IMMUNIZATION

An introduction to aging science brought to you by the American Federation for Aging Research
SERIOUS VACCINE-PREVENTABLE DISEASES IN OLDER ADULTS

The Centers for Disease Control and Prevention (CDC) recognize four diseases as especially serious, but vaccine-preventable for older adults. These include:

- Influenza (flu)
- Tetanus/Diphtheria
- Pneumococcal disease
- Pertussis

INFLUENZA

Influenza is a highly contagious viral disease that affects about 5 to 20 percent of the U.S. population annually, resulting in more than 200,000 people hospitalized and an average of 23,600 deaths from flu-related causes each year. More than 90 percent of those who die are over 65 years of age. Symptoms of influenza include fever, chills, headache, sore throat, dry cough, runny nose, and body aches.

Influenza spreads through the air via coughs and sneezes. You can also contract it by touching an object that has been contaminated with the virus and then touching your nose, mouth, or eyes.

Influenza vaccine will help prevent this disease. (Note: The vaccine is not perfect for preventing all flu symptoms, especially for older adults. However, it is excellent in preventing severe flu, hospitalization, and death. If you do get the flu, it will be a much milder case.)

The influenza vaccine is recommended if:

- You are 50 years or older.
- You are living in a long-term care facility.
- You have a chronic disease, including heart, lung, or kidney disease, diabetes, asthma, a neurologic disease that compromises respiratory function, anemia, or other blood disorders.

- You are a doctor, nurse, visiting home nurse, other healthcare provider, volunteer worker, family member, or someone else who comes in close contact with a person at risk of serious flu.
- You have close contact with children 0 to 59 months of age, especially children less than six months of age who are too young to get the flu vaccine.
- You live with or care for persons 65 years of age or older.
- You live with or care for persons of any age with one or more chronic medical condition, such as heart or lung disease, cancer, or diabetes.
- You are pregnant.

More flu vaccine facts

- Since flu viruses change each year, people should get the new vaccine each year.
- You cannot get the flu from the vaccine, as it contains killed or “inactivated” influenza virus.
- The flu vaccine will not protect you from other lung infections, such as colds and bronchitis.
- October or November is the best time to get vaccinated, but getting vaccinated in December or even later can still be beneficial, since most influenza activity occurs in January or later in most years. Though it varies from year to year, the flu season can last as late as May.
- An intranasal influenza vaccine (FluMist) licensed in 2003, contains live, attenuated (weakened) virus and is
sprayed into the nostrils instead of injected into the muscle. It is approved only for healthy children and adults from 5 through 49 years of age who are not pregnant. This vaccine also does not cause the flu.

- While the flu vaccine is the best way to prevent the flu, antiviral medications may be helpful in treating the flu if these are administered within two days of onset of illness. So see your healthcare provider right away if you think you may have the flu.

To learn more about good health habits for preventing the flu, click here.

**TETANUS/DIPHTHERIA**

Tetanus, or lockjaw, is caused by bacteria that enter the body through a break in the skin (often a puncture wound or other injury). Tetanus causes painful muscle contraction, especially in the jaw, back, and legs. Other symptoms may include stiffness of the neck or abdomen and difficulty swallowing. Tetanus leads to death in about 1 in 10 cases.

Diphtheria bacteria are spread from one person to another in droplets released when an infected person coughs or sneezes. The symptoms of diphtheria are sore throat, fever, and swollen neck glands. Diphtheria causes a thick coating in the nose, throat, or airway, and if left untreated, can lead to breathing problems, heart failure, paralysis, and death. Its occurrence is rare in the United States, though it is still found in other parts of the world.

Because most cases of tetanus and diphtheria occur in adults, it is particularly important that all adults receive a booster shot if you have not received a booster shot in more than 10 years.

A series of three shots is recommended if you never had the initial childhood tetanus vaccines for tetanus/diphtheria.

**PNEUMOCOCCAL DISEASE**

Pneumococcal disease is caused by the bacteria *Streptococcus pneumoniae* and can lead to life-threatening infections of the lungs (pneumonia), blood (bacteremia), and infection of the lining of the brain (meningitis). It is spread when someone comes in contact with the airborne droplets of an infected person.

A single dose of adult pneumococcal vaccine is recommended if:

- You are age 65 or older
- You have certain chronic illnesses, including heart or lung disease, diabetes, sickle cell disease, kidney failure, alcoholism, cirrhosis, HIV infection, and certain types of cancer
- You have other long-term health problems including leakage of cerebrospinal fluid, damaged spleen, or no spleen
- You are an Alaskan Native or member of certain Native American populations

**More pneumococcal vaccine facts**

The pneumococcal vaccine protects against the 23 strains of *Streptococcus pneumoniae* bacteria that are responsible for three out of four pneumococcal disease cases in adults.

Most people need only one shot in their lifetime, although some may need a booster after 5 years.

You can get the shot any time of year from your doctor.

You cannot get pneumonia from the vaccine.

