

Immunizations

Vaccines and Adults

A Lifetime of Health



Eighth Edition, 2022



Children's Hospital
of Philadelphia®

Vaccine Education Center

You've got a job,



a family and a mortgage.

Isn't it time to update your shots?

Adults are 100 times more likely than children to die of diseases that vaccines can prevent. Each year in the United States, vaccine-preventable diseases claim the lives of hundreds of children and tens of thousands of adults.

While childhood immunization rates are high, many adults don't even realize they need to get vaccines. Adults often don't get vaccines because they don't think they need them, they are worried about how they are going to pay for them, or they typically haven't been encouraged to get them.

But they need to — influenza, pneumococcus, hepatitis B, tetanus, shingles, whooping cough (pertussis), and head, neck and genital cancers are all adult diseases that can be prevented by vaccines.

In this booklet, we describe adult vaccines, the diseases they prevent, and who should get them. We will remind you why vaccines are an important part of your health and why your doctor feels strongly about their value.



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HOW DO VACCINES WORK?

Vaccines and the immune system

When we get sick from infection with a virus or bacteria, we usually will not get that illness again. That is because our immune systems have memory. Immune cells, called T cells and B cells, monitor our bodies after an infection, and if the same offender comes back, the immune system recognizes and kills the virus or bacteria before it can hurt us.

Vaccines are made with a form of the virus or bacteria that cannot make us sick, but they allow our immune systems to develop memory cells and subsequently protect our bodies.

Did you know?

Our immune system has two parts to fight infections: one part that quickly attacks anything foreign to our bodies, called our innate immune system, and one part that provides specific immune responses to different viruses and bacteria, called our adaptive immune system. The adaptive immune system is the one that vaccines strengthen.

Why do adults need vaccines?

By the time we are adults, our immune systems have seen many infections and developed many memory cells. However, there are several reasons why vaccines are still necessary:

- Sometimes the vaccine does not provide lifelong protection because immunity fades (examples: diphtheria, tetanus and pertussis vaccines).
- Sometimes the virus or bacteria changes through time, so the memory cells will not recognize it as well, or even at all (example: influenza).
- Sometimes the aging immune system becomes susceptible to diseases that were less of a threat at an earlier age (examples: shingles and pneumococcus).

Types of vaccines

There are several different methods for making vaccines:

- Use the live, weakened virus – Examples of this type are the chickenpox, measles, mumps, rubella and one of the influenza vaccines.
- Use the whole, killed virus or bacteria – Examples are hepatitis A vaccines and most of the influenza shots.
- Use a piece of the virus or bacteria – The hepatitis B, human papillomavirus (HPV), meningococcal, shingles and pneumococcal vaccines are made by this method. Sometimes, these pieces of the virus or bacteria are linked to another protein that helps make the immune response stronger. One COVID-19 vaccine (Novavax) is also made this way.
- Use inactivated toxins (poisons) produced by the bacteria – In some cases, poisons produced by the bacteria are the cause of disease. To protect people from illness, they must be protected against the poisons more than from the bacteria. These vaccines contain the poisons that have been inactivated (called toxoids), so that they cannot cause illness. The vaccines for tetanus, diphtheria and pertussis are examples of this type.
- Use part of the genetic code – The messenger RNA (mRNA) or DNA from a virus can be delivered as the vaccine. In this case, the person's own cells produce the viral protein, which is then recognized as "foreign" and processed by the immune system to generate immunity. Several COVID-19 vaccines are made this way. For example, Pfizer and Moderna vaccines deliver mRNA. The J&J/Janssen and AstraZeneca vaccines deliver DNA that has been added to a virus altered so that it cannot reproduce. When the virus is taken up by specialized cells of the immune system, called dendritic cells, the viral DNA is processed to produce the viral protein, and like with the mRNA processing, our immune system makes a response against the protein to protect us.



Vaccines are made with a form of the virus or bacteria that cannot make us sick.

VACCINES FOR ALL ADULTS

- Td (Tetanus-diphtheria) or Tdap Vaccines
• Influenza Vaccine • COVID-19 Vaccine • Hepatitis B Vaccine



Td/Tdap (Tetanus-diphtheria-acellular pertussis) Vaccine

WHO SHOULD GET THE Td/Tdap VACCINE?

- Adults who have not previously gotten the Tdap vaccine should receive one dose of Tdap, then get a Tdap or Td booster every 10 years
- Pregnant women should get a single dose of Tdap between 27 and 36 weeks gestation during *each* pregnancy, preferably earlier during this window
- Adults who will be around young infants and who have not had a dose of Tdap vaccine previously should get a dose of Tdap
- Adults can get either Tdap or Td following a wound

What diseases do the Td and Tdap vaccines protect against?

Td vaccine protects against tetanus and diphtheria. Tdap vaccine protects against tetanus and diphtheria as well as pertussis (whooping cough).

The “T” stands for tetanus. Tetanus is a bacterium that typically infects older adults. The tetanus bacterium makes a poison (called a toxin) that causes severe and painful spasms of the muscles, including the muscles of the jaw. (Tetanus is often referred to as “lockjaw.”)

Sometimes, tetanus can be fatal. Muscle spasms of the throat can block the windpipe and cause instant death from suffocation. The tetanus toxin can also cause severe and permanent damage to the heart. About 3 of every 10 people who get tetanus die from the disease.

The tetanus bacterium is present in the soil and can enter the skin after a cut or puncture wound. Because tetanus bacteria will always be present in soil, the risk of getting infected with tetanus will never go away.

Did you know?

The tetanus vaccine is the only vaccine that protects against a disease not transmitted from one person to another.

The “d” stands for diphtheria. Diphtheria is caused by a bacterium that typically infects children and adolescents. However, recent outbreaks in other countries have been primarily among adults, due to fading immunity as people age.

The diphtheria bacterium causes a thick coating on the back of the throat that makes it difficult to swallow and breathe. Also, the bacterium makes a harmful protein (toxin) that can invade the heart, kidneys and nervous system. In children younger than 5 and adults older than 40 years, 1 of every 5 people infected with diphtheria dies from suffocation, heart failure or paralysis.

Diphtheria is very contagious and is spread by coughing and sneezing.

Did you know?

The bacteria that cause diphtheria are only found in people, whereas most other bacteria are found in some animals as well as people.

The “p” stands for pertussis. Pertussis is a bacterium that infects infants, children, adolescents and adults.

Pertussis bacteria make several toxins causing people to have thick, sticky mucus that clogs the windpipe and causes painful spasms of coughing. When people breathe in against their narrowed windpipe, it causes a whooping sound, which is why pertussis is also known as whooping cough. Coughing spasms make it difficult to breathe, eat or drink. People with a cough lasting for several weeks may well be infected with pertussis, a common infection.

Did you know?

Pertussis is also known as the 100-day cough because of the length of time people cough after getting pertussis. The cough often persists for months after the infection.

Pertussis bacteria can also cause pneumonia, seizures, and permanent brain damage.

Young infants are particularly at risk because of their small windpipes. Since adults are known to pass the disease to children, it is important for adults to be immunized as a means of protecting infants who are too young to have completed their immunizations.

Did you know?

While most diseases are passed from children to adults, pertussis is often transmitted in the opposite direction, from adults to children.

What is my chance of getting one of these diseases?

Each year in the United States, about 20 to 30 cases of tetanus result in four or five deaths; one or two cases of diphtheria occur; and tens of thousands of cases of pertussis and 15 to 20 deaths are diagnosed. Because pertussis is underdiagnosed and misdiagnosed, it is likely that hundreds of thousands of cases actually occur in the U.S. each year.

What is the Tdap vaccine?

For each of these bacteria, the toxins they produce are inactivated with a chemical. The chemical is then washed away, leaving the purified, inactivated toxin (called toxoid).

