

Meningococcal Disease and College Students

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What is meningococcal disease?

Meningococcal disease is caused by infection with bacteria called *Neisseria meningitidis*. These bacteria can infect the tissue (the “meninges”) that surrounds the brain and spinal cord and cause meningitis, or they may infect the blood or other body organs. In the US, about 1,000-1,200 people per year get meningococcal disease and 10-15% die despite receiving antibiotic treatment. Of those who survive, 11-19% may lose limbs, become hearing impaired or deaf, have problems with their nervous system, including long-term neurologic problems, or have seizures or strokes.

What are *Neisseria meningitidis*?

Neisseria meningitidis are bacteria that may be found normally in people’s throats and noses. About 5 to 15% of people carry these bacteria and do not get sick from them. These people may be called “carriers.” Carriers only have bacteria for a short time. Usually, the bacteria go away and these people may have increased resistance to infection in the future. In rare cases, the bacteria may get into the blood and go to the tissue surrounding the spinal cord and brain, causing severe illness.

What are the symptoms of meningococcal disease?

Signs and symptoms of meningococcal disease include a sudden onset of fever, stiff neck, headache, nausea, vomiting, and/or mental confusion. Changes in behavior such as confusion, sleepiness, and unresponsiveness are important symptoms of illness. A rash may also be present. Anyone who has these symptoms should be seen by a healthcare provider immediately.

How are the bacteria spread?

These bacteria are passed from person-to-person through saliva (spit). You must be in close contact with an infected person’s saliva in order for the bacteria to spread. Close contact includes activities such as kissing, sharing water bottles, sharing eating/drinking utensils or sharing cigarettes with someone who is infected; or being within 3-6 feet of an infected person who is coughing or sneezing.

Who is at most risk for meningococcal disease?

High-risk groups include anyone with a damaged spleen or whose spleen has been removed, those with persistent complement component deficiency (an inherited immune disorder), HIV infection, those traveling to countries where meningococcal disease is very common, microbiologists and people who may have been exposed to meningococcal disease during an outbreak. People who live in certain settings such as college freshmen living in dormitories and military recruits are also at greater risk of disease from some serotypes.

Are students in college at risk for meningococcal disease?

College freshmen and other newly enrolled college students, living in dormitories and other congregate living situations (such as fraternities and sororities), are at an increased risk for meningococcal disease caused by some of the serogroups contained in the quadrivalent vaccine, as compared to individuals of the same age not attending college. The closed setting, combined with certain behaviors (such as alcohol consumption, exposure to cigarette smoke, sharing food or beverages, and activities involving the exchange of saliva), may put college students at a greater risk



for infection. The risk of meningococcal disease for other college students, in particular older students and students who do not live in congregate housing, is not increased.

In general, the risk of invasive meningococcal B disease is not increased among college students relative to others of the same age not attending college. However, outbreaks of meningococcal B disease do occur, though rarely, at colleges and universities. Vaccination of students with meningococcal B vaccine may be recommended during outbreaks.

Is there a vaccine against meningococcal disease?

Yes, there are 3 different meningococcal vaccines.

- Quadrivalent meningococcal conjugate vaccine (Menactra and Menveo) protects against 4 serotypes (subgroups), A, C, W, and Y, of meningococcal disease. It is recommended for all children 11-12 years of age and for some younger children with certain health conditions like asplenia (including sickle cell disease), or prior to travel to certain parts of the world where meningococcal disease is common. A second dose of meningococcal conjugate vaccine is routinely recommended at 16 years of age. Adolescents and young adults who have not been vaccinated according to routine recommendations should talk to their healthcare provider about vaccination according to the “catch up” schedule.

College freshmen, military recruits and other newly enrolled college students living in dormitories who are not yet vaccinated are also recommended to receive meningococcal conjugate vaccine.

- Meningococcal serogroup B vaccine (Bexsero and Trumenba) protects against serogroup B meningococcal disease. It is recommended for people with certain relatively rare high-risk health conditions age 10 or older (examples: persons with a damaged spleen or whose spleen has been removed, those with persistent complement component deficiency, microbiologists working with *N. meningitidis*, and people who may have been exposed during an outbreak). Adolescents and young adults (16 through 23 years of age) **may** also be vaccinated with a serogroup B meningococcal vaccine, preferably at 16 through 18 years of age, to provide short term protection for most strains of serogroup B meningococcal disease.
- Quadrivalent meningococcal polysaccharide vaccine (Menomune) also protects against 4 types (A, C, W, Y) of the 13 serogroups (subgroups) of *N. meningitidis* that cause serious disease. It is recommended for people with certain high-risk conditions 56 years of age and older.

