

MENINGOCOCCAL DISEASE – general information

What is Meningococcal disease? A disease caused by the systemic invasion of the bacteria *Neisseria meningitides*, also known as meningococcus and may be manifested as **meningitis** (inflammation of the lining of the brain and spinal cord), pneumonia, meningococemia (febrile bacteremia), and conjunctivitis. Complications may include arthritis, myocarditis, pericarditis and endophthalmitis.

What is meningitis? Meningitis is an inflammation of the linings of the brain & spinal cord caused by either viruses or bacteria:

- *Viral meningitis* is more common than *bacterial meningitis* and usually occurs in late spring & early summer. Signs & symptoms of *viral meningitis* may include stiff neck, headache, nausea, vomiting, and rash. Most cases of viral meningitis run a short, uneventful course. Since the causative agent is a virus, antibiotics are not effective. Persons who have had contact with a person with viral meningitis do not require any treatment.
- *Bacterial meningitis* occurs rarely and sporadically throughout the year, although outbreaks tend to occur in late winter and early spring. Bacterial meningitis in college-aged students is most likely caused by *Neisseria meningitides* or *Streptococcus pneumoniae*. Meningococcal meningitis can cause grave illness and rapidly progress to death; early diagnosis and treatment are imperative. In contrast to viral meningitis, a person who has had *intimate contact* with a case requires prophylactic therapy. Untreated meningococcal disease can be fatal.

How does meningococcal disease occur?

- Approximately 10% of the general population carries meningococcal bacteria in the nose and throat in a harmless state. This carrier state may last for days or months before spontaneously disappearing, and it seems to give persons who harbor the bacteria in their upper respiratory tracts some protection from developing meningococcal disease.
- During meningococcal disease outbreaks, the percentage of people carrying the bacteria may approach 95%, yet the percentage of people who develop meningococcal disease is less than 1%. This low occurrence of disease following exposure suggests that a person's own immune system, in addition to bacterial factors, plays a key role in disease development.
- Meningococcal bacteria cannot usually live for more than a few minutes outside the body. As a result, they are not easily transmitted in water supplies, swimming pools, or by routine contact with an infected person in a classroom, dining room, bar, restroom, etc.
- Roommates, friends, spouses, and children who have had *intimate contact* with the oral secretions of a person diagnosed with meningococcal disease are **at risk** for contracting the disease and should seek medical evaluation and receive prophylactic medication immediately. Examples of such contact includes sharing of oral secretions, such as kissing, sharing drinks, food, utensils, any type of cigarettes, or any object that was in someone else's mouth, and being exposed to droplet contamination from the nose or throat, such as from sneezing or coughing.
- The incubation period is 1 to 10 days, usually less than 4 days.

How many cases of meningococcal disease occur each year? The annual incidence of meningococcal disease in the U.S. is about 1 to 2 cases per 100,000 population. The case fatality rate is approximately 12%.

Can meningococcal disease be mistaken for other health problems? **YES.** Meningococcal

disease is potentially dangerous because it is relatively rare and can be mistaken for other conditions. The possibility of having meningitis may not be considered by someone who feels ill, and early signs and symptoms may be ignored. A person may have symptoms suggestive of a minor cold or flu for a few days before experiencing a rapid progression to severe meningococcal disease.

What are the signs & symptoms of meningococcal disease? Understanding the characteristic signs and symptoms of meningococcal disease is critical & possibly lifesaving. Common early symptoms of meningococcal disease include fever, leg pain, cold hands and feet, abnormal skin color, severe sudden headache accompanied by mental changes (confusion, fatigue), nausea and vomiting, light sensitivity and neck stiffness. A rash may begin as a flat, red eruption, mainly on the arms & legs. It may then evolve into a rash of small dots that do not change with pressure (petechiae). New petechiae can form rapidly, even while the patient is being examined.

What is the treatment for meningococcal disease exposure? Treatment of infected persons: Meningococcal disease can become rapidly progressive within hours of onset of the symptoms. With early diagnosis and treatment, however, the likelihood of full recovery is increased. Early recognition, performance of a lumbar puncture (spinal tap) and prompt initiation of antimicrobial therapy are crucial.

Chemoprophylaxis: The use of such prophylactic antibiotics as Ciprofloxacin, Rifampin or Rocephin is recommended for those who may have been exposed to a person diagnosed with meningococcal disease, and is considered **at risk**. These antibiotics kill or eliminate the bacteria in the **at risk** person's nose and throat, thereby decreasing the risk of them from passing the disease or becoming ill. Anyone who suspects possible exposure should consult a physician immediately to determine their **risk status**.

Vaccination: As an adjunct to appropriate antibiotic chemoprophylaxis, immunization against the meningococcus bacterium may be recommended when an outbreak of meningococcal disease has occurred in a community. It is important to note that meningococcal vaccine should not be used in place of chemoprophylaxis for those exposed to an infected person. The protection from immunization begins within 7 to 10 days and is too slowly generated in this situation.

Meningococcal Meningitis Vaccine: Immunization against the bacterium *N. meningitides* may be recommended if they are members of a population that is experiencing an outbreak of meningococcal disease, e.g., students at a university where an outbreak has occurred.

As with any vaccine, vaccination may not protect 100% of all susceptible individuals. Adverse reactions to meningococcal vaccine are mild & infrequent, consisting primarily of redness & pain at the injection site that may last 1-2 days. Rarely, fever of short duration may occur.

How can one reduce the risk of contracting meningococcal disease? Maximize your body's own immune system response. A lifestyle that includes a balanced diet, adequate sleep, appropriate exercise, & the avoidance of excessive stress is very important. Avoiding upper respiratory tract infections & inhalation of cigarette smoke may help to protect from invasive disease. Everyone should be sensitive to public health measures that decrease exposure to oral secretions, such as, covering one's mouth when coughing or sneezing & washing hands after contact with oral secretions.