Fact Sheet

What causes meningococcal disease?
Meningococcal disease is caused by the bacterium *Neisseria meningitidis*. This bacterium has at least 13 different subtypes. Five of these subtypes, A, B, C, Y, and W-135, cause almost all invasive disease. The relative importance of these five subgroups depends on geographic location and other factors.

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

How long does it take to show signs of meningococcal disease after being exposed?
Meningococcal bacteria can make a person extremely ill by infecting the blood (septicemia) or by infecting the fluid of the spinal cord and around the brain (meningitis). Symptoms of either can develop in just a few hours or they may take one to two days. Because this disease progresses quickly, it is important to be diagnosed and start treatment as soon as possible.

What are the symptoms of meningococcal disease?
The most common symptoms are high fever, chills, lethargy, and a rash. If meningitis is present, the symptoms will also include headache and neck stiffness (which may not be present in infants). Seizures may also occur. In overwhelming meningococcal infections, shock, coma, and death can follow within several hours, even with appropriate medical treatment.

How serious is meningococcal disease?
Meningogoccal disease is serious. About 10% – 15% of persons with meningococcal disease die. Of those who recover, 10% – 15% suffer from permanent hearing loss, limb loss, brain damage, or other serious after-effects.

How is meningococcal disease diagnosed?
The diagnosis is made by taking samples of blood and spinal fluid from a person who is possibly infected. The spinal fluid is obtained by performing a spinal tap, where a needle is inserted into the lower back. Any bacteria found in the blood or spinal fluid is grown in a medical laboratory and identified.

Meningococcal disease is relatively rare in the United States, and the symptoms can be mistaken for other illnesses, which unfortunately can lead to delayed diagnosis and treatment.

Can’t meningitis be caused by a virus too?
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 is usually not as serious as meningitis caused by bacteria.

Is there a treatment for meningococcal disease?
Bacterial meningitis can be treated with antibiotics. It is critical to start treatment early.

How common is meningococcal disease in the United States?
There are approximately 2,000-3,000 cases of meningococcal disease each year in the United States. An estimated 125 deaths from meningococcal disease occurred in the United States in 2004.

The disease is most common in children younger than age one year and in persons with certain medical conditions. The proportion of cases in adolescents and young adults has increased in recent years; the rate of invasive disease among persons age 17-20 years is about twice that of the general U.S. population.

What persons are at special risk for meningococcal disease?
Persons at risk include infants, travelers to places where meningococcal disease is common (e.g., certain countries in Africa and Saudi Arabia), people with damaged or missing spleens, and people with certain blood diseases.

Other factors make it more likely an individual will develop meningococcal disease, including 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).

Studies have also shown that college freshmen who live in dormitories are at an increased risk of meningococcal disease compared with others their age.

How common is meningococcal disease in the world?
Meningococcal disease is common in certain parts of the world, especially the area of Africa which is known as the “meningitis belt”. An estimated 700,000 cases of meningococcal disease occurred in this area over a recent 10-year period; about 10% of the cases died. Subtype A is responsible for most of the meningococcal disease in sub-Saharan Africa, but this subtype is uncommon in the United States.

Can you get meningitis more than once?
Yes. Meningitis can be caused by different subtypes of the meningococcal bacterium, by other bacteria such as Streptococcus and Haemophilus, as well as by viruses and fungi. Even being vaccinated against *Neisseria meningitidis* or having had the disease will not protect you against these other sources of infection.

If a child is diagnosed with meningococcal disease, can anything be done to protect the other children with whom he has contact?
Individuals who have been exposed to a person with bacterial meningitis can be protected by being started on a course of antibiotics immediately (ideally within 24 hours of the patient being diagnosed). This is usually recommended for household contacts and children attending the same day care or nursery school. Older children (e.g., who are attending the same school or church) aren’t usually considered exposed unless they have had very close contact with the infected person (e.g., kissing or sharing a glass).

In addition to the antibiotic treatment, vaccination may be recommended for people two years of age and older if the person's infection is caused by meningococcus type A, C, Y, or W-135, all of which are contained in the meningococcal vaccine.

When did the meningococcal vaccine become available?
The first meningococcal vaccine in the United States was licensed in 1974 and was effective against only one of the five major subtypes of meningococcus.

A meningococcal polysaccharide vaccine or "MPSV" (Menomune by sanofi pasteur) was licensed in 1981 for persons ages 2 years and older. It protects against four subtypes of meningococcus - A, C, Y, and W-135.