If you have questions about whether or not you or your child should receive any of these vaccines, talk to your healthcare provider.

How complete is the protection with the vaccine?

The incidence of meningococcal disease of all serogroups has been declining in the U.S. since the late 1990s, in part due to vaccination. Strains C, W and Y, which are included in quadrivalent meningococcal conjugate vaccine, account for 73% of meningococcal disease among people > 11 years in the U.S. Because effectiveness of quadrivalent meningococcal conjugate vaccine wanes over time, a booster is recommended at age 16, after the initial dose at age 11-12. This protects young



people during their late teens and early twenties, when they are most at risk. Unfortunately, no vaccine is 100% effective in preventing disease. If your child is exposed to meningococcal disease, antibiotics may be recommended to keep your child from getting sick.

Meningococcal B vaccines are expected to provide short-term protection against most strains of serogroup B meningococcal disease. Studies are being conducted to verify and further describe the effectiveness of these vaccines.

Is the meningococcal vaccine safe?

A vaccine, like any medicine, is capable of causing allergic reactions. The risks associated with receiving meningococcal vaccine are much less than the risk of meningococcal disease. Some people who get this vaccine have mild side effects, such as redness or pain where the shot was given. Local reactions are more common in those receiving meningococcal conjugate vaccine. These symptoms usually last for 1-2 days. A small percentage of people who receive the vaccine develop fever. The vaccine can be given to pregnant women.

Are students required to get meningococcal vaccine before college?

Massachusetts law requires newly enrolled full-time students attending colleges and schools with grades 9-12, who will be living in a dormitory or other congregate housing, licensed or approved by the school or college, to receive a dose of quadrivalent meningococcal vaccine. These students must provide documentation of having received a dose of quadrivalent meningococcal conjugate vaccine at any time in the past (or a dose of quadrivalent meningococcal polysaccharide vaccine within the last 5 years). Immunizations should be obtained prior to enrollment or registration; however, students may be enrolled or registered provided that the required immunizations are obtained within 30 days of registration. There is no requirement for meningococcal B vaccination.

The law allows exemptions. Students may begin classes without a certificate of immunization against meningococcal disease if: 1) the student has a letter from a physician stating that there is a medical reason why he/she can't receive the vaccine; 2) the student (or the student's parent or legal guardian, if the student is a minor) presents a statement in writing that the vaccination is against his/her sincere religious belief; or 3) the student (or the student's parent or legal guardian, if the student is a minor) signs a waiver stating that the student has received information about the dangers of meningococcal disease, reviewed the information provided and elected to decline the vaccine. More information may be found in the MDPH document "*Information about Meningococcal Disease and Vaccination and Waiver for Students at Residential Schools and Colleges.*"

MDPH strongly recommends two doses of quadrivalent meningococcal conjugate vaccine for all adolescents: a first dose at age 11 through 12 years, with a second dose at 16 years. While not required, MDPH strongly recommends that anyone up to 21 years of age who is entering college receive a second dose of quadrivalent meningococcal conjugate vaccine if their first dose was received before their 16th birthday, particularly if they are new residential students. College students who do not live in campus-related housing and want to reduce their risk for meningococcal disease may also choose to be vaccinated, though it is not required. Adolescents and young adults (16 through 23 years of age) **may** also be vaccinated with a serogroup B meningococcal vaccine, preferably at 16 through 18 years of age, to provide short term protection for most strains of serogroup B meningococcal disease.



Where can a college student get vaccinated?

Students and their parents should discuss meningococcal disease, the benefits and risks of vaccination and the availability of vaccine with their healthcare provider.

Where can I get more information?

- Your healthcare provider
- The Massachusetts Department of Public Health, Division of Epidemiology and Immunization at (617) 983-6800 or on the MDPH website at <http://www.mass.gov/dph/>
- Your local health department (listed in the phone book under government)

