



# Communicable Disease

## MENINGITIS (BACTERIAL AND VIRAL)

### **What is it:**

Meningitis is an inflammation (swelling) of the meninges, the membrane surrounding the brain and spinal cord.

### **Caused by:**

- Bacterial meningitis - may be caused by one of many bacteria, such as: Streptococcus pneumonia, Hemophilus influenza, Listeria monocytogenei, Streptococcus agalactiae, Escherichia coli, Staphlococcus aureus and others. Also known as pyogenic meningitis.
- Meningococcal meningitis - is caused by the bacteria Neisseria meningitidis that can cause epidemics. It is a medical emergency.
- Viral meningitis - is caused by any of many viruses, such as: mumps, enteroviruses, echovirus or coxsackievirus. It is also known as aseptic meningitis.
- Other causes - may be parasitic (Naegleria fowleri) or fungal (Cryptococcus neoformans). Also several noninfectious agents such as lead poison, drugs and vaccine reactions.

### **Symptoms:**

Infected people will have at least 2 of the following: fever, intense headache or stiff neck. Other signs and symptoms include: nausea, vomiting, chills, muscle aches, dry cough, photophobia and becoming excited or confused. Sometimes a rash of tiny red-purple spots may develop anywhere on the body.

Usually identified by cerebrospinal fluid examination and culture and blood examination and culture.

### **Incubation:**

- Bacterial: depends on the organism
- Meningococcal: 2 to 10 days—mostly 3 to 4 days
- Viral: varies with the specific organism
- Fungal/Parasitic: depends on the organism

### **Treatment:**

- Bacterial: IV (intravenous) antibiotic
  - Meningococcal: IV antibiotic (Penicillin, Rocephin) Strict isolation
  - Viral: supportive, possibly an antiviral medication
  - Fungal: a fungicide
  - Parasitic: an antihelminthic, probably mebendazole
- As well, rest, fluids, good nutrition and fever control

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**Communicable:**

- Bacterial: Most cases occur in children from infancy to adolescence. The onset may be rapid and may follow an upper respiratory infection.
- Meningococcal: As many as 5% of the population colonize (carry) the bacteria in their nose or throat. It does not cause an infection for them; however, it can be transmitted to others.
- Viral: The most common and least serious meningitis. People with viral meningitis almost always get completely well and are not a threat to others.

**Transmitted by:**

- Bacterial: *Streptococcus pneumoniae* is the most common meningitis in adults. Risk factors are CSF leak, injury or trauma to the head, recent pneumonia and recent upper respiratory infection.
- Meningococcal: Spread by direct contact, from respiratory droplets from the nose and throat of infected people. It is spread by activities such as kissing and sharing water bottles, lipstick, cigarettes and drinking glasses. Also through coughing or sneezing directly at another person.
- Viral: Enteroviruses are transmitted by the fecal-oral route. The virus is passed in the stool.

**Complications:**

- Bacterial: Neurologic sequelae (hearing impairment and motor deficits) can improve with the appropriate therapy.
- Meningococcal: Delirium, shock, coma, hearing loss, vision loss, brain damage and sometimes death.
- Viral: Encephalitis is a rare occurrence. Recovery is usually uneventful, however fatigue may last for a few months.

**Other:**

- Bacterial: The most common cases are bacterial infections that started in other parts of the body and spread to the brain or spinal cord via the blood stream.
- Meningococcal: Protection for close contacts (people sharing sleeping quarters and eating utensils) includes prophylactic antibiotic.
- Adults: Rifampin 600 mg BID for 2 days
- Children: Rifampin 10 mg/kg BID for 2 days.
- Viral: No special precautions are needed other than routine sanitary practices.

**Prevention:**

Avoid nasal discharges and saliva exchanges. Do not share eating utensils, drinking glasses, water bottles, straws, face cloths or anything by mouth. Avoid kissing people on the lips. Wash hands frequently with soap and water.

**Vaccination:**

Meningococcal polysaccharide vaccine (Menomune) – for Groups A, C, Y & W135 combined. Protective antibody levels may be achieved within 10 to 14 days. Available for epidemics or travellers to endemic areas. Haemophilus vaccine (HIB) for children. This vaccine is part of the regular immunization series that starts at 2 months of age.

Pneumococcal vaccine: a polysaccharide vaccine against disease caused by 23 of the most common types of *Streptococcus pneumoniae* (pneumococcus).

Source: Taber's Cyclopedic Medical Dictionary 18<sup>th</sup> Ed  
Control of Communicable Disease Manual, 17<sup>th</sup> Ed.  
Clinical Infectious Diseases, 1999  
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