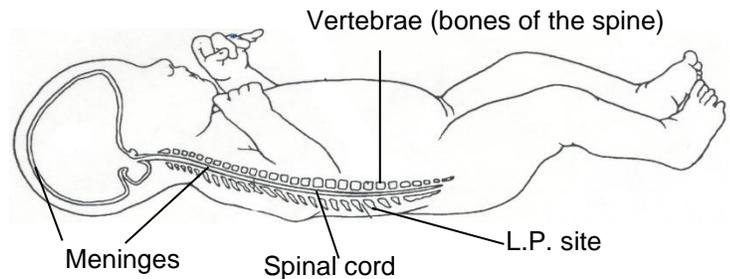


Meningitis - Hospital Admission

Meningitis (men-in-JIE-tiss) is an infection of the *meninges* (men-IN-jeez). These are the membranes that cover the brain and spinal cord (Picture 1). This disease is more common in infants and young children than in adults. Children with cochlear implants are at increased risk for meningitis.

Meningitis is caused by germs - either viruses (*viral meningitis*) or bacteria (*bacterial meningitis*). The germs that cause the illness usually come from the nose and throat. Then they spread through the bloodstream to the meninges.



Picture 1 The meninges cover the brain and spinal cord.

Bacterial meningitis is much more serious than viral meningitis. The side effects may be more severe.

Symptoms appear after a cold or sore throat or there may be no other illness just before symptoms come on. **If meningitis is suspected, the child or adult should be seen by a doctor right away.** Bacterial meningitis occurs most often in the winter. It is caused by several different types of bacteria (see chart). Hearing loss is the most common complication.

Viral meningitis occurs most often in the summer. It usually causes a fairly mild illness. Complications can develop but they are rare. There is no vaccine against most causes of viral meningitis. A vaccine against the bacteria *Streptococcus pneumoniae* is recommended by the Academy of Pediatrics for children including those receiving cochlear implants. Vaccine against *Haemophilus influenzae meningitis* is very effective. Vaccine against *Neisseria meningitis* is recommended for some children.

Signs and Symptoms

	Bacterial Meningitis	Viral Meningitis
Cause	<p><i>Streptococcus pneumoniae</i></p> <p><i>Neisseria meningitidis</i></p> <p><i>Haemophilus influenzae</i></p>	<p>Several different viruses</p>

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Signs and Symptoms, continued

	Bacterial Meningitis	Viral Meningitis
Early Signs (similar for both types)	<ul style="list-style-type: none"> ▪ Fever over 101°F rectally (infants under 3 months may not have a fever); chills ▪ Stiffness in the neck (the child may hold his neck still or cry when his head is moved) ▪ Severe headache; cranky, irritable child ▪ Unusually high-pitched cry ▪ Increased sleepiness ▪ Vomiting ▪ Sometimes a bulging at the soft spot (fontanel) on the head 	
Later Signs (similar for both types)	<ul style="list-style-type: none"> ▪ Convulsions (seizures) ▪ Loss of consciousness (does not wake up when touched) ▪ Staggering or swaying when walking ▪ Confusion, hallucinations 	
Treatment	Antibiotics and other medicines given by IV.	Antibiotic medicines will not work for viral meningitis.
Prevention	For children older than 2 months, vaccine (Hib) can prevent meningitis caused by Haemophilus influenza. Pneumococcal vaccine can prevent many cases of pneumococcal meningitis. For adolescents, meningococcal vaccine may be given to prevent meningococcal meningitis.	No vaccine available

Diagnosis and Treatment

If meningitis is suspected, your child most likely will be admitted to the hospital. To find the cause of the infection, a test called a spinal tap or lumbar puncture (LP) is done. During this test a needle is put into the space around the lower spinal cord. Spinal fluid is collected through a needle and sent to the lab to be examined. The first results are given to the doctor in a few hours. It may take up to 3 days to get the final test results.

- If the doctor suspects bacterial meningitis, your child will receive antibiotics through a vein (IV) until the final lab results are ready. Other medicines may also be given.

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Diagnosis and Treatment, continued

- If the lab report shows bacteria, your child will be treated for a longer time. This length of time depends on the type of bacteria that is causing the meningitis.
- If the lab report shows no bacteria are present, or if it confirms a virus is present, the antibiotics will be stopped no later than 3 days after admission.
- Depending on the type of bacteria that is causing your child's meningitis, your child, his family members and baby-sitter may also need to be treated with an antibiotic taken by mouth.

During Your Child's Hospital Stay

Your child will be in isolation for the first 24 hours.

This means that everyone must wear a gown and mask while in the child's room. Family members, who have been around your child, must also wear a mask outside your child's room. You will also be taught careful hand washing procedures. Refer to the Helping Hands, *Transmission-Based Precautions: Isolation*, HH-II-78, and *Hand Hygiene*, HH-IV-80. Your child may not be allowed to drink anything during the first 24 hours. If drinking is allowed, the amount will be limited.

Your child may receive oxygen. He may need to be connected to a heart monitor or an oxygen saturation monitor. These monitors help the nurses to watch your child closely.

- The nurse will also start the IV for the antibiotics and the needed fluids.
- Your nurse will check your child's pulse, temperature, and breathing rate often.
- Eye reactions, movements, level of sleepiness and the condition of the "soft spot" (fontanel) will also be checked.
- Blood samples will be taken often at first. These samples will be needed less often as your child improves.
- Your child may be very irritable. He may refuse to be held and may not want to be comforted. Dimming the lights in the room and keeping the room quiet may help.
- You are encouraged to help with the care your child needs. Let your child's nurse know what help you need to feel more comfortable caring for your child.



Picture 2 Keep the room lights dim and hold your child.

Before Going Home

- Your doctor will talk with you about your child's progress and response to treatment.
- You will receive instructions about home care needs and for any medicines your child will need to take at home.
- Signs and symptoms of things to watch for at home will also be discussed with you.
- If your child needs home care services, this will be arranged.

Things to Watch for at Home

Call your child's doctor if he has any of the following:

- Fever of 101°F or above
- Stiff neck
- Vomiting
- Change in behavior or mental status
- Irritability in infants, crying much more than usual
- Hearing loss

Follow-Up Appointments

Your child will need to be checked by a doctor after going home. The doctor's appointment, and other health care appointments, can be scheduled before your child goes home. These may include doctor's office visit, hearing tests, developmental assessments and home care nurse visits.

- Phone numbers of your doctor and other health care personnel will be given to you.
- If your child is school age, please ask your nurse for a note explaining his absence from school.

If you have any questions, be sure to ask your doctor or nurse.