People with a cough lasting for several weeks may well be infected with pertussis, a common infection.

How is the Tdap vaccine different from the Td vaccine?

Tdap differs from the Td vaccine because it also contains the pertussis toxoid. Both adolescents and adults should get the Tdap vaccine instead of the Td vaccine for their next booster if they have not had it previously. Subsequent doses (every 10 years) can be given in the form of Tdap or Td vaccine.

Does either vaccine cause any reaction?

Both the Tdap and the Td vaccines sometimes cause mild reactions like pain, redness or tenderness at the site of the injection. Headache, fatigue or low-grade fever might also occur.

Occasionally, and particularly in adults, there is an exaggerated local reaction at the injection site resulting in swelling from the shoulder to the elbow.

Do the benefits of the vaccine outweigh the risks?

Every year in the United States, people contract these diseases and some die from them. Although severe reactions are a very rare consequence of these vaccines, these reactions do not result in permanent harm or death. Therefore, the benefits of the vaccine clearly outweigh its risks.



Influenza Vaccine

WHO SHOULD GET THE INFLUENZA VACCINE?

- Everyone 6 months of age and older
-

What is influenza?

Influenza is a virus that infects the respiratory system, attacking the lining of the nose, windpipe, large breathing tubes, small breathing tubes and lungs.

Every year in the United States, approximately 200,000 people are hospitalized and thousands to tens of thousands die from severe pneumonia caused by influenza.

Most of the deaths caused by influenza occur in people 65 or older. However, young children are more likely than adults to be hospitalized with infections caused by influenza, and young children commonly transmit influenza virus to their parents and grandparents. In addition, people with diseases such as asthma are, like the elderly, at high risk of severe pneumonia and death from influenza.

Did you know?

Because other viruses cause respiratory illnesses and colds, it is important to remember the influenza vaccine will only protect against influenza viruses.

What is my risk of getting influenza infection?

Influenza is extremely common. Hundreds of thousands of people are hospitalized each year with fever, croup (infection of the voice box), pneumonia, bronchitis (infection of the large breathing tubes) or bronchiolitis (infection of the small breathing tubes) caused by influenza virus.





What is the influenza vaccine?

There are a few different flu vaccines.

- Most influenza vaccines given as a shot are inactivated whole influenza viruses made by growing them either in eggs or mammalian cells, purifying them, and chemically inactivating them so they cannot cause disease.
- A small number of influenza shots contain only one influenza virus surface protein (known as hemagglutinin) that was made in insect cells, purified and used as the vaccine. This version is the first influenza vaccine that contains no egg proteins.
- The nasal spray is made from live, weakened influenza viruses. It can be given to healthy adults 49 years of age or younger.

Influenza vaccines are typically reformulated annually so that they contain the four different strains of influenza viruses expected to cause disease that year.

Does the influenza vaccine cause any reactions?

The influenza vaccines given as a shot can cause fever, muscle aches and fatigue in less than 1 of every 100 people. These reactions usually begin six to 12 hours after immunization and can persist for one to two days. The intranasal version can cause runny nose, mild congestion or sore throat in some people.

Reactions are most likely to occur in children who were not immunized with influenza vaccine or were not infected with influenza virus before (typically very young children).

Because the quantity of egg proteins in the influenza vaccine is about a hundredfold less than that necessary to induce an allergic response, even people with severe egg allergies can receive an influenza vaccine. However, as is true for all vaccines, anyone who is concerned about a reaction should remain at the provider's office for about 30 minutes after receiving the vaccine in case of a reaction.

Do the benefits of the influenza vaccine outweigh the risks?

Influenza virus kills thousands to tens of thousands of people every year. In addition, about 200,000 people are hospitalized when influenza virus causes fever, croup, bronchitis, bronchiolitis or pneumonia. Because the vaccine does not cause serious reactions, the benefits of the vaccine clearly outweigh its risks.

COVID-19 Vaccine

WHO SHOULD GET THE COVID-19 VACCINE?

- Everyone 6 months of age and older
-

What is COVID-19?

COVID-19 is caused by a coronavirus, known as SARS-CoV-2. The virus affects the respiratory system, but it can also affect various other body systems and organs. As a result, some people experience a few days of mild cold-like symptoms, while others become severely ill, requiring hospitalization that can last for weeks or months.

This novel virus was first identified in late 2019. Because it was a new virus, no one in the world was immune to it, causing it to spread quickly and leading to the declaration of a pandemic, or worldwide epidemic, in March 2020. By the end of 2020, almost 2 million people worldwide had died as a result of this disease. In late 2020 and early 2021, after people started moving around but before vaccines were widely available, the virus was killing between 14,000 and 16,000 people globally each day.

Most of the deaths caused by this virus occur in people 65 or older.

What is my risk of getting COVID-19?

The virus that causes COVID-19 spreads very quickly through droplets in the air, and it has continued to change over time. For these reasons, anyone can get COVID-19, even if they have been vaccinated or previously infected. However, people who have had COVID-19 and those who have been vaccinated are less likely to require hospitalization or die from their infection.

What is the COVID-19 vaccine?

There are a few different COVID-19 vaccines. All are given as shots.

- Most people in the U.S. have received mRNA vaccines (Pfizer and Moderna). Original vaccines contain the gene for the spike protein of the first version of SARS-CoV-2 virus. This vaccine is used for people who have not previously been vaccinated against COVID-19 (called primary doses). Some mRNA vaccines contain genes for two spike proteins (bivalent) — the original strain and a newer variant, called Omicron BA.4/BA.5. These bivalent versions are used when people are due for booster doses.



- Some people have received a recombinant COVID-19 vaccine (Novavax). This version contains the spike protein from the original SARS-CoV-2 virus. The protein is produced in insect cells in the lab. An adjuvant, called Matrix-M™, is also added to the vaccine to increase the immune response. The vaccine can be used by people 12 years and older who have not previously been vaccinated against COVID-19 and as a booster for people 18 years and older who cannot, or would not otherwise, get the mRNA bivalent booster.
- Some people have received adenovirus vector vaccines (J&J/Janssen). Because of rare, but severe, side effects, this version is not recommended for use in most cases.

Does the COVID-19 vaccine cause any reactions?

COVID-19 vaccines often cause people to feel tired, experience headache or muscle aches, and in some cases develop fever. These reactions usually begin six to 12 hours after immunization and can persist for one to two days. Reactions are more likely to occur after the second dose and more often in younger adults.

On rare occasions, particularly in teen and young adult males, myocarditis, or inflammation of the heart, can occur. While rare and short-lived, this side effect typically

occurs in the first four days after vaccination and may require brief hospitalization. Even though males in their late teens and 20s are most likely to experience this effect, anyone can, so people should immediately seek medical care if they experience chest pain, pressure, heart palpitations, difficulty breathing, or other unusual symptoms in the days after vaccination. Myocarditis can occur after vaccination with the mRNA vaccines and likely after receipt of the Novavax vaccine. It can also occur as a result of COVID-19 infection; in this scenario, it is usually more severe and causes more damage.

The adenovirus vector vaccines have been associated with rare cases of two severe side effects: Guillain-Barré syndrome (GBS) and a unique blood clotting disorder called thrombosis with thrombocytopenia syndrome, or TTS. For these reasons, this vaccine is not recommended for most people.

Do the benefits of the COVID-19 vaccine outweigh the risks?

The virus that causes COVID-19 has killed millions of people in the U.S. and around the world. Since vaccines have become widely available, those who are hospitalized with severe illness are most often unvaccinated or people who have other health conditions that increase their risk of experiencing severe disease. Because the side effects of COVID-19 vaccines are typically mild and short-lived, the benefits of vaccination outweigh the risks.

Hepatitis B Vaccine

WHO SHOULD GET THE HEPATITIS B VACCINE?

