



**Meningococcal Vaccination Program  
Question and Answers**

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## **Meningococcal Vaccination Program Questions and Answers**

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*Adapted from the Immunization Action Coalition (with permission) and the Centers for Disease Control and Prevention (CDC).*

## The Disease

### Overview

#### 1) What causes meningococcal disease?

Meningococcal disease is a severe acute infection caused by the bacterium *Neisseria meningitidis* (also known as meningococcus). Meningococcus infects the bloodstream and the lining of the brain and spinal cord (causing meningitis). Five different types of meningococcal bacteria cause virtually all meningococcal disease in the world. These types are grouped based on a complex sugar that coats the bacteria (called a polysaccharide). These five types of meningococcal bacteria are called serotypes A, B, C, Y, and W-135.

#### 2) How do you know if you have meningococcal disease?

The most common symptoms are high fever, chills, tiredness, and a rash. If meningitis is present, the symptoms will also include severe headache and a stiff neck (which may not be present in infants); seizures may also occur. Symptoms can be mistaken for other illnesses and can unfortunately lead to delayed diagnosis and treatment.

Diagnosis is made from blood and spinal-fluid samples. Any bacteria found are grown in a medical laboratory and identified.

#### 3) How serious is meningococcal disease, especially to the Armed Forces?

Meningococcal bacteria are very dangerous, because they rapidly make large quantities of a poison called endotoxin. Endotoxin damages small blood vessels and causes low blood pressure and shock. For this reason, meningococcal bacteria can kill people soon after entering the bloodstream. Meningococcal disease can be so rapid and overwhelming that even appropriate, early medical care can be too late. About 10% to 15% of people with meningococcal disease die. Of those who survive, up to 20% suffer from permanent hearing loss, limb loss, or neurological damage. Amputations may be necessary because of reduced blood flow to fingers, toes, or limbs.

Because meningitis can be caused by different types of meningococcus and other microbes, being immunized against *Neisseria meningitidis* or having had the disease will not protect against these other sources of infection. The other causes include bacteria such as *Streptococcus* or *Haemophilus*, viruses, or fungi.

#### 4) Is there a treatment for meningococcal disease?

Meningococcal disease can be treated with antibiotics. It is critical to start treatment early. Even with treatment, about 10% to 15% of patients die.

#### 5) Can meningitis be caused by a virus?

Yes. The word "meningitis" refers to inflammation of the tissues covering the brain and spinal cord. This inflammation can be caused by viruses and fungi, as well as bacteria. Viral meningitis is the most common type. It has no specific treatment, but it is usually not as serious as meningitis caused by bacteria.

### Rate and Spread

#### 1) How common is meningococcal disease in the United States?

The disease is most common in children less than one year old and in people with certain medical conditions. Others at risk include travelers to places where meningococcal disease is common, those with damaged or missing spleens, and people with certain blood diseases. Other factors include having a previous viral infection, living in a crowded household, having an underlying chronic illness, and being exposed to cigarette smoke—either directly or second-hand. College freshmen living in dormitories are at greater risk than others their age.

Each year in the United States an estimated 2600 people are infected with meningococcus and 300 die from the disease. Meningococcal disease is more common in Africa and is the frequent cause of epidemic meningitis outbreaks. In Africa, such epidemics occur regularly within a well-limited geographic zone, the so-called African meningitis belt. In the countries within the meningitis belt, the illness is endemic and sporadic: numerous cases of meningococcal meningitis are reported each year during the dry season, and every 6 to 12 years a large outbreak occurs. The World Health Organization estimated meningococcal disease was the cause of 171,000 deaths worldwide in 2000.

### **2) How does meningococcal disease spread from one person to another?**

The disease is spread person-to-person through the exchange of respiratory and throat secretions (e.g., coughing, kissing, sharing eating utensils). Meningococcal bacteria cannot live for more than a few minutes outside the body, so the disease is not spread as easily as the common cold or influenza.

### **3) Can you get meningitis more than once?**

Yes, because meningitis results from infection by different types of the meningococcal bacterium, by other bacteria such as Streptococcus and Haemophilus, and by viruses and fungi.

### **4) What can be done to protect those exposed to someone with the disease?**

Individuals who have been exposed to a person with bacterial meningitis can be protected by starting antibiotics immediately (within 24 hours of diagnosis). Antibiotics are usually recommended for household contacts and children attending the same daycare or nursery school as the person who is sick. Older children are not usually considered exposed, unless they have had intimate contact with an infected person, such as kissing or sharing a glass. Immunization may also be recommended for those two years of age and older.

