months; booster doses are not recommended. Like all vaccines, HPV vaccine is monitored continually to make sure it remains safe and effective. If protection from HPV vaccine doesn't last as long as it should, then the Advisory Committee on Immunization Practices would review the data and determine if a booster shot should be recommended.

# Does someone have to restart the HPV vaccine series if too much time passes between the shots?

The Advisory Committee on Immunization Practices recommends that all three shots of the HPV vaccine series be given over six month. The second shot should be given one to two months after the first, and the third dose should be given six months after the first dose. However, if someone waits longer than that between shots, they do not need to restart the series. Even if it has been months or years since the last shot, the series should still be completed.

#### How do we know the HPV vaccine is safe?

The United States currently has the safest, most effective vaccine supply in history. Years of testing are required to ensure the safety of vaccines before they are made available for use in the United States. This process can take 10 years or longer.

Once a vaccine is in use, CDC and the Food and Drug Administration (FDA) monitor any associated side effects or possible side effects (adverse events) through the Vaccine Adverse Event Reporting System and other vaccine safety systems.

All three HPV vaccines – Cervarix, Gardasil, and Gardasil 9 – went through years of extensive safety testing before being licensed by FDA. Cervarix was studied in clinical trials with more than 30,000 females. Gardasil trials included more than 29,000 females and males, and Gardasil 9 trials included more than 13,000 females and males. No serious safety concerns were identified in these clinical trials. About 67 million doses of quadrivalent HPV vaccine were distributed in the U.S. from June 2006 (when the vaccine was first licensed by FDA) through March 2014.

FDA only licenses a vaccine if it is safe, effective, and the benefits outweigh the risks. CDC and FDA continue to monitor HPV vaccines to make sure they are safe and beneficial for the public.

#### What are the side effects of the vaccine? How often do side effects occur?

Several mild to moderate side effects are known to occur with the HPV vaccine. These do not last long and go away on their own. They include fainting, dizziness, nausea, headache, and pain, swelling or redness in the arm where the shot was given.

These side effects vary in how often they occur depending on which HPV vaccine is received.

		Bivalent	Quadrivalent	9-valent
Reactions in	Pain	± 9 people in 10	± 8 people in 10	± 9 people in 10
the arm where				
the shot was	Redness or	± 1 person in 2	± 1 person in 4	± 1 person in 3
given	swelling			
Fever	99.5° F	± 1 person in 8	-	-
	or higher			
	Mild	-	± 1 person in 10	± 1 person in 10
	(100° F)			
	Moderate	-	± 1 person in 65	±t 1 person in 65
	(102° F)			
Other problems	Headache	± 1 person in 2*	± 1 person in 3	± 1 person in 3
	Nausea	± 1 person in 4	-	-
	Vomiting			
	Diarrhea or			
	abdominal pain			

\*Headache or fatigue

Brief fainting spells and related symptoms (such as jerking movements) can happen after any medical procedure, including vaccination. Recent data suggest fainting after any vaccination is more common in adolescents. Sitting or lying down for about 15 minutes after a vaccination can help prevent fainting and injuries caused by falls. Tell your doctor if the patient feels dizzy or light-headed, or has vision changes or ringing in the ears. Life-threatening allergic reactions from vaccines are very rare. If they do occur, it would be within a few minutes to a few hours after the vaccination.

#### Will the vaccine cause cancer?

The HPV infection cannot cause HPV infection or cancer. The HPV vaccine is made from one protein from the virus that cannot cause HPV infection or cancer. Not receiving HPV vaccine at the recommended ages can leave one vulnerable to cancers caused by HPV.

#### Will the vaccine cause fertility issues?

No. There are no data that suggest getting HPV vaccine will have an effect on future fertility. In fact, getting vaccinated and protecting against cervical cancer can help women have healthy pregnancies and healthy babies.

*Not* getting the HPV vaccine leaves people vulnerable to HPV infection. For women, this could lead to cervical cancer. The treatment of cervical cancer (hysterectomy, chemotherapy, and/or radiation, for example) could leave a woman unable to have children. Even the treatment of cervical pre-cancers caused by HPV can cause preterm labor or problems at the time of delivery.