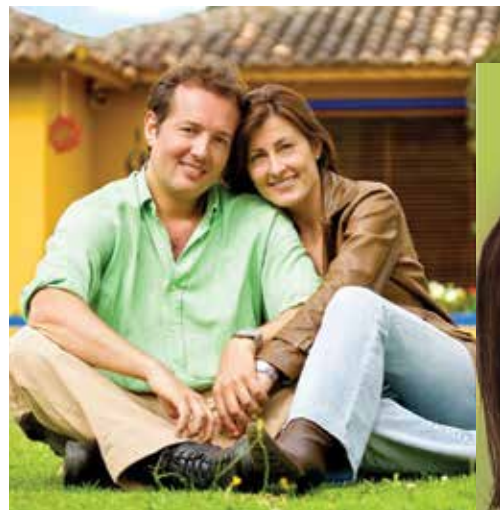
- People 19 through 59 years of age who were not previously vaccinated and those 60 years and older who wish to be protected
 - People 60 years of age and older at increased risk for hepatitis B, including:
 - Healthcare and public safety workers who may have contact with blood
 - Sexually active people not in long-term, mutually monogamous relationships
 - Men who have sex with men
 - People with any sexually transmitted diseases
 - People who live with or are physically intimate with a chronically infected person
 - People with chronic liver disease, diabetes or HIV
 - People traveling to countries with moderate or high rates of hepatitis B
 - People receiving dialysis and those diagnosed as pre-dialysis
 - Prison inmates
 - People using injection drugs who share needles
 - Clients and staff of institutions for persons with developmental disabilities
-

What is hepatitis B?

Hepatitis B is a virus that infects the liver. Every year in the United States, about 2,000 people die from hepatitis soon after they are infected and about 12,000 develop long-term hepatitis, increasing their risk for chronic liver disease (cirrhosis) and liver cancer. Most people who are infected with hepatitis B virus don't have any symptoms. Those with symptoms experience loss of appetite, vomiting, nausea, fatigue and jaundice (yellowing of the eyes and skin).

Hepatitis B virus can also cause a rapid, overwhelming infection of the liver, a long-term liver disease called cirrhosis, and liver cancer. Young infants infected with

hepatitis B virus are more likely to develop cirrhosis than older children or adults; however, every year in the United States, hundreds of people die from complications of hepatitis B virus infections.



What is my risk of getting hepatitis B?

A common misconception is that hepatitis B virus is spread only by sexual contact among adults. The reality is that hepatitis B virus can also be spread in other ways:

- Mothers who are infected with hepatitis B virus can pass the infection on to their babies at birth.
- Hepatitis B is found in high concentrations in the blood of infected people. Further, it can be present at low levels in saliva; therefore, the virus can be transmitted by sharing personal items such as razors, toothbrushes or washcloths.

Because most people infected with hepatitis B virus don't have any symptoms, they often don't know they are infected. About 257 million people around the world are infected with hepatitis B virus and can spread the infection to others. Many of these people do not know they have hepatitis B until they are diagnosed with liver disease or liver cancer years after being infected.



What is the hepatitis B vaccine?

The hepatitis B vaccine is made by isolating the protein coat that surrounds the virus (called the hepatitis B surface protein). Immunity to this protein protects people from infection with the virus.

Does the hepatitis B vaccine cause any reactions?

The hepatitis B vaccine can cause pain, redness and tenderness at the site of the shot and, sometimes, fever. In about 1 of every 600,000 people given the hepatitis B vaccine, a severe allergic reaction occurs. Symptoms include hives, rash or low blood pressure and usually occur within 15 minutes of receiving the vaccine.

Do the benefits of the hepatitis B vaccine outweigh the risks?

Every year, thousands of people are permanently harmed or killed by hepatitis B virus. Many of these people catch the infection from friends, family members or relatives who didn't know they were infected. On the other hand, severe reactions to the hepatitis B vaccine are extraordinarily rare and do not cause permanent harm. Therefore, the benefits of the hepatitis B vaccine clearly outweigh its risks.

VACCINES FOR ALL ADULTS 50 YEARS AND OLDER

- Td (Tetanus-diphtheria)/Tdap Vaccine • Influenza Vaccine
- COVID-19 Vaccine • Hepatitis B Vaccine • Shingles Vaccine

Shingles Vaccine

WHO SHOULD GET THE SHINGLES VACCINE?

- All adults 50 years and older should get two doses of the shingles vaccine known as Shingrix® (even if they have had shingles or the version of the shingles vaccine known as Zostavax®)

What is shingles?

Shingles is a disease caused by a reawakening of the chickenpox virus. Therefore, shingles only occurs in people who have already had chickenpox. Shingles most often occurs in elderly people and people with weakened immune systems.

Common symptoms of shingles include a rash — usually along a nerve path — and severe pain. Sometimes the pain can last for months or years. The pain can be so severe that it leads to sleeplessness, depression and weight loss. Some people are so debilitated from the pain that they cannot complete everyday activities, such as bathing and dressing. The severity of the pain also can impair sufferers' normal social activities.

About 15 of every 100 cases of shingles involve nerves around the eye and might lead to vision issues or blindness.

What is my chance of getting shingles?

Every year in the United States, shingles affects between 500,000 and 1 million people. Twenty to 30 of every 100 people can expect to get shingles during their lifetime. For people who live to be 85 years old, at least half of them will have a bout of shingles.

How do you catch shingles?

People don't catch shingles from others. People who had chickenpox can get shingles because the virus that causes chickenpox lives silently in their nervous system for many years. The virus reawakens as the immune system is weakened from advancing age, infections with other viruses, or use of immune-suppressive drugs, such as those used to treat cancers.

What is the shingles vaccine?

The shingles vaccine, called Shingrix, is made using a single protein from the surface of herpes zoster virus in addition to two immune boosting agents (called adjuvants) — monophosphoryl lipid A, which is a detoxified form of lipopolysaccharide isolated from common bacteria, and QS21, a soap-based molecule isolated from the bark of the *Quillaja saponaria* tree.

The previous version, called Zostavax, was composed of a live, weakened version of the virus. This vaccine is no longer available. People who were vaccinated with Zostavax are recommended to get Shingrix because it results in stronger immunity.

How many doses of shingles vaccine should a person get?

While the Zostavax vaccine only required one dose, the newer Shingrix version requires two doses separated by two to six months.

Does the shingles vaccine cause any reactions?

Common side effects include redness, pain, swelling and itching at the injection site. Some people might feel tired or experience fever, headache, body aches or shivering after getting the vaccine.

Does someone who got the shingles vaccine need to stay away from infants who did not yet get the chickenpox vaccine?

No. Because the vaccine virus does not replicate, it cannot be spread to others. The previous vaccine, Zostavax, sometimes caused a rash, which could expose unvaccinated babies if they came into contact with the blisters, but this did not occur commonly.

Does someone who had Zostavax need to get Shingrix?

Yes. Because Shingrix induces better protection than Zostavax, it has been recommended that people get two doses of Shingrix regardless of whether they have had Zostavax.

Can people who are immune compromised get the shingles vaccine?

Since Shingrix is made from a single protein, it is safe for people who are immune compromised.

Do the benefits of the vaccine outweigh the risks?

Each year, 500,000 to 1 million people in the United States have shingles. Because the vaccine does not cause serious reactions, the benefits clearly outweigh the risks.

VACCINES FOR ALL ADULTS 65 YEARS AND OLDER

- Td (Tetanus-diphtheria)/Tdap Vaccine • Influenza Vaccine
- COVID-19 Vaccine • Hepatitis B Vaccine
- Shingles Vaccine • Pneumococcal Vaccine

Hepatitis B Vaccine — Adults 60 years of age and older who have not been vaccinated against hepatitis B may be vaccinated.