A meningococcal conjugate vaccine or "MCV" (Menactra by sanofi pasteur) was licensed in 2005. It also protects against the A, C, Y and W-135 subtypes. MCV is expected to give better, longer-lasting protection than the polysaccharide vaccine. It is licensed for use in persons 11-55 years of age.

Unfortunately, no vaccine protects against subtype B which causes about one third of all the meningococcus cases in the United States. In 2001, 65% of cases in infants age one year or younger were caused by subtype B.

What kind of vaccines are they?
The MPSV vaccine is made from the outer polysaccharide capsule (sugar coat) of the meningococcal bacteria. The vaccine does not contain live bacteria. The MCV vaccine contains *Neisseria meningitides* serogroup A, C, Y and W-135 capsular polysaccharide antigens individually conjugated to diphtheria toxoid protein. The vaccine does not contain live bacteria.

How is this vaccine given?
The MPSV vaccine is given as an injection into the fat of the arm. The MCV vaccine is given in the muscle.

Who should get the meningococcal vaccine?
MCV is recommended for all children at their routine preadolescent check-up at 11-12 years of age. For those who never got a dose previously, a dose is recommended at high school entry or at about age 15 years.

Any other adolescent or teen who wants to decrease their risk of meningococcal disease can also get the vaccine.

Vaccination is recommended for other people at increased risk of meningococcal disease; this includes:

- College freshmen living in dormitories.
- Individuals who have a damaged or missing spleen.
- Persons with terminal complement component deficiency (an immune system disorder).
- Persons working with meningococcus bacteria in laboratories.
- Travelers to certain countries in sub-Saharan Africa as well to other countries for which meningococcal vaccine is recommended.
- U.S. military recruits.
- Anyone who might have been exposed to meningitis during an outbreak.

MCV is the preferred vaccine for persons ages 11 through 55 years in these risk groups, but MPSV can be used if MCV is not available. MPSV should be used for children 2-10 years old and adults over 55, who have risk factors for the disease.

Should college students be vaccinated against meningococcal disease?
College freshmen, especially those living in dormitories, are at an increased risk of meningococcal disease relative to other persons their age. The MCV vaccine is recommended for college freshmen who plan to live in dormitories. Some schools now require incoming freshmen and others to be vaccinated. The vaccine may be available from the college health service.

Although the risk for meningococcal disease among non-freshmen college students is similar to that of the general population of the same age, there is no medical reason that other students who wish to decrease their risk of meningococcal disease cannot receive the vaccine.

How many doses of meningococcal vaccine are needed?
Persons with risk factors who are either age two through nine years or older than 55 years should get one dose of MPSV. An additional dose is recommended if they remain at risk, such as people without a spleen or those who travel repeatedly to parts of Africa. If MCV is given, no additional doses are recommended at this time, even for people who remain at high risk.

Under special circumstances, MPSV may be recommended for children ages three months to two years. These children should get two doses, three months apart.

Should individuals who received MPSV vaccine in the past get a dose of MCV?
The current recommendation is only to revaccinate with MCV if it has been at least 5 years since the MPSV dose and if the person is in a high-risk category (e.g., college freshman living in a dorm).

How safe is this vaccine?
Both meningococcal vaccines are very safe. Polysaccharide (sugar) meningococcal vaccines have been used extensively in mass vaccination programs, such as those conducted by the military.

What are the side effects of this vaccine?
Up to about half of people who get meningococcal vaccines have mild side effects, such as redness or pain where the shot was given. These symptoms usually last for one or two days and are more common after MCV than after MPSV.

A small percentage of people who receive the vaccine develop a fever. Severe reactions, such as a serious allergic reaction, are very rare.

How effective is this vaccine?
The MPSV vaccine is 85 percent to 100 percent effective at preventing infection from the subtypes of meningococcus found in the vaccine (A, C, Y, and W- 135). However, the vaccine does not protect against subtype B meningococcus. The vaccine is not licensed and not effective in children younger than two years of age. Based on results of

laboratory studies, MCV is believed to be as effective as MPSV, and to have a longer duration of immunity.

Who should not receive meningococcal vaccine?

- Persons who have had a serious allergic reaction to a previous dose of either meningococcal vaccine or to one of the vaccine components.
- Persons who are moderately or severely ill.

Can a pregnant woman get meningococcal vaccine?

Studies of vaccination with MPSV during pregnancy have not documented adverse effects among either pregnant women or newborns. No data are available on the safety of MCV during pregnancy. Pregnancy is not considered to be a contraindication to either MPSV or MCV.

Can the vaccine cause meningococcal disease?

No. Only the *Neisseria meningitidis* bacterium can cause meningococcal disease. The vaccine is fractional and contains only a part of the microbe.

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