### **Tdap Vaccine**

# What is whooping cough (pertussis)? Why do preteens and teens need to be protected from it?

Pertussis – also known as whooping cough – is a highly contagious respiratory disease known for uncontrollable violent coughing, which often makes it hard to breathe. In the United States most vaccine-preventable diseases are rare, but this is not true with whooping cough. It still causes outbreaks.

Young children are vaccinated against whooping cough with a vaccine called DTaP. Childhood coverage with this vaccine is very high and vaccinating infants is absolutely essential because, for them, whooping cough can be deadly.

But protection from the childhood vaccine fades over time. Whooping cough can make teens and adults quite ill, with a serious cough that can last for weeks and be quite debilitating. While they are ill, people can easily spread the disease.

So at age 11 or 12, children need one dose of Tdap vaccine, even if they were completely vaccinated in early childhood.

Adolescents older than 11 or 12 and adults who have never received a dose of Tdap are also recommended to receive a dose of Tdap. This dose provides a boost in immunity for whooping cough.

#### How many cases of whooping cough were reported last year?

In 2014, more than 28,000 cases were provisionally reported.

#### Why have we seen more whooping cough in our state recently?

The last peak year was in 2012 when more than 48,000 cases were reported nationally. These peaks happen because the bacteria start spreading around more as people's immunity wears off again. Even though our current whooping cough vaccines don't provide lifelong protection, on-time vaccination can still help protect young children from whooping cough. If it weren't for vaccines, we'd see many more cases.

#### Why are we seeing more whooping cough over the last 20 or so years?

CDC thinks a combination of factors are contributing to the rise in whooping cough cases – more disease, increased recognition by doctors, better lab tests and increased surveillance and reporting. Also, immunity provided by acellular whooping cough vaccines fades more quickly.

CDC's current estimate is that Tdap vaccination protects against whooping cough in about 65% of adolescents who receive it, but that protection fades over time.

Adolescents who get Tdap and still get whooping cough have fewer coughing fits, shorter illness, and are less likely to suffer from disease complications.

### **Quadrivalent Meningococcal Conjugate Vaccine**

#### Why is the quadrivalent meningococcal conjugate vaccine important?

Meningococcal disease is a very serious bacterial infection. The two most severe and common forms of meningococcal disease are meningitis and septicemia (which is also sometimes called bacteremia). Meningitis is an infection of the fluid and lining around the brain and spinal cord that can lead to brain damage, hearing loss, learning disabilities, and death. Septicemia is a bloodstream infection that can lead to loss of an arm or leg, and death. That's why it is crucial for all preteens and teens to get two doses of the quadrivalent meningococcal conjugate vaccine.

# Why is quadrivalent meningococcal conjugate vaccine recommended for preteens and teens?

The risk for meningococcal disease increases in the preteen through teen and young adult years. Meningococcal disease can spread from person to person. The bacteria that cause this infection can spread when people have close or lengthy contact with someone's saliva, through kissing or coughing for example.

CDC recommends all preteens get the first shot when they are 11 or 12 years old, before they become teens and their risk is higher.

Since the occurrence of meningococcal disease increases during adolescence, a booster shot is recommended for teens at age 16 to continue providing protection when their risk for meningococcal disease is higher. Teens who received quadrivalent meningococcal conjugate vaccine for the first time at age 13 through 15 years will need a one-time booster dose at 16 through 18 years of age.

If a teenager missed getting the vaccine altogether, they should ask the doctor about getting it now.

## Flu Vaccine

#### Do preteens and teens need a flu shot?

CDC recommends that everyone 6 months of age and older get a flu vaccine every year as soon as the vaccine is available in their community, ideally by October. However, as long as flu viruses are circulating, vaccination should continue throughout the flu season, even in January or later.

It is especially important for people with chronic conditions like asthma or diabetes to get vaccinated to decrease their chances of having serious complications from the flu.