Refer to pages 12 – 13 for more information.

Pneumococcal Vaccine

WHO SHOULD GET THE PNEUMOCOCCAL VACCINE?

- Adults 65 years of age and older
- People with chronic illnesses such as heart disease, lung disease (including asthma), diabetes, sickle cell or other chronic blood disease, alcoholism, or chronic liver disease (cirrhosis)
- People without a spleen
- People with Hodgkin's disease, malignancy, immunodeficiency, leukemia, lymphoma, multiple myeloma, kidney disease, cochlear implants, or cerebrospinal fluid leaks
- People infected with human immunodeficiency virus (HIV)
- People living in high-risk environments or social settings, such as nursing homes or long-term care facilities
- People who smoke

What is pneumococcus?

Pneumococcus is a bacterium that causes several different types of serious infections, the most common of which is pneumonia. People with pneumonia have high fever, cough

and rapid, difficult breathing. Sometimes, an accumulation of pus can cause a lung to collapse. Pneumococcus can also infect the blood (sepsis) or the brain and spinal cord (meningitis).



What is my chance of getting pneumococcus?

Each year in the United States, approximately 400,000 people are hospitalized with pneumonia caused by pneumococcus, which is how the bacteria got its name. The elderly are particularly vulnerable to this infection, especially those in nursing homes. Among the elderly, 5 to 7 of every 100 people

die from pneumonia caused by pneumococcus. If the bacteria reach the bloodstream, up to 6 of 10 elderly people with this disease could die from it. In addition, there are 3,000 to 6,000 cases of pneumococcal meningitis in the nation each year. Eight of every 10 children and 2 or 3 of every 10 adults who get pneumococcal meningitis die from their infections.

How do you catch pneumococcus?

Pneumococcal infections are passed from one person to another by coughing and sneezing. The pneumococcal bacteria commonly live in the noses and throats of many people. Transmission occurs more often in crowded settings and during the winter and early spring.

What is the pneumococcal vaccine?

There are three vaccines to protect adults against pneumococcus. One contains the sugar coating (called polysaccharides) from 23 different types of pneumococcal bacteria. It has been commonly used in adults since the early 1980s. The 23 types of pneumococcus in the vaccine are responsible for most pneumococcal disease in adults. The vaccine is called the pneumococcal polysaccharide vaccine (PPSV23).

The other two pneumococcal vaccines attach (or conjugate) a harmless protein to the sugar coating (polysaccharide) of each type of pneumococcus that the vaccine protects against. One version protects against 15 types (called PCV15), and a newer version protects against 20 types (called PCV20). Conjugated pneumococcal vaccines were originally developed for very young children because they are also at increased risk for this infection, but the polysaccharide vaccine did not protect them. Pneumococcal conjugate

vaccines are recommended for a subset of adults with certain immune-compromising conditions and all adults 65 years of age and older.

Adults who have not previously been vaccinated against pneumococcus typically need either one dose of PCV15 followed a year later by a dose of PPSV23 (two doses total) or a single dose of PCV20 (one dose total).

Did you know?

Interest in developing a pneumococcal vaccine waned after the discovery of penicillin. However, with the emergence of antibiotic resistance, interest in vaccine development was reignited about 20 years later.

Does the pneumococcal vaccine cause any reactions?

Pneumococcal vaccines might cause mild pain, redness and tenderness at the site of the injection. In a small subset of patients, a mild fever might also occur.

Do the benefits of the vaccine outweigh the risks?

Every year in the United States, people die from infections caused by pneumococcus. Because pneumococcal vaccines do not cause severe reactions, the benefits of getting the vaccine outweigh the risks.



VACCINES FOR SOME ADULTS

- Pneumococcal Vaccine • Human Papillomavirus (HPV) Vaccine
 - Hepatitis A Vaccine • Varicella (Chickenpox) Vaccine
 - Measles-Mumps-Rubella (MMR) Vaccine
 - Meningococcal Vaccine

Pneumococcal Vaccine — Some groups of adults are recommended to get the pneumococcal vaccine regardless of their age, including:

- People with chronic illnesses such as heart disease, lung disease (including asthma), diabetes, sickle cell or other chronic blood disease, alcoholism, or chronic liver disease (cirrhosis)
- People without a spleen
- People with Hodgkin's disease, malignancy, immunodeficiency, leukemia, lymphoma, multiple myeloma, kidney disease, cochlear implants, or cerebrospinal fluid leaks
- People infected with human immunodeficiency virus (HIV)
- People living in high-risk environments or social settings, such as nursing homes or long-term care facilities
- People who smoke

Refer to pages 16 – 18 for more information.

Human Papillomavirus Vaccine (HPV)

WHO SHOULD GET THE HPV VACCINE?

- All adolescents and young adults up to 26 years of age who have not previously received the vaccine
- Adults between 27 and 45 years of age may also decide to get the vaccine

What is human papillomavirus?

Human papillomavirus (HPV) is a virus that infects the genital area, the lining of the cervix and, sometimes, the lining of the throat. There are

many different types of HPV. Some types cause genital warts in men and women, and other types cause cancers of the cervix, anus, penis or throat.



What is my chance of getting HPV?

Before the HPV vaccine, every year in the United States, 6 million people were newly infected with HPV. At any time, about 79 million people in the United States are infected with this virus, and about 35,000 people are diagnosed annually with cancers caused by HPV.

How do you catch HPV?

HPV is transmitted by genital contact, most often, but not always, during sex. Although condoms are helpful, they are not completely protective.

What is the HPV vaccine?

The HPV vaccine is made using a protein from the surface of nine different types of HPV — the seven that most commonly cause cancer and the two that most often cause genital warts.

Why do males need this vaccine?

Males are infected with HPV, so they can suffer negative health effects, like genital warts and cancers of the penis, anus or throat. In addition, by immunizing males, transmission of HPV can be decreased.

Did you know?

The HPV vaccine is the second vaccine to prevent a form of cancer in people. The first cancer-prevention vaccine was the hepatitis B vaccine, developed in the early 1980s.

Do vaccinated women still need Pap tests?

Yes. The HPV vaccine does not protect against all papillomavirus strains that can cause cervical cancer nor is it effective after exposure to one or more of the types, so women should still be screened regularly.

Do people who get this vaccine still need to worry about sexually transmitted diseases?

Yes. The HPV vaccine does not protect against all types of HPV, nor does it prevent other types of sexually transmitted infections such as syphilis, gonorrhea, chlamydia and herpes.

Does the HPV vaccine cause any reactions?

The vaccine might cause pain or redness at the site of injection. A small number of people also get a slight fever. Occasionally, individuals may faint after getting the vaccine, which is why people are asked to remain at the doctor's office for about 15 minutes after getting vaccinated.

Do the benefits of the vaccine outweigh the risks?

Every year, millions of people are infected with HPV and some die from their infections. Since the vaccine does not cause any serious reactions, the benefits of getting the vaccine clearly outweigh the risks.

Hepatitis A Vaccine

WHO SHOULD GET THE HEPATITIS A VACCINE?

- People traveling to countries with moderate or high rates of hepatitis A or in close contact with a child adopted from one of these countries
 - People experiencing homelessness
 - Men who have sex with men
 - People who use injection or non-injection drugs
 - People who have chronic liver disease or HIV infection
 - People at risk of work-related exposure and pregnant women at increased risk
 - People who want to be protected against hepatitis A virus
-

What is hepatitis A?

Hepatitis A is a virus that infects the liver. Some adults who catch hepatitis A don't have any symptoms. Some have loss of appetite, vomiting, nausea, fatigue and jaundice (yellowing of the eyes and skin). Hepatitis A virus infections are often much less severe than hepatitis B virus infections. (*See pages 12 – 13.*)

However, hepatitis A virus can cause a rapid, overwhelming infection of the liver and death; this usually occurs in people with chronic liver disease.

