Meningococcal Vaccine

The following information is provided to help people decide if they wish to receive the meningococcal vaccine, brand name: Menactra. This document is intended to inform. If you are a college freshman or sophomore living in a residence hall and concerned about your risk of meningococcal disease, the currently available vaccine can reduce - but not eliminate - that risk. You need to decide if receiving this vaccine is right for you. Also, it is thought that other situations of crowding such as partying and bars can contribute to spread of the bacteria.

What Is The Natural History of Meningococcal Infection?

Neisseria meningitides bacteria can cause infection and disease. The bacteria are spread between people by respiratory droplets produced by coughing, sneezing, or by saliva contact. Spread among people is promoted by mixing people in relatively crowded conditions. Experience has shown that military recruits and entering college students are more prone to becoming infected. It is thought that psycho-physiologic stress, bar socializing, and alcohol/tobacco use may also contribute to who becomes infected.

When infected, many students become carriers. After a period of weeks to months, their immune systems clear the bacteria from the respiratory system. The carrier rate in a population is higher than the disease rate. The new Menactra vaccine has an advantage over the prior vaccine, Menomune, because the immune protection it produces can shorten and eliminate the carrier state.

In an unfortunate few people, the bacteria may make its way into the blood stream (sepsis) and/or neurologic system (meningitis) while a person is infected. Once disease occurs, early recognition of the sometimes non-specific symptoms of fever and/or headache and rash is essential to attempt to prevent disability or death using antibiotic therapy.

While occasional outbreaks on college campuses get attention in the news media, they represent less than 3% of the total cases in the USA. Most cases are sporadic. When cases are identified, there is a search for relatively close contacts, such as family, friends, or roommates. Contacts can be offered a short course of antibiotics to eliminate the bacteria in possible carriers.

If an outbreak occurs, defined as a few or more cases, schools or public health agencies may respond by offering immunization clinics if the meningococcal strain is one included in the vaccine to reduce carriers.

Meningococcus is the leading cause of bacterial meningitis in children and young adults. It has a fatality rate of about 10% and potential for nervous system damage in survivors.

How Effective Is This Vaccine?

The vaccine induces immune protection against certain strains or serogroups (A, C, Y, W-135). Nationally, approximately 25% of meningitis cases are due to type B which is not protected for by the vaccine. About 75% of cases are due to types for which the vaccine does provide protection. In 1998-1999, serogroups C and Y caused 70% of the meningococcal meningitis cases among college students.

A study published in the Journal of the American Medical Association, May 26, 1999, compared the incidence (number of new cases) of invasive meningococcal disease in Maryland college students with the non-student population of the same age. This statewide study found that 86 % of the 14 infected college students identified had the meningitis serogroups that are protected for by the current vaccine. The average annual incidence was 1.74 per 100,000 students enrolled in 4-year schools compared 1.44 per 100,000 in the general population. The greater risk was found among students living in residence halls, 3.24 per 100,000 versus 0.96 per 100,000 for off-campus students. In that study, students living in dormitories had 3 times greater risk than students not living in dormitories. Most people would consider the overall risk of getting
meningococcal disease low (1-3 persons out of 100,000). However, for the people who become ill the consequences can be severe, including death in 8 to 10% and residual disability in up to 20%.

It may be helpful to keep in mind that the greatest health risks to students are motor vehicle accidents, suicide, homicide, alcohol-related problems, HIV/AIDS, and tobacco-related disease.

A three-year study of the older vaccine, Menomune, described in the American Committee of Immunization Practices Recommendations found that only 67% of the children greater than 4 years of age who had received the vaccine were still immune when the study was concluded. The new vaccine, Menactra, has another advantage of producing much longer lasting immune protection than Menomune.

**Who and When to Vaccinate**

The Center for Disease Control (CDC) recommends the use of this vaccine for people who are immune compromised, do not have functional spleens, for control of outbreaks of type C meningococcal disease, and for travelers to areas with current epidemics of one of the protected serogroups. They advise that college freshman living in residence halls consider this vaccine because of their higher level of risk compared to the general population. Risk is not statistically increased for non-freshman college students. Students who wish to reduce their risk of meningococcal disease can request to be immunized. The American College Health Association (ACHA) has more aggressive recommendations that include the immunization of all eligible college students. The CDC does not recommend routine immunization of all young adults due to the short duration of the protection, incomplete protection, cost of the vaccine, and infrequent outbreaks.

The vaccine is given as a single injection that induces an immune response in 7 to 10 days. Studies of Menactra found that the vaccine produced a 4-fold increase in antibody levels in 82 to 97% of the 11 to 18 year old vaccine recipients. Boosters would need to be repeated every 3 to 5 years but are not recommended unless a person’s circumstances somehow put them at increased risk. At the UWSP Health Service, a student’s cost for the vaccine is approximately $85.00 per dose. Any student wishing to receive the vaccine should contact the front desk at the Health Service to make an appointment.

**What If I Get Exposed to Meningococcal Disease?**

If close exposure to a known infected person occurs, there are antibiotics that can eliminate the carrier state and help prevent spread to close contacts such as roommates and family members. Sometimes immunization programs are started when cases have occurred in a community.

**Are There Any Reactions to the Immunization?**

Adverse reactions are infrequent and mild, generally consisting of pain at the site of the injection.

**Contraindications to Immunization**

- Consider postponing the vaccination in individuals with moderate or severe illness, with or without fever, until recovery to minimize potential for perceived adverse reactions.
- Anaphylactic or other hypersensitive reaction to a previous dose of Menomune.
- Known sensitivity to thimerosal (preservative) or another component of the vaccine.
- Pregnancy: Category C, there is no data to determine risk to a fetus from either animal studies or from the experience of women who have received this vaccine while pregnant.

**For More Information**

http://wellness.uwsp.edu

Meningococcal Disease and College Students

http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4907a2.htm