## **Meningococcal Vaccine**

### **Immunization**

#### **1) What kind of vaccine is given to prevent meningococcal disease?**

Yes. The first meningococcal polysaccharide vaccine in the United States was licensed in 1974 and was effective against one of the five major types (monovalent) of meningococcus. The current quadrivalent polysaccharide vaccine (Menomune or MPSV4) was licensed in 1978.

A new meningococcal polysaccharide conjugate vaccine (Menactra or MCV4) was licensed in January 2005. Both vaccines licensed in the U.S. provide protection against the types—A, C, Y, and W-135

To date, no vaccine protects against subtype B which cause nearly a quarter of the meningococcal disease cases in the United States.

#### **2) Who should get meningococcal vaccine?**

Immunization is recommended for the following groups:

- U.S. military basic trainees.
- All children at their preadolescent visit (11 to 12 years old). For those never receiving MCV4 previously, a dose at high school entry is recommended.
- College freshman living in dormitories.
- Individuals with a damaged spleen, or whose spleen has been removed.
- Anyone who has a terminal complement deficiency (an immune disorder)
- Those working with meningococcal bacteria in laboratories.
- Anyone traveling to, or living in, a part of the world where meningococcal disease is common, such as parts of Africa.
- People who might have been exposed to meningitis during an outbreak.

### **3) What side effects have been reported with this vaccine?**

Both of the currently licensed meningococcal vaccines showed similar side effects during clinical trials. The most common adverse reactions after immunization with Menomune and Menactra are injection site symptoms such as pain, swelling, and redness at the injection site. A small percentage of people who receive the vaccine develop fever. Serious allergic reactions, occurring within a few minutes to a few hours after immunization, are very rare.

A few cases of Guillain-Barre syndrome (GBS), a serious nervous system disorder, have been reported among people who received MCV4. There is not enough evidence yet to determine whether they were caused by the vaccine. The number of cases does not seem to be higher than what would naturally result from other causes of GBS. This is being further investigated by health officials.

### **4) How effective is this vaccine?**

Both meningococcal vaccines are 85% to 100% effective in preventing infection from four types of meningococcal disease (A, C, Y, and W-135). Menomune is not effective in children younger than two years of age. Safety and effectiveness of Menactra has not yet been established for those outside the age range of 11 to 55 years old. MCV4 is the preferred vaccine for people 11 to 55 years old, but MPSV4 can be used if MCV4 is not available. MPSV4 should be used for children 2 to 10 years old and in adults older than 55 who are at risk.

### **5) What are the vaccine's ingredients?**

The polysaccharide vaccine (Menomune) is made from the purified, sugar-coated outer capsule of the meningococcal bacteria. The polysaccharide conjugate vaccine (Menactra) is also made in this way but is then chemically linked to a purified protein to increase the body's immune response to the vaccine. The vaccine does not contain live bacteria.

## **Administration**

### **1) How is this vaccine given?**

Menomune is injected subcutaneously (under the skin) as a single 0.5mL dose. Booster doses are recommended after 3 to 5 years for those traveling to endemic areas, people without spleens and certain immune-compromised individuals. Menactra is injected intramuscularly as a single 0.5ml dose. The need for a booster dose has not yet been determined.

### **2) How many doses of meningococcal vaccine are needed?**

Usually, only one dose is needed. Sometimes an additional dose is recommended for people who remain at high risk (ask your provider). With Menomune, revaccination after three to five years may be needed for people who continue to be at high risk of infection.

While not generally recommended, MPSV4 may be recommended for children 3 months to 2 years old under special circumstances. These children should receive 2 doses, 3 months apart.

**3) Can the vaccine cause meningococcal disease?**

No. It does not contain live bacteria.

**4) Should college students be vaccinated against meningococcal disease?**

College freshmen who live in, or plan to live in, dormitories should consider receiving the vaccine. Some schools now require incoming freshmen to be immunized. The vaccine may be available from the college health service.

**5) How long does the meningococcal vaccine last?**

With Menomune, revaccination after three to five years may be needed for people who continue to be at high risk of infection.

**Contraindications**

**1) Who should NOT receive this vaccine?**

Those who should not receive meningococcal vaccine are people who have had serious allergic reactions to previous doses of the vaccine or to one of its components, and people who are moderately or severely ill (although the vaccine can be given when their symptoms improve). Menactra is contraindicated for those who have a latex allergy (latex is used in the vial stopper of the Menactra vaccine).

**2) What about pregnant or breastfeeding women?**

Pregnant or breastfeeding women may receive the vaccine if they are in a group for whom the vaccine is indicated.