What is my risk of getting hepatitis A infection?

Hepatitis A virus is usually spread from one person to another or in contaminated food or water. However, recently, transmission from person to person has increased, particularly among those who are homeless or who use illicit drugs. Every year, thousands of people in the United States get hepatitis A virus infections and about 30 die from the disease.

What is the hepatitis A vaccine?

The hepatitis A vaccine is made by taking hepatitis A virus, purifying it, and completely inactivating it with a chemical (formaldehyde).

Does the hepatitis A vaccine cause any reactions?

The vaccine might cause pain, warmth or swelling where the shot was given, or a headache.

Do the benefits of the hepatitis A vaccine outweigh the risks?

Every year, thousands of people in the United States are infected with hepatitis A virus and some die. The hepatitis A vaccine does not cause any severe reactions. So, the benefits of hepatitis A vaccine outweigh its risks.

Did you know?

Hepatitis A used to be known as "infectious hepatitis" because it is spread through contaminated food and water, but hepatitis B was known as "serum hepatitis" because it is spread in blood.

Varicella (Chickenpox) Vaccine

WHO SHOULD GET THE VARICELLA VACCINE?

- Adults born after 1980 who have not been diagnosed with chickenpox by a healthcare provider or who have not received chickenpox vaccine
 - Pregnant women and healthcare personnel born before 1980 who have not been diagnosed with chickenpox by a healthcare provider or have not received two doses of chickenpox vaccine
 - Adults who previously received only a single dose of chickenpox vaccine
-

What is varicella?

Varicella (chickenpox) is a highly contagious virus that is spread by coughing and sneezing. People infected with varicella usually develop fever as well as about 300 to 500 blisters over their entire body. Varicella can also infect the lungs (pneumonia) and the brain (encephalitis) and can set the stage for severe skin infections (caused by “flesh-eating” bacteria). Varicella commonly infects young children; however, teens and adults tend to suffer more severe complications when infected. For example, only about 5 of every 100 cases of chickenpox are in adults; however, approximately 35 of every 100 deaths from chickenpox are in adults. Varicella can also infect unborn babies during pregnancy, causing birth defects or fetal death.

Did you know?

People infected with chickenpox are at greater risk of having an infection with something commonly known as “flesh-eating bacteria.” This happens when open blisters become infected with bacteria. These infections are one of the most common causes of hospitalization for people with chickenpox.

What is my risk of getting varicella?

Before the varicella vaccine, almost everyone got varicella during childhood. Since the varicella vaccine first became available in 1995, the incidence of varicella infections has decreased by 90% (from about 4 million per year to fewer than 10,000 per year). However, varicella infections are still fairly common in the United States.

People infected with varicella usually develop fever as well as about 300 to 500 blisters over their entire body.

What is the varicella vaccine?

The varicella vaccine is a live, weakened form of the chickenpox virus. The vaccine is made by growing the virus in specialized cells in the laboratory. As the virus gets better at growing in the laboratory cells, it gets worse at growing in people. So, when used as a vaccine, the immune system remembers the chickenpox virus, but the person does not get ill from it.



Does the varicella vaccine cause any reactions?

Some people develop reactions like pain, redness or tenderness at the site of injection. About 5 of every 100 recipients will develop a few blisters after receiving the vaccine.

Do the benefits of the varicella vaccine outweigh the risks?

Before the varicella vaccine became available, every year thousands of people were hospitalized and some were killed by varicella. The varicella vaccine has decreased, but not eliminated, chickenpox infections in the United States.

Because varicella infections are still fairly common, and because the disease is highly contagious, a choice not to get the varicella vaccine is a choice to risk getting varicella. Because the vaccine does not cause any serious reactions, the benefits of the varicella vaccine clearly outweigh its risks.

About 5 of every 100 recipients will develop a few blisters after receiving the varicella vaccine.

Measles-Mumps-Rubella (MMR) Vaccine

WHO SHOULD GET THE MMR VACCINE?

- People born during or after 1957 who have not had measles, mumps or rubella disease or the MMR vaccine (Adolescent girls and women who are not pregnant and have not had rubella are of particular concern because of the risk to their future babies.)
 - People entering college who have not had two doses
 - Healthcare workers who have not had two doses and those born before 1957 who do not have laboratory confirmation of disease
 - International travelers who have not had two doses
 - People living with or having close contact with immune-compromised people
-

What diseases does the MMR vaccine protect against?

MMR vaccine protects against three diseases:

1. The first “M” stands for measles. Measles is a virus that infects the lining of the back of the throat and nose. People with measles have cough, runny nose, fever, pink eye and a rash that starts on the face and spreads to the rest of the body. Measles virus can also infect the lungs (causing pneumonia) and the brain (causing permanent brain damage or death). Measles is very contagious and is spread by coughing and sneezing.
2. The second “M” stands for mumps. Mumps is a virus that typically causes a painful swelling of the glands located just below the ear (parotid glands). Mumps also infects the lining of the brain and spinal cord (meningitis) and can cause permanent hearing loss. Mumps can also infect the unborn child in the first trimester of pregnancy and cause fetal death.
3. The “R” stands for rubella. Rubella is a virus that typically causes swelling of the glands behind the ear, mild rash and fever. Rubella infections are usually mild in young children. However, when a woman is infected with rubella virus during pregnancy, the virus can cause permanent and severe birth defects or miscarriage.

Did you know?

Some people feared that the MMR vaccine was a cause of autism. This led to decreased rates of vaccine coverage and subsequent disease outbreaks.

Nearly 20 large, carefully performed scientific studies have now clearly shown that the MMR vaccine does not cause autism.

What is my chance of getting one of these diseases?

In 2005, the Centers for Disease Control and Prevention (CDC) declared that rubella had been eliminated from the United States. Unfortunately, in the period before COVID-19, decreases in immunization rates among young children in some pockets of the country led to outbreaks of measles in the U.S. This situation was complicated by COVID-19 as children missed well visits, causing concerns that additional outbreaks may occur while children get caught up. Additionally, outbreaks of mumps on college campuses in recent years, attributed to waning immunity, have led the CDC to recommend that a third dose of mumps vaccine be administered during outbreaks.

Because adults who get these diseases tend to experience more complications, it is important for adults to ensure that they are up to date with the MMR vaccine. Additionally, because these diseases, specifically rubella and mumps, are particularly dangerous to unborn babies when pregnant women are infected, women should make sure they are immune before becoming pregnant.

What is the MMR vaccine?

The vaccine contains live, weakened forms of the measles, mumps and rubella viruses. The vaccine is made in the same manner as the chickenpox vaccine. (See page 24.)

Does the MMR vaccine cause any reactions?

Some people given the MMR vaccine develop pain, redness or tenderness at the site of injection. The vaccine might also cause fever or a rash that occurs eight to 10 days after the vaccine is given. This happens in approximately 5 to 15 people out of every 100 who get the vaccine.

The MMR vaccine can also cause a short-lived decrease in the number of cells in the bloodstream that help the blood clot (platelets). This reaction is extremely rare (occurring in about 1 in 24,000 people) and is not a cause of death or prolonged hospitalization.

The rubella component of the vaccine can also cause a short-lived swelling of the small joints (arthritis). The arthritis is temporary and occurs primarily in adolescent girls and women.

Do the benefits of the MMR vaccine outweigh the risks?

Although infections with these three viruses are relatively uncommon in the United States, they are common in other parts of the world and a drop in immunization rates would quickly increase the likelihood of outbreaks in this country.

Because severe reactions to the MMR vaccine are extraordinarily rare, the benefits of the vaccine clearly outweigh its risks.