**PERTUSSIS**

Pertussis, or whooping cough, is a highly contagious bacterial infection of the lungs that can cause a prolonged, severe cough. Older children and adults infect infants and young children, who may then become very ill or die.
The vaccine — pertussis vaccine combined with tetanus and diphtheria vaccine (Tdap) — became available in the U.S. in 2005.

All adults aged 19 through 64 years should receive one dose of Tdap (pertussis vaccine combined with tetanus and diphtheria) to replace the next booster dose of tetanus and diphtheria vaccine. A booster dose is especially important for healthcare personnel and adults who have close contact with babies younger than 1 year of age. Tdap may be given to persons 65 years or older. The safety of Tdap in persons 65 years and older is likely the same as in 18-64 year olds.

OTHER VACCINE-PREVENTABLE DISEASES

Other vaccine-preventable diseases for older adults include viral hepatitis, measles, mumps, rubella, polio, varicella (chickenpox), meningococcal disease, and shingles.

Viral Hepatitis

Viral hepatitis, an infection of the liver caused by a virus, causes from 11,000 to 15,000 deaths each year in the U.S. Two types of viral hepatitis are vaccine-preventable. These are hepatitis A and hepatitis B. Hepatitis C is not vaccine-preventable. Hepatitis A is transmitted through person-to-person contact or the ingestion of contaminated food or water. Hospitalization rates for hepatitis A are 11 to 22 percent, and persons who become ill lose an average of 27 days from work. About 100 people die from hepatitis A each year.

Hepatitis B is transmitted primarily through infected blood or body fluids and is approximately 100 times more contagious than HIV, the virus that causes AIDS. Hepatitis B is the second leading cause of cancer, behind tobacco, and the leading cause of liver cancer in the United States. An estimated 800,000 to 1.4 million people in the U.S. have chronic (long-lasting) hepatitis B infection, of which 20 percent to 30 percent acquired their infection in childhood. Chronic hepatitis B virus infection increases a person’s risk for chronic liver disease, cirrhosis,
and liver cancer. From 3,000 to 5,000 persons die each year from hepatitis B-related liver disease.

Hepatitis C is less common than hepatitis A or hepatitis B but is more likely to cause chronic liver problems for infected individuals. Transmitted primarily through infected blood, most hepatitis C cases are attributable to injection of illegal drugs with contaminated syringes. Some transfusion-associated cases occurred prior to blood donor screening, but these now occur in less than one per million transfused unit of blood.

Symptoms of viral hepatitis include fever, nausea, vomiting, abdominal discomfort, clay-colored bowel movements, dark urine, malaise, joint pain, or jaundice (yellow skin and eyes); however, many people with viral hepatitis have no symptoms and can unknowingly infect others. Likelihood of early symptoms decreases with a person’s age.

Children play an important role in transmission of hepatitis. Since they often have no symptoms, their disease may go undetected, allowing them to serve as a source of infection for close contacts.

Hepatitis A vaccination consists of a series of two injections and, beginning in 2006, is recommended for all children 12-23 months of age. Hepatitis A vaccination is also recommended for persons 1 year of age and older if:
- You travel or work in countries with high or intermediate prevalence of hepatitis A
- You have chronic liver disease
- You are a man and have sex with men
- You use illegal (“street”) drugs

Hepatitis B vaccination consists of a series of three injections and is recommended for all persons 18 years or younger. It is also recommended for adults if:
- You are a healthcare or public safety worker who might be exposed to infected blood or body fluids
- You plan to travel for six months or longer to areas with high or intermediate prevalence of hepatitis B (go here for list of countries)
- You are a household contact of person(s) with chronic hepatitis B
- You are a hemodialysis patient
- You engage in high-risk sexual activities and/or use illegal injected drugs
- You are a prisoner in a long-term correctional facility
- You work in or are a client of an institution for the developmentally disabled

Measles
Measles is caused by a virus that is spread through airborne respiratory droplets or through direct contact with an infected person. Symptoms include a high fever, rash, runny nose, red eyes, and cough.

Measles can lead to serious complications such as pneumonia, encephalitis, and seizures. A pregnant woman who contracts measles is at increased risk for miscarriage or premature labor.

The measles vaccine is routinely administered as part of the combination measles, mumps, and rubella (MMR) shot. Two doses generally provide lifelong protection. The vaccine is not generally necessary for persons born before 1957, because such persons are likely to have had measles disease as a child. However, there is no harm in receiving measles or MMR vaccine if you are already immune from having had measles disease or prior vaccination.

Mumps
Mumps is a disease of the salivary glands caused by a virus that is spread by direct contact with an infected person or through airborne respiratory droplets. Symptoms include fever, headache, muscle ache, and swelling of the salivary glands located beneath the ears between the neck and jaw.

