



In February 2005, the Centers for Disease Control and Prevention (CDC) recommended a vaccine for adolescents.

The vaccine prevents meningococcal disease, an uncommon but serious infection.

Q. What is meningococcus?

A. Meningococcus is a bacterium. Meningococcal bacteria live on the lining of the nose and throat and are spread from one person to another by close personal contact. Occasionally, the bacterium enters the bloodstream and causes severe disease.

Five different types of meningococcal bacteria, classified on the basis of a complex sugar that coats the bacteria (called polysaccharide), cause virtually all meningococcal disease in the world. These five different types of meningococcal bacteria are called types A, B, C, Y and W-135.

Q. What are the symptoms of meningococcal infection?

A. Meningococcus infects the bloodstream, the lining of the brain and spinal cord (causing meningitis). Symptoms of bloodstream infection include fever, chills, rash, low blood pressure and dark purple spots on the arms and legs. Symptoms of meningitis include fever, headache, confusion and stiff neck.

Q. Is meningococcus dangerous?



A. Yes. Every year in the United States approximately 2,500 people are infected with meningococcus and 300 die from the disease. Also, about 400 people every year who survive infection have permanent disabilities, such as seizures, loss of limbs, kidney disease, deafness and mental retardation.

The highest incidence of meningococcal disease occurs in infants less than 1 year of age. In children between 2 and 10 years of age, the incidence of meningococcal infections is very low, but starting in adolescence the incidence of disease rises. Although adolescents are less likely to be infected than infants, they are more likely to die when infected.

Meningococcal bacteria are particularly 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 they enter the bloodstream. Children can be perfectly healthy one minute and dead four to six hours later; disease can be so rapid and overwhelming that even appropriate, early medical care may be too late.

Because outbreaks occur in colleges, schools and child-care centers, and other areas where people have close contact, meningococcal infections often cause panic in the community.

Q. Is there a vaccine to prevent meningococcus?



A. Yes. In February 2005, the CDC recommended a new vaccine for use in the United States to prevent meningococcus. A previous version of the meningococcal vaccine was first available in the United States in 1982. This older vaccine was effective in older children and teenagers against four of the five different types of meningococcus (A, C, Y and W-135), but booster doses were required every three to five years.

The new vaccine, which protects against the same types of meningococcal bacteria as the previous vaccine, probably will not require booster doses. Neither the previous meningococcal vaccine nor the new vaccine protects against meningococcus type B, which accounts for two-thirds of all meningococcal disease in infants and one-third of cases in adolescents. Unfortunately, researchers have not yet figured out how to make an effective vaccine using the type B meningococcal polysaccharide coating.

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Meningococcus: What you should know

Q. How is the meningococcal vaccine made?

A. The meningococcal vaccine is made using the complex sugar (called polysaccharide) that resides on the surface of the bacteria. Polysaccharides are stripped from the surface of four of the five different types of meningococcal bacteria that cause disease (types A, C, Y and W-135) and each is linked (conjugated) to a harmless protein. The four conjugated polysaccharides are combined into a single shot and protect against four different types of meningococcal bacteria.

Q. Is the meningococcal vaccine safe?

A. Yes. The meningococcal vaccine can cause pain or redness at the site of injection, but because it is not made from whole bacteria, it cannot possibly cause bloodstream infections or meningitis. The technology used to make the new meningococcal vaccine is the same as that used to make the pneumococcal and Haemophilus influenzae type B (Hib) vaccines, both of which have been given safely to millions of infants.

Since the new meningococcal vaccine first became available in 2005, there have been a few reports of Guillain-Barré syndrome (GBS) in recent vaccine recipients. GBS is a rare cause of weakness that starts in the legs and travels upwards. If muscles necessary for breathing are involved, the disease can be quite dangerous. Although the number of cases reported is small, it is possible that the vaccine could cause GBS in about one of every million recipients. For this reason, anyone who has a history of GBS and is not in a high risk group should not receive the newer vaccine.

Q. Does the meningococcal vaccine work?

A. Yes. The new meningococcal vaccine protects adolescents from most of the meningococcal disease caused by types A, C, Y and W-135 (which accounts for about two-thirds of all meningococcal disease in adolescents). Because the meningococcal vaccine does not include type B, which accounts for about one-third of cases in adolescents, it does not prevent all cases of meningococcal disease.

Unfortunately, researchers have not been able to make an effective vaccine using the meningococcal type B polysaccharide coating.

The new vaccine can be given once and, unlike the previous meningococcal vaccine, is not likely to require repeated doses. Children or adults who received the previous meningococcal vaccine can receive the new vaccine.

This information is provided by the Vaccine Education Center at The Children's Hospital of Philadelphia. The Center is an educational resource for parents and healthcare professionals and is composed of scientists, physicians, mothers and fathers who are devoted to the study and prevention of infectious diseases. The Vaccine Education Center is funded by endowed chairs at The Children's Hospital of Philadelphia and Kohl's Department Stores. The Vaccine Education Center does not receive support from pharmaceutical companies.

Some of this material was excerpted from the book, *Vaccines: What You Should Know*, co-authored by Paul A. Offit, M.D., and Louis M. Bell, M.D.

This project was completed in collaboration with the American Medical Association.

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Q. Who should get the meningococcal vaccine?

A. The meningococcal vaccine is recommended for all 11 – 12 year olds and 13 – 18 year olds who have not previously received it.

Q. Should college freshmen get the meningococcal vaccine?

A. Yes, all college freshmen, especially students living in dormitories, should receive the meningococcal vaccine. College freshmen living in dormitories are five times more likely to get meningococcal disease than people of the same age who do not attend college.

Q. If someone in my child's school gets meningococcal infection, what should I do?

A. Children in close contact with someone with meningococcal infection should receive an antibiotic to prevent the disease. Close contact with someone with meningococcal disease is defined as 1) living in the same house, 2) attending the same child-care center or nursery school, or 3) kissing or sharing utensils or toothbrushes. Antibiotics used to prevent meningococcal infection include rifampin, ceftriaxone, azithromycin and ciprofloxacin.

Q. Does the meningococcal vaccine prevent all cases of meningitis?



A. The meningococcal vaccine will prevent many, but not all, cases of meningococcal meningitis. Other bacteria, such as pneumococcus and Haemophilus influenzae type B (Hib), also cause meningitis. Fortunately, vaccines to prevent pneumococcus and Hib are routinely given to all children before 2 years of age.

Some viruses also cause meningitis, but meningitis caused by most viruses is usually not as severe as meningitis caused by bacteria.



Vaccine Education Center at
The Children's Hospital of Philadelphia®

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Simple ways to protect yourself

- Cover your mouth and nose when you sneeze or cough. Coughing or sneezing inside your shirt is an even better practice; so you don't get the germs on your hands and potentially make them airborne.
- Don't smoke- exhaled smoke contains saliva droplets
- Don't share drinks, ice cream, food or eating utensils
- Don't place a baby's pacifier in your mouth (not only for protection against meningococcal disease but also to protect baby from the many other bacteria that we carry naturally in our mouth/throat.
- Don't share lipsticks, lip gloss etc...
- Don't share toothbrushes
- Don't spit
- Don't share musical instruments that someones mouth has been in contact with
- Get the vaccine, if you meet the age requirements