Meningococcal Vaccine

WHO SHOULD GET THE MENINGOCOCCAL VACCINE?

- People without a spleen
 - People with HIV or sickle cell disease
 - People with an uncommon immune problem called complement deficiency
 - Travelers to areas where meningococcal disease is present
 - Military recruits
 - Lab workers who might be exposed to the bacteria
 - Teenagers
-

What is meningococcus?

Meningococcus is a bacterium that lives on the lining of the nose and throat of some people. Approximately 1 of every 10 adolescents and adults have these bacteria in the lining of their throat and don't have any symptoms of infection.

What is my chance of getting meningococcus?

Every year, about 200 to 400 people in the United States get meningococcus and some die from their infections. Approximately one-third to one-half of people who survive are left with permanent disabilities, such as seizures, loss of limbs, kidney disease, deafness and mental delays.

Did you know?

There is an area across sub-Saharan Africa where outbreaks of meningitis occur so commonly that it is known as the "meningitis belt."



How do you catch meningococcus?

Meningococcal bacteria are passed from person to person by coughing or sneezing.

What is the meningococcal vaccine?

There are two types of meningococcal vaccines. One protects against four of the five different types of meningococcus (A, C, W and Y) and is made using sugars from the protein coating of those types. This vaccine also includes a harmless protein that isn't part of meningococcus, but helps improve immunity to the meningococcal sugars in the vaccine. Because the meningococcal sugars are attached to a protein, this vaccine is called the meningococcal conjugate vaccine.

The other type of meningococcal vaccine protects against the fifth type of meningococcus — type B. Two versions of this vaccine exist. One contains two purified proteins, and the other contains four proteins.

Does the meningococcal vaccine prevent all cases of meningitis?

No. Meningitis refers to an infection of the lining of the brain and spinal cord. Meningococcal bacteria are not the only cause of meningitis, so while preventing meningococcal infections will reduce the number of cases of meningitis, it will not prevent all cases of meningitis.

Does the meningococcal vaccine cause any reactions?

Some people receiving a meningococcal vaccine may develop pain or redness at the site of the injection.

Do the benefits of the vaccine outweigh the risks?

Every year, people in the United States are severely debilitated or die from infections with meningococcal bacteria. Since the vaccine does not cause severe reactions, the benefits clearly outweigh the risks.





VACCINES FOR SPECIAL POPULATIONS

Pregnant Women • Healthcare Workers • Child Care Workers • Travelers



Pregnant Women

Women who are considering becoming pregnant should check with their healthcare providers to be sure they are up to date on their vaccines. This is particularly important for the MMR vaccine since the main purpose of the rubella vaccine is to prevent birth defects resulting from infection with rubella during pregnancy. Anyone receiving either the MMR or varicella (chickenpox) vaccine should wait for four weeks before becoming pregnant. If a woman is already pregnant, she should wait to get either of these vaccines until after delivery.

Women who are pregnant should get the influenza vaccine if they will be pregnant during influenza season. This is important because expectant mothers are at a higher risk of complications from influenza compared with the general population. Additionally, studies have shown that babies whose mothers were immunized against influenza during pregnancy are less likely to have influenza in the first few months of life before they can be immunized against influenza.

Women who have not previously received COVID-19 vaccine should be vaccinated since they are at increased risk of suffering severe illness compared with women of the same age who are not pregnant. Additionally, studies have shown that vaccination of mothers offers some

protection to their babies before they are old enough to get the COVID-19 vaccine, although the level of protection appears to be dependent on the relative timing of vaccination and the match between the vaccine and the type of virus circulating at the time.

Women should also receive one dose of the Tdap vaccine between 27 and 36 weeks gestation during *every* pregnancy. This vaccination is timed to protect the baby from pertussis during the first few months of life before his or her own vaccinations can provide protection. While it can be administered any time during this window, earlier is better to allow for maximal protection for the baby.

Healthcare Workers

Healthcare workers should have immunity to measles, mumps, rubella and varicella. They should receive a hepatitis B vaccine if they could be exposed to blood or body fluids. If they are working in a lab where they might be exposed to the bacteria that cause meningococcal infections, they should receive the meningococcal vaccines. All healthcare workers, especially those with direct patient contact, should receive an influenza vaccine every year and be vaccinated against COVID-19.

Child Care Workers

Because of their environment, child care workers come in contact with many viruses and bacteria, so they should be up to date on the vaccines recommended for adults. In addition, they should get an influenza vaccine each year and be vaccinated against COVID-19.

Travelers

People traveling to other countries should check with their primary care physician, local health department or a travel clinic to be sure they receive the necessary immunizations. It is important to begin this process as early as possible because:

- Some vaccines require more than one dose to be effective, and certain time intervals are required between doses.
- Many healthcare professionals do not store travel vaccines because of a lack of demand for them. They might need to order the vaccine or refer you to another location.
- Travel vaccines are not always covered by insurance and tend to be more expensive, so you will have time to find out what is covered and what your out-of-pocket expenses will be for everyone in your family who is traveling.

People should consider two issues before traveling. First, travelers should be up to date with the vaccines recommended for them in this country. Second, they should

be given vaccines necessary for their travel destination. To determine which vaccines a person might need, providers should be made aware of the location, duration, activities, dates and purpose of the trip. Details like the time of year or whether one is staying in a city or rural area of a country are also important in determining which vaccines are necessary.

Recommended vaccines that are important to check include diphtheria, polio, hepatitis B, measles, pertussis, influenza, COVID-19, mumps, rubella, tetanus and hepatitis A.

Did you know?

Influenza season occurs at different times in the northern and southern hemispheres and is present year-round in the tropics, so an influenza vaccine might be necessary for travel even if it is not influenza season in the United States.

Vaccines that might be necessary depending upon the trip include Japanese encephalitis, meningococcus, rabies, tick-borne encephalitis (TBE), typhoid and yellow fever.

Did you know?

Some countries require proof of receipt of the yellow fever vaccine before crossing the border. This vaccine can be given only by certified yellow fever vaccine centers.

PAYING FOR VACCINES

If you need immunizations and you have private insurance, call your insurance company to see if it covers the costs of the vaccines that you require.

If you are a recipient of Medicaid or are 65 years or older and Medicare-enrolled, you should be eligible for most immunizations. Discuss vaccines with your healthcare provider.

