

Talk to your child's doctor or nurse about the vaccines recommended for their age.

	Flu <i>Influenza</i>	Tdap Tetanus, diphtheria, pertussis	HPV Human papillomavirus	Meningococcal		Pneumococcal	Hepatitis B	Hepatitis A		Inactivated Polio	MMR Measles, mumps, rubella	Chickenpox <i>Varicella</i>
				MenACWY	MenB							
7-8 Years	Green	Orange		Purple		Purple	Orange	Purple	Orange	Orange	Orange	Orange
9-10 Years	Green	Orange	Purple, Blue	Purple		Purple	Orange	Purple	Orange	Orange	Orange	Orange
11-12 Years	Green	Green, Orange	Green	Green, Orange		Purple	Orange	Purple	Orange	Orange	Orange	Orange
13-15 Years	Green	Orange	Orange	Orange		Purple	Orange	Purple	Orange	Orange	Orange	Orange
16-18 Years	Green	Orange	Orange	Green, Orange		Purple	Orange	Purple	Orange	Orange	Orange	Orange

**More information:**


Preteens and teens should get a flu vaccine every year.


Preteens and teens should get one shot of Tdap at age 11 or 12 years.


All 11-12 year olds should get a 2-shot series of HPV vaccine at least 6 months apart. A 3-shot series is needed for those with weakened immune systems and those age 15 or older.


All 11-12 year olds should get a single shot of a quadrivalent meningococcal conjugate vaccine (MenACWY). A booster shot is recommended at age 16.

Teens, 16-18 years old, **may** be vaccinated with a MenB vaccine.

 These shaded boxes indicate when the vaccine is recommended for all children unless your doctor tells you that your child cannot safely receive the vaccine.

 These shaded boxes indicate the vaccine should be given if a child is catching-up on missed vaccines.

 These shaded boxes indicate the vaccine is recommended for children with certain health or lifestyle conditions that put them at an increased risk for serious diseases. See vaccine-specific recommendations at [www.cdc.gov/vaccines/pubs/ACIP-list.htm](http://www.cdc.gov/vaccines/pubs/ACIP-list.htm).

 This shaded box indicates the vaccine is recommended for children not at increased risk but who wish to get the vaccine after speaking to a provider.



U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention

American Academy of Pediatrics



AMERICAN ACADEMY OF FAMILY PHYSICIANS  
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## Vaccine-Preventable Diseases and the Vaccines that Prevent Them

### **Diphtheria** (Can be prevented by Tdap vaccination)

Diphtheria is a very contagious bacterial disease that affects the respiratory system, including the lungs. Diphtheria bacteria can be passed from person to person by direct contact with droplets from an infected person's cough or sneeze. When people are infected, the bacteria can produce a toxin (poison) in the body that can cause a thick coating in the back of the nose or throat that makes it hard to breathe or swallow. Effects from this toxin can also lead to swelling of the heart muscle and, in some cases, heart failure. In serious cases, the illness can cause coma, paralysis, and even death.

### **Hepatitis A** (Can be prevented by HepA vaccination)

Hepatitis A is an infection in the liver caused by hepatitis A virus. The virus is spread primarily person-to-person through the fecal-oral route. In other words, the virus is taken in by mouth from contact with objects, food, or drinks contaminated by the feces (stool) of an infected person. Symptoms can include fever, tiredness, poor appetite, vomiting, stomach pain, and sometimes jaundice (when skin and eyes turn yellow). An infected person may have no symptoms, may have mild illness for a week or two, may have severe illness for several months, or may rarely develop liver failure and die from the infection. In the U.S., about 100 people a year die from hepatitis A.

### **Hepatitis B** (Can be prevented by HepB vaccination)

Hepatitis B causes a flu-like illness with loss of appetite, nausea, vomiting, rashes, joint pain, and jaundice. Symptoms of acute hepatitis B include fever, fatigue, loss of appetite, nausea, vomiting, pain in joints and stomach, dark urine, grey-colored stools, and jaundice (when skin and eyes turn yellow).

### **Human Papillomavirus** (Can be prevented by HPV vaccination)

Human papillomavirus is a common virus. HPV is most common in people in their teens and early 20s. It is the major cause of cervical cancer in women and genital warts in women and men. The strains of HPV that cause cervical cancer and genital warts are spread during sex.

### **Influenza** (Can be prevented by annual flu vaccination)

Influenza is a highly contagious viral infection of the nose, throat, and lungs. The virus spreads easily through droplets when an infected person coughs or sneezes and can cause mild to severe illness. Typical symptoms include a sudden high fever, chills, a dry cough, headache, runny nose, sore throat, and muscle and joint pain. Extreme fatigue can last from several days to weeks. Influenza may lead to hospitalization or even death, even among previously healthy children.

