

What is meningitis?

Meningitis is an inflammation of the tissues that cover the brain and spinal cord. Bacteria, viruses, or fungi may cause meningitis. Viral meningitis is the most common form of meningitis and is caused by an infection with one of several types of viruses. Meningococcal meningitis is caused by the bacteria *Neisseria meningitidis*, and causes a more severe disease that requires prompt treatment of the patient with antibiotics. For bacterial meningitis, it is also important to know which type of bacteria is causing the meningitis because antibiotics can prevent some types from spreading and infecting other people.

What are the symptoms of meningitis?

Symptoms of meningitis may include fever, rash, headache, stiff neck, nausea, vomiting, and fatigue. These symptoms are often difficult to identify in infants, who, when suffering from viral meningitis may become irritable, lethargic, inconsolable, or refuse to eat. Since viral and bacterial meningitis often have similar symptoms, it is important to see a healthcare provider immediately if you or your child has these symptoms.

What causes meningitis and how is it spread?

Approximately 90% of viral meningitis cases are due to a group of common intestinal viruses called enteroviruses. These viruses are typically spread from person-to-person through direct or indirect contact with fecal material, usually on unclean hands or contaminated environmental items. Viruses can be passed on to others beginning about three days after someone is infected until about 10 days after symptoms occur, although very few exposed persons develop meningitis. Bacterial meningitis can be caused by bacteria such as *Streptococcus* species or *Neisseria meningitidis*, which are spread by direct contact with saliva or respiratory droplets from the nose and throat of an infected person.

How is meningitis diagnosed and treated?

In cases of severe illness, meningitis can be confirmed through laboratory tests performed on spinal fluid. There is no specific treatment for viral meningitis, most patients will completely recover on their own with bed rest and plenty of fluids, however health care providers often will recommend medicine to relieve fever and headache. Antibiotics specific for the bacterial cause are used to treat bacterial meningitis.

Should people who have been around a person infected with meningitis receive any treatment?

Antibiotics are only recommended as a preventative measure for those persons exposed to a case of meningitis caused by the bacteria *Neisseria meningitidis*. A public health nurse will work with the family of the case to identify all family, friends, and contacts that need antibiotics. Only people who have been in close contact with saliva or respiratory secretions such as household members, intimate contacts, health care personnel performing mouth-to-mouth resuscitation, and day care center playmates are recommended to obtain a prescription for a special antibiotic (either rifampin, ciprofloxacin, or ceftriaxone) from their physician. Casual contacts including classmates, co-workers, or those in a workplace setting are not at an increased risk of disease and do not need treatment with the antibiotic.

How do you prevent meningitis?

Hand hygiene is the single most important action to prevent the spread of infection to others and to you. Wash visibly soiled hands with soap and water, after using the toilet, after changing diapers, and before preparing and eating food. Use alcohol based hand gels when hands are not visibly soiled. In institutions, such as child care centers, washing objects and surfaces with a diluted bleach solution is recommended. For hard surfaces such as diaper-changing areas and bathrooms, use a 1:10 dilution of bleach (mix one cup of bleach with one gallon of water). For other objects such as toys and eating utensils, use a weaker form of bleach solution (mix one tablespoon of bleach with one gallon of water).

The routine recommended childhood vaccines protect children from some of the common causes of meningitis such as *Haemophilis influenzae* type b (Hib) and *Streptococcus pneumoniae*. These and other vaccines are available and are recommended for certain people at increased risk of complications from a bacterial infection such as elderly or immunocompromised persons or people living in certain group settings. For more information on vaccines, contact your local county health department or family physician.

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