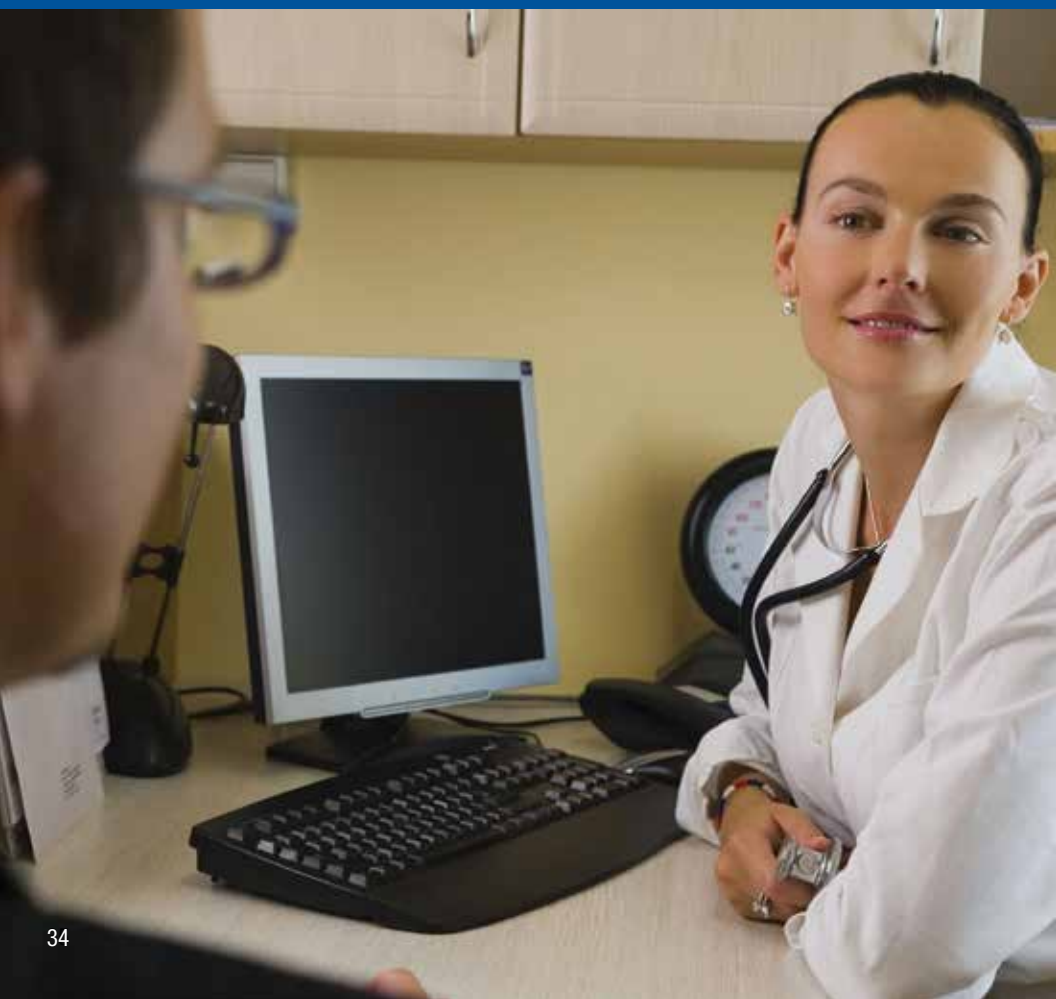
If you do not have insurance, you should do the following:

- Ask both your healthcare provider and your local health department if they are aware of any place where you can get the vaccines that you need at a reduced cost. An example is the annual influenza vaccine for which clinics are often set up throughout the community. These might be less expensive than getting the vaccine from your doctor.

- Contact your local health department to see if you qualify for free or reduced-cost vaccines through any existing programs.
- Contact your employee health department to see if you qualify for any vaccines due to a work-related risk. For example, healthcare workers might be able to get the hepatitis B vaccine because they are at increased risk if they are exposed to blood or blood products.
- Check with your pharmacist to see which, if any, vaccines they offer and the relative cost.

If you get any vaccines outside of your healthcare provider's office, ask the person giving them to provide you with the necessary information to be added to your permanent medical record the next time you see your provider. A convenient vaccine record is provided in the back of this booklet.

COMMON QUESTIONS AND CONCERNS ABOUT VACCINES



Are vaccines safe?

To best answer this question, we must first define what we mean when we say “safe.” If by “safe” we mean completely risk-free, then vaccines aren’t 100% safe. Like all medicines, vaccines have mild side effects, such as pain, tenderness or redness at the site of injection. And some vaccines have very rare, but more serious, side effects.

But nothing is harmless. Anything that we put into our bodies (like vitamins or antibiotics) can have side effects. Even the most routine activities can be associated with hidden dangers. For example, consider seat belts. It’s possible that in an accident a seat belt could cause a minor injury, like a bruise. But if you measure the risk of wearing a seat belt against the risk of not wearing one, the decision to wear a seat belt is an easy one. Likewise, for each of the recommended vaccines, the benefits far outweigh the risks.

Do we still need vaccines?

Vaccines are still given for three reasons:

- For common diseases (like chickenpox, pertussis or pneumococcus), a choice not to get a vaccine is a choice to risk natural infection. For example, every year hundreds of thousands of people are infected with pertussis and some die from the disease. Therefore, it’s important to get the vaccine.
- Some diseases (like measles or mumps) still occur in the United States at low levels. If immunization rates drop, even by as little as 10% to 15%, these diseases will come back.
- While some diseases (like polio, rubella or diphtheria) have been either completely or virtually eliminated from the United States, they still occur in other parts of the world. Because international travel is common, these diseases are only a plane ride away from coming back into the United States.

If by “safe” we mean completely risk-free, then vaccines aren’t 100% safe.

Why do adults need vaccines?

Adults need vaccines for these reasons:

- To boost immunity – Some vaccines do not provide enough immunity to last throughout life, so additional doses are necessary as adults. Examples of this type include tetanus, diphtheria and pertussis.
- To protect against diseases that have not been encountered – For example, since the introduction of the chickenpox vaccine, there is less opportunity for the immune system to “see” varicella virus, and since adults who get chickenpox tend to be more ill, it is important for adults who have not had chickenpox to get the vaccine.
- To protect against viruses that change – Some viruses adapt to their environment in a “survival of the fittest” manner, so that older versions of the vaccine are no longer effective in protecting against the disease. An example of this type is the yearly influenza vaccine.
- To protect against diseases that tend to infect particular groups of people – The pneumococcal vaccine is an example of this type because pneumococcal bacteria primarily infect those younger than 2 years

Some vaccines do not provide enough immunity to last throughout life, so additional doses are necessary as adults.

old, immune-compromised people, and those 65 and older. Since there was not a vaccine available when most adults were children, and the susceptibility increases beyond age 65, the vaccine is recommended for this age group. Some adults younger than 65 who have certain immune-related conditions that increase their susceptibility are also recommended to receive this vaccine.

Similarly, since the chickenpox virus lives silently in the nervous system, it can reactivate to cause shingles at any time; however, most frequently this occurs when a person’s immune system is weakened by other diseases, some treatments or through aging. This is why the shingles vaccine is recommended for everyone 50 years of age and older.

Do vaccines weaken the immune system?

No. But sometimes, infections with natural viruses can weaken the immune system. For example, people infected with influenza virus are at risk of developing severe bacterial pneumonia. Also, people infected with chickenpox virus are at risk of developing severe infections of the skin caused by “flesh-eating” bacteria.

However, because the bacteria and viruses contained in vaccines are highly weakened versions of natural bacteria and viruses, they do not weaken the immune system. On the contrary, vaccines prevent infections that weaken the immune system.



Can vaccines cause long-term diseases like multiple sclerosis, diabetes or asthma?

When one event precedes another, we often wonder whether they are related. For example, some people who smoke a lot of cigarettes get lung cancer. But when scientists wanted to know whether cigarette smoking caused lung cancer, a number of studies performed in the 1950s compared the incidence of lung cancer in people who smoked cigarettes with that in people who didn't smoke. The best studies matched these two groups of people with regard to age, general health, medications and so on. By matching these groups, they made sure the only difference between them was cigarette smoking. The result was clear: Cigarette smoking caused lung cancer. Similarly, some people who use cell phones get brain cancer. To answer the question of whether cell phones caused brain cancer, the incidence of brain cancer in people who used cell phones was

compared with that in people who didn't. Again, these groups were matched to make sure the only difference between them was cell-phone use. The result was also clear: Cell phones didn't cause brain cancer.

Because vaccines are given to nearly everyone, many people with chronic diseases will have received vaccines. And some of these people will have received vaccines close in time to the appearance of the chronic condition. The question is: "Did the vaccine cause the disease?" The best way to answer this question is to do studies similar to those described for smoking and cell phones. Although not all potential associations have been studied, many have. What we do know is that vaccines don't cause autism, diabetes, multiple sclerosis, allergies, asthma, or permanent brain damage.

If I have an egg allergy, can I get vaccines?