### **Measles** (Can be prevented by MMR vaccination)

Measles is one of the most contagious viral diseases. Measles virus is spread by direct contact with the airborne respiratory droplets of an infected person. Measles is so contagious that just

being in the same room after a person who has measles has already left can result in infection. Symptoms usually include a rash, fever, cough, and red, watery eyes. Fever can persist, rash can last for up to a week, and coughing can last about 10 days. Measles can also cause pneumonia, seizures, brain damage, or death.

### **Meningococcal Disease** (Can be prevented by meningococcal vaccination)

Meningococcal disease is caused by bacteria and is a leading cause of bacterial meningitis (infection around the brain and spinal cord) in children. The bacteria are spread through the exchange of nose and throat droplets, such as when coughing, sneezing or kissing. Symptoms include sudden onset of fever, headache, and stiff neck. Meningococcal bacteria also cause blood infections. About one of every ten people who get the disease dies from it. Survivors of meningococcal disease may lose their arms or legs, become deaf, have problems with their nervous systems, become developmentally disabled, or suffer seizures or strokes.

### **Mumps** (Can be prevented by MMR vaccination)

Mumps is an infectious disease caused by the mumps virus, which is spread in the air by a cough or sneeze from an infected person. A child can also get infected with mumps by coming in contact with a contaminated object, like a toy. The mumps virus causes swollen salivary glands under the ears or jaw, fever, muscle aches, tiredness, abdominal pain, and loss of appetite. Severe complications for children who get mumps are uncommon, but can include meningitis (infection of the covering of the brain and spinal cord), encephalitis (inflammation of the brain), permanent hearing loss, or swelling of the testes, which rarely results in decreased fertility.

### **Pertussis** (Whooping Cough) (Can be prevented by Tdap vaccination)

Pertussis is caused by bacteria spread through direct contact with respiratory droplets when an infected person coughs or sneezes. In the beginning, symptoms of pertussis are similar to the common cold, including runny nose, sneezing, and cough. After 1-2 weeks, pertussis can cause spells of violent coughing and choking, making it hard to breathe, drink, or eat. This cough can last for weeks. Pertussis is most serious for babies, who can get pneumonia, have seizures, become brain damaged, or even die. About half of children under 1 year of age who get pertussis must be hospitalized.

### **Pneumococcal Disease** (Can be prevented by pneumococcal vaccination)

Pneumonia is an infection of the lungs that can be caused by the bacteria called pneumococcus. This bacteria can cause other types of infections too, such as ear infections, sinus infections, meningitis (infection of the covering around the brain and spinal cord), and bacteremia (bloodstream infection). Sinus and ear infections are usually mild and are much more common than the

more serious forms of pneumococcal disease. However, in some cases pneumococcal disease can be fatal or result in long-term problems, like brain damage and hearing loss. Pneumococcal disease spreads when people cough or sneeze. Many people have the bacteria in their nose or throat at one time or another without being ill—this is known as being a carrier.

### **Polio** (Can be prevented by IPV vaccination)

Polio is caused by a virus that lives in an infected person's throat and intestines. It spreads through contact with the stool of an infected person and through droplets from a sneeze or cough. Symptoms typically include sore throat, fever, tiredness, nausea, headache, or stomach pain. In about 1% of cases, polio can cause paralysis. Among those who are paralyzed, About 2 to 10 children out of 100 die because the virus affects the muscles that help them breathe.

### **Rubella** (German Measles) (Can be prevented by MMR vaccination)

Rubella is caused by a virus that is spread through coughing and sneezing. In children rubella usually causes a mild illness with fever, swollen glands, and a rash that lasts about 3 days. Rubella rarely causes serious illness or complications in children, but can be very serious to a baby in the womb. If a pregnant woman is infected, the result to the baby can be devastating, including miscarriage, serious heart defects, mental retardation and loss of hearing and eye sight.

### **Tetanus** (Lockjaw) (Can be prevented by Tdap vaccination)

Tetanus is caused by bacteria found in soil, dust, and manure. The bacteria enters the body through a puncture, cut, or sore on the skin. When people are infected, the bacteria produce a toxin (poison) that causes muscles to become tight, which is very painful. Tetanus mainly affects the neck and belly. This can lead to "locking" of the jaw so a person cannot open his or her mouth, swallow, or breathe. Complete recovery from tetanus can take months. One to two out of 10 people who get tetanus die from the disease.

### **Varicella** (Chickenpox) (Can be prevented by varicella vaccination)

Chickenpox is caused by the varicella zoster virus. Chickenpox is very contagious and spreads very easily from infected people. The virus can spread from either a cough, sneeze. It can also spread from the blisters on the skin, either by touching them or by breathing in these viral particles. Typical symptoms of chickenpox include an itchy rash with blisters, tiredness, headache and fever. Chickenpox is usually mild, but it can lead to severe skin infections, pneumonia, encephalitis (brain swelling), or even death.