The use of MMR vaccine accounts for the dramatic decline in the incidence of mumps in the United States. However, adults are susceptible to mumps (meaning they have neither had mumps nor been vaccinated against it). Adults who develop disease are more likely to have serious complications than are children. These complications include meningitis, inflammation of the testicles and ovaries, inflammation of the pancreas, and deafness (usually permanent).

Mumps vaccine is recommended for children, teens, and susceptible adults and is routinely given as part of the MMR shot. The vaccine is not generally necessary for persons born before 1957, because such persons are likely to have had mumps disease as a
child. However, there is no harm in receiving mumps or MMR vaccine if you are already immune from having had mumps disease or prior vaccination.

Rubella
Rubella virus is spread by contact with an infected person or articles used by an infected person, or through airborne respiratory droplets. Symptoms may include rash or fever. However, up to half of all people infected with rubella may have no symptoms. Pregnant women who get rubella during pregnancy, particularly the first three months of pregnancy, may miscarry, or their babies may be born with birth defects.

Rubella vaccine is routinely given as part of the MMR shot. As with measles and mumps vaccines, rubella vaccine is not routinely recommended for people born before 1957, except for women who may become pregnant.

As an adult you should be vaccinated with one dose of the MMR vaccine if you were born in 1957 or later and have no medical contraindication, unless there is documentation of vaccination or other acceptable evidence of immunity against these three diseases.

Polio
Polio is a viral disease of the nervous system. The polio virus spreads through contact with an infected person. Symptoms include fever, sore throat, nausea, headache, and stiffness in the neck, back, and legs. Complications can cause paralysis and even death. Fortunately, the risk of getting polio is very small in the United States today because of the widespread use of polio vaccines.

Adult immunization is recommended if:

- You plan to travel to a part of the world where polio still occurs (Africa or parts of South Asia)
- You are a laboratory worker handling specimens that could contain polio virus
- You are a healthcare worker who could have close contact with patients infected with the polio virus

Varicella (Chickenpox)
Varicella is a highly contagious disease caused by a virus. Varicella infection can occur after direct contact with the blisters of an infected person or from airborne droplets from an infected person’s respiratory tract. Before varicella vaccine was available in 1995, approximately 100 people died from chickenpox complications each year in the United States. The number of cases has since declined by more than 80 percent. Chickenpox in adults is often more severe than in children. Adults are 25 times more likely to die from chickenpox complications than children.

Before varicella vaccine was available in 1995, approximately 100 people died from chickenpox complications each year in the United States.

Meningococcal Disease
Meningococcal disease is a serious infection caused by bacteria that infect the blood or membranes surrounding the brain and spinal cord. Symptoms include fever, headache, and stiff neck. It can lead to brain damage, hearing loss, loss of limbs, and death. The bacteria are spread through airborne respiratory droplets or direct contact.

You should be vaccinated if you are an adult and:

- You plan to travel to an area of the world where the disease is common (Africa or Saudi Arabia)
- You have a damaged or absent spleen or a certain immune system disorder
- You are a college freshmen living in a dormitory
- You have terminal complement deficiency (your doctor can determine this)
- You are a military recruit
Shingles
Shingles, also known as herpes zoster, is caused by the varicella zoster virus. There are an estimated 1 million cases of shingles in the U.S. each year. It is possible for anyone who has had chickenpox to get shingles, but it is most common in people over 50. The risk of getting shingles increases with age. Shingles is caused by the same virus that causes chickenpox. After a person has chickenpox, the virus remains in the body and can reappear years later, causing shingles.

The first signs of shingles may include pain, itching, tingling or burning in a specific location. Other symptoms may include fever, headache, chills and upset stomach. Shingles causes a painful skin rash of blister-like lesions usually confined to one side of the face or body. Complications of shingles can include extreme pain and eye involvement that can lead to blindness. Another complication is called post herpetic neuralgia (PHN). PHN can cause pain at the site of the rash that persists for months, sometimes even years after the rash has healed. Certain antiviral drugs can reduce the length and severity of an outbreak of shingles, and potentially reduce the likelihood of occurrence or severity of post herpetic neuralgia. However, these antiviral treatments must be initiated soon after the first symptoms begin. So, if you think you have shingles, contact your healthcare professional as soon as possible.

Herpes zoster is not caused by the same virus that causes genital herpes, a sexually transmitted disease. Shingles cannot be transmitted from one person to another. However, the virus that causes shingles, varicella zoster virus, can be transmitted from someone with active shingles to another person that has not had chickenpox through direct contact with the rash. Such contact would cause that person to get chickenpox, not shingles.

A vaccination with zoster vaccine (Zostavax) can prevent shingles. If you are 60 years of age or older, you should consult your healthcare professional about vaccination to prevent shingles. Even though your risk for getting shingles begins at age 50 it is only recommended for people ages 60 and older because the vaccine was only studied in this age group.

To learn more about shingles, see the U.S. National Institute of Neurological Disorders and Stroke.

For more information about vaccines and vaccine-preventable diseases, talk to your healthcare provider or visit the Centers for Disease Control and Prevention.