Yes. Because the quantity of egg proteins in the influenza vaccine is about a hundredfold less than that required to induce a severe allergic reaction, the influenza vaccine can be given safely even to those who have severe egg allergies. However, people who are concerned should stay in the doctor's office for about 30 minutes after receiving the vaccine. (*Refer to pages 8 and 9 for more information.*)

Yellow fever vaccine is also grown in eggs, so people with egg allergies should discuss the risks and benefits with their doctor.

VACCINE SCHEDULE

Below is a schedule for all routinely recommended vaccines for adults.

Recommended Schedule for ALL Adults

Age	Vaccine(s)
Younger than 50 years	<ul style="list-style-type: none"> • Immunity to MMR and varicella • Tdap once followed by Td or Tdap every 10 years • Influenza annually • COVID-19 — If not previously received • Hep B — If not previously received
50 years or older	<ul style="list-style-type: none"> • Shingles — 2 doses • Influenza annually • Tdap once followed by Td or Tdap every 10 years • COVID-19 — If not previously received • Hep B — If not previously received
65 years or older	<ul style="list-style-type: none"> • Pneum — 1 or 2 doses • Shingles — If not previously received • Influenza annually • Tdap once followed by Td or Tdap every 10 years • COVID-19 — If not previously received • Hep B — If at risk or desire immunity

Vaccines that MIGHT be necessary

HPV	Mening (Mening ACWY and Mening B)	Hep A
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See previous pages to determine your individual needs.

Abbreviations:

Tdap — Tetanus-diphtheria-acellular pertussis vaccine

Td — Tetanus-diphtheria vaccine

Influenza — Influenza vaccine

Shingles — Shingles vaccine

Pneum — Pneumococcal vaccine

HPV — Human papillomavirus vaccine

Hep A — Hepatitis A vaccine

Hep B — Hepatitis B vaccine

Varicella — Varicella (chickenpox) vaccine

MMR — Measles-mumps-rubella vaccine

Mening ACWY — Meningococcal ACWY vaccine

Mening B — Meningococcal B vaccine

COVID-19 — COVID-19 vaccine

RESOURCES



We hope the information in this booklet has answered your questions about vaccines. If you would like to know more about vaccines, vaccine safety, the science behind vaccines, or the process by which vaccines are tested and approved for use, here are some other useful sources of information.

Books

Complete Idiot's Guide to Vaccinations (Penguin Group USA, 2009) was co-written by Michael J. Smith, MD, and Laurie Bouck.

Do Vaccines Cause That?! A Guide for Evaluating Vaccine Safety Concerns (i4ph, 2008) was co-written by Martin G. Meyers, MD, and Diego Pineda.

Vaccinated: One Man's Quest to Defeat the World's Deadliest Diseases (Smithsonian Books, 2007) was written by Paul A. Offit, MD.

Deadly Choices: How the Anti-Vaccine Movement Threatens Us All (Basic Books, 2010) was written by Paul A. Offit, MD.

Vaccines and Your Child: Separating Fact from Fiction (Columbia University Press, 2011) was co-written by Paul A. Offit, MD, and Charlotte A. Moser.

Vaccines: What Everyone Needs to Know (Oxford University Press, 2017) was written by Kristen A. Feemster, MD, MPH, MSHP.

Pamphlets and informational sheets

Vaccine Information Statements (VIS) on all childhood and adult vaccines are offered by the Centers for Disease Control and Prevention (CDC) and can be found at [cdc.gov/vaccines/hcp/vis](https://www.cdc.gov/vaccines/hcp/vis).

Various informational tear sheets are available for download from the Vaccine Education Center at Children's Hospital of Philadelphia at [vaccine.chop.edu/resources](https://www.vaccine.chop.edu/resources).

Hotlines

The Centers for Disease Control and Prevention Contact Center answers questions about vaccines in English or Spanish. The Center can be reached by calling 1-800-CDC-INFO [800-232-4636] or completing the form at **cdc.gov/cdc-info/ask-cdc.html**

Videos

Videos are available from the Vaccine Education Center at Children's Hospital of Philadelphia at **vaccine.chop.edu/videos**.

Professional and family groups

The Vaccine Education Center at Children's Hospital of Philadelphia (VEC) is composed of physicians, scientists and parents interested in explaining the science of vaccines in a clear and straightforward manner. The website is **vaccine.chop.edu**.

Parents PACK provides vaccine information for all age groups. It is a program administered by the VEC that people can join to receive monthly email newsletters and updates about vaccines. The website is **vaccine.chop.edu/parents**.

The American Academy of Pediatrics (AAP) is an organization of pediatricians interested in promoting the health and well-being of children. The AAP has information about vaccines on its website. See **aap.org/immunization**.

Immunize.org is a nonprofit organization that works to boost immunization rates and prevent disease. This organization provides excellent and timely information, including practical tips about vaccine use. In addition, they translate Vaccine Information Statements (VISs) into many languages. The website is **immunize.org**.

Vaccine Information for the Public is a site administered by Immunize.org and is designed for the public and healthcare professionals. The website is **vaccineinformation.org**.

Vaccinate Your Family, the next generation of Every Child by Two, is a nonprofit organization aimed at reducing vaccine-preventable disease across the lifespan. The website is **vaccinateyourfamily.org**.

Institute for Vaccine Safety is based at Johns Hopkins Bloomberg School of Public Health and provides excellent, thorough and up-to-date information on vaccine safety. The website is **vaccinesafety.edu**.

Albert B. Sabin Vaccine Institute aims to reduce needless human suffering from infectious and neglected tropical diseases through innovative vaccine research and development and to advocate for improved access to vaccines and essential medicines for citizens around the globe. The website is **sabin.org**.

National Adult and Influenza Immunization Summit aims to improve vaccination for adults, with a specific focus on influenza vaccine-related issues. The website is **izsummitpartners.org**.

National Foundation of Infectious Diseases addresses infectious diseases, immunizations and antibiotic resistance on their website, **nfid.org**.

Families Fighting Flu is a nonprofit public organization composed of families and pediatricians who have experienced firsthand what it is like to lose a child to the flu or to have a child experience severe medical complications from the flu. The website is **familiesfightingflu.org**.

Autism Science Foundation (ASF) is a nonprofit organization that funds autism research and supports individuals and families affected by autism. The website is **autismsciencefoundation.org**.

Voices for Vaccines (VFV) is a parent-driven organization that provides science-based information about vaccines and vaccine-preventable diseases. The website is **voicesforvaccines.org**.



IMMUNIZATION RECORD

Below is a list of the recommended adult immunizations. Please keep this with your permanent medical information and have your physician or other healthcare professional fill in the dates you receive vaccines and any notes.

Immunization Record for: _____

Date of Birth: _____

- MMR**
- Born before 1957
 - History of Measles
 - History of Mumps
 - History of Rubella
 - Immunization on _____
 - Immunization on _____

- Varicella**
- History of Varicella
 - Immunization on _____
 - Immunization on _____

- Hepatitis A**
- Immunization on _____
 - Immunization on _____

- Hepatitis B**
- Immunization on _____
 - Immunization on _____
 - Immunization on _____

- HPV**
- Immunization on _____
 - Immunization on _____
 - Immunization on _____

- Shingles**
- Immunization on _____
 - Immunization on _____

Immunization Record for: _____

Date of Birth: _____

Pneumococcal Immunization on _____

Immunization on _____

Mening ACWY Immunization on _____

Immunization on _____

Mening B Immunization on _____

Immunization on _____

Immunization on _____

Tdap/Td

Immunization dates:

Influenza

Immunization dates:

COVID-19

Immunization dates:





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For more information about vaccines, visit the Vaccine Education Center websites at:

vaccine.chop.edu and vaccine.chop.edu/parents

Children's Hospital of Philadelphia
3401 Civic Center Blvd.
Philadelphia, PA 19104-4399

1-800-TRY-CHOP www.chop.edu

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