If you have any questions about your child's vaccines, talk to your healthcare provider.

# Clinician FAQ: CDC Recommendations for HPV Vaccine 2-Dose Schedules

After the October 2016 ACIP meeting, CDC now recommends that 11 or 12 year olds receive 2 doses of HPV vaccine instead of 3. Parents may have questions about this change. This resource helps explain the reasons for changing the HPV vaccine recommendation, and provides tips for talking with the parents of your patients about the change.

## What has changed in the new HPV vaccine recommendations?

In October 2016, CDC updated HPV vaccination recommendations regarding dosing schedules. CDC now recommends 2 doses of HPV vaccine for people starting the vaccination series before the 15th birthday. Three doses of HPV vaccine are recommended for people starting the vaccination series on or after the 15th birthday and for people with certain immunocompromising conditions.

CDC continues to recommend routine vaccination for girls and boys at age 11 or 12 years. The vaccination series can be started at age 9 years. CDC also recommends vaccination through age 26 years for females and through age 21 years for males. Males age 22–26 years may be vaccinated.

## What is the recommended 2-dose HPV vaccination schedule?

For girls and boys starting the vaccination series before the 15th birthday, the recommended schedule is 2 doses of HPV vaccine. The second dose should be given 6–12 months after the first dose (0, 6–12 month schedule).

**Answering parents' questions:** *We now recommend 2 doses of HPV vaccine for your son or daughter, instead of 3, if your child starts the series before their 15th birthday. I still recommend your child start the vaccination series by age 11 or 12 years for best protection against HPV. He or she will need a second dose 6-12 months after the first dose.*

## Who should still receive a 3-dose schedule?

CDC continues to recommend a 3-dose schedule for persons starting the HPV vaccination series on or after the 15th birthday, and for persons with certain immunocompromising conditions. The second dose should be given 1–2 months after the first dose, and the third dose should be given 6 months after the first dose (0, 1–2, 6 month schedule).

**Answering parents' questions:** *If your child starts the series after his or her 15th birthday or has certain health problems that weaken his or her immune system, he or she will still need the 3-dose series. We will give the second dose 1–2 months after the first, and the last dose 6 months after the first dose.*

## Why did CDC make the recommendation change to a 2-dose schedule?

Over the past year, CDC and the Advisory Committee on Immunization Practices (ACIP) have been reviewing data on 2-dose schedules, including results from studies of HPV vaccines that compared the antibody responses after 2 doses and 3 doses. These studies showed that the antibody response after 2 doses given at least 6 months apart to 9–14 year-olds was as good or better than the antibody response after 3 doses given to older adolescents and young adults, the age group in which efficacy was demonstrated in clinical trials.

**Answering parents' questions:** *CDC and ACIP (a group of experts that make vaccine recommendations) have been reviewing data on 2-dose HPV vaccination schedules for several months. The evidence showed that 2 doses of HPV vaccine given at least 6 months apart in younger adolescents were as good or better than 3 doses. These updated recommendations are an example of using the latest available evidence to provide your child with the best possible protection against serious diseases.*

**Answering parents' questions:** *Since your child received his/her first dose of the HPV vaccine before he/she was 15 years old, we'll only need to give 1 more dose.*

### **Why is the 2-dose schedule change recommended only for girls and boys age 9–14 years?**

ACIP makes recommendations based on the best available scientific evidence. Immunogenicity studies have shown that 2 doses of HPV vaccine given to 9–14 year-olds at least 6 months apart were as good, or better, than 3 doses given to older adolescents and young adults. Studies have not been done to show this in adolescents age 15 years or older.

**Answering parents' questions:** *The data we currently have from scientific studies (clinical trials) showed that 2 doses of HPV vaccine given at least 6 months apart were as good or better than 3 doses in children 9–14 years of age. Older adolescents haven't been studied in the same way, so we don't have information available for that age group. For that reason, the recommendation for number of doses has not been changed for older adolescents.*

### **What is the recommendation for persons with immunocompromising conditions?**

CDC recommends 3 doses of HPV vaccine (0, 1–2, 6 months) for immunocompromised people age 9 through 26 years. People whose immune responses might be lower, for example due to HIV infection, cancer, autoimmune disease, or taking immunosuppressant medications, should receive 3 doses to make sure they get the most benefit. However, children with asthma, diabetes, and other conditions that would not suppress immune response to HPV vaccination can receive a 2-dose schedule.

**Answering parents' questions:** *Even though CDC has recommended just 2 doses of HPV for kids under 15 years, we'll need to give your child 3 doses because he/she has a health problem that weakens his or her immune system.*

### **If a HPV vaccine series was started with quadrivalent HPV vaccine or bivalent HPV vaccine and will be completed with 9-valent HPV vaccine, what are the intervals for the remaining doses in a 3-dose or 2-dose series?**

If the first dose of any vaccine was given before the 15th birthday, vaccination should be completed according to a 2-dose schedule. In a 2-dose series, the second dose is recommended 6–12 months after the first dose (0, 6–12 month schedule).

If the first dose of any vaccine was given on or after the 15th birthday, vaccination should be completed according to a 3-dose schedule. In a 3-dose series, the second dose is recommended 1–2 months after the first dose, and the third dose is recommended 6 months after the first dose (0, 1–2, 6 month schedule).

If a vaccination schedule is interrupted, vaccine doses do not need to be repeated.

### **If a girl or boy received 2 doses of HPV vaccine less than 5 months apart, do they need a third HPV vaccine dose?**

Yes. In a 2-dose schedule of HPV vaccine, the recommended interval is 6–12 months, and the minimum interval is 5 months between the first and second dose. If the second dose is given earlier than 5 months, a third dose should be administered.

**Answering parents' questions:** *The recommended schedule is 2 doses given 6 to 12 months apart. The minimum amount of time between those doses is 5 months. Because your child received 2 doses less than 5 months apart, we'll need to give your child a third dose.*

### **If someone is age 15 years or older and started the vaccination series at age 11 but only received 1 dose, how many more doses do they need?**

This person needs 1 more dose to complete a 2-dose series, which is recommended because the vaccination was started before turning 15 years old. In a 2-dose series, the second dose is recommended 6–12 months after the first dose. In this case, the first dose was given several years ago, so the second dose can be given right away.

### **Is the 9-valent HPV vaccine approved by FDA for use as a 2-dose schedule?**

Yes, in October 2016, FDA approved a 2-dose schedule (0, 6–12 months) of 9-valent HPV vaccine for use in girls and boys age 9–14 years in the United States.

### **What HPV vaccines are currently available in the United States?**

Three HPV vaccines are licensed for use in the United States: 9-valent HPV vaccine, quadrivalent HPV vaccine, and bivalent HPV vaccine. However, after the end of 2016, only 9-valent HPV vaccine will be sold in the United States.

# Top 10 List for HPV #VaxSuccess

## Attain and Maintain High HPV Vaccination Rates

- 1. Appreciate the significance of the HPV vaccination recommendation.**
  - ✓ *By boosting HPV vaccination rates among your patients, you will be preventing cancer.*
- 2. Acknowledge the importance of your recommendation to parents to get their children vaccinated.**
  - ✓ *Clinician recommendation is the number one reason parents decide to vaccinate. This is especially important for HPV vaccination.*
- 3. Use the right approach by presenting immunizations the correct way, especially with the HPV vaccine.**
  - ✓ *Recommend the HPV vaccine the same day and the same way you recommend all other vaccines. For example, "Now that Danny is 11, he is due for vaccinations to help protect against meningitis, HPV cancers, pertussis, and flu. We'll give those shots during today's visit"*
- 4. Motivate your team and facilitate their immunization conversations with parents.**
  - ✓ *Starting with your front office, ensure each team member is aware of HPV's importance and is educated on proper vaccination practices and recommendations, ready to answer parents' questions, and/or regularly remind and recall parents. Be sure staff regular check immunization records, place calls to remind families about getting vaccines, and report back to you.*
- 5. Create systematic pathways and procedures that help your team attain and maintain immunization rates.**
  - ✓ *Establish a policy to vaccinate at every visit. Create a system to check immunization status **ahead** of all sick and well visits. Before seeing the patient, staff should indicate if the patient is due for immunization, with special consideration to HPV vaccination. Use standing orders.*
- 6. Utilize your local health department's resources.**
  - ✓ *Utilize the resources of the local health department to achieve your goals of protecting your patients.*
- 7. Know your rates of vaccination and refusal.**
  - ✓ *Deputize your staff to assist you with knowing your actual vaccination rates and learning more about why some patients are behind on their vaccines. They can also help you facilitate solutions on how to bring these patients in and keep immunization rates up.*
- 8. Maintain strong doctor-patient relationships to help with challenging immunization conversations.**
  - ✓ *It is extremely gratifying when parents who initially questioned immunization agree to get their child vaccinated on time. It's always nice to hear: "Okay, that makes sense and I trust you!"*
- 9. Be familiar with vaccine skeptics and critics by learning more about their reasoning.**
  - ✓ *Be prepared with answers to succinctly, accurately, and compassionately inform parents with the most current medical facts. Skeptics often accept their provider's explanations if presented correctly.*
- 10. Use personal examples of how you choose to vaccinate children in your family.**
  - ✓ *Providing personal examples shows you believe in the importance of immunizations, especially HPV vaccine. These examples—combined with an effective recommendation—can help parents better understand the benefits of HPV vaccination for cancer prevention.*