



[Home](#) → [Medical Encyclopedia](#) → Hearing loss - infants

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## Hearing loss - infants

Hearing loss is not being able to hear sound in one or both ears. Infants may lose all of their hearing or just part of it.

### Causes

Although it is not common, some infants may have some hearing loss at birth. Hearing loss can also develop in children who had normal hearing as infants.

- The loss can occur in one or both ears. It may be mild, moderate, severe, or profound. Profound hearing loss is what most people call deafness.
- Sometimes, hearing loss gets worse over time. Other times, it stays stable and does not get worse.

Risk factors for infant hearing loss include:

- Family history of hearing loss
- Low birth weight

Hearing loss may occur when there is a problem in the outer or middle ear. These problems may slow or prevent sound waves from passing through. They include:

- Birth defects that cause changes in the structure of the ear canal or middle ear
- Buildup of ear wax
- Buildup of fluid behind the eardrum
- Injury to or rupture of the eardrum
- Objects stuck in the ear canal
- Scar on the eardrum from many infections

Another type of hearing loss is due to a problem with the inner ear. It may occur when the tiny hair cells (nerve endings) that move sound through the ear are damaged. This type of hearing loss can be caused by:

- Exposure to certain toxic chemicals or medicines while in the womb or after birth
- Genetic disorders
- Infections the mother passes to her baby in the womb (such as toxoplasmosis, measles, or herpes)

- Infections that can damage the brain after birth, such as meningitis or measles
- Problems with the structure of the inner ear
- Tumors

Central hearing loss results from damage to the auditory nerve itself, or the brain pathways that lead to the nerve. Central hearing loss is rare in infants and children.

## Symptoms

Signs of hearing loss in infants vary by age. For example:

- A newborn baby with hearing loss may not startle when there is a loud noise nearby.
- Older infants, who should respond to familiar voices, may show no reaction when spoken to.
- Children should be using single words by 15 months, and simple 2-word sentences by age 2. If they do not reach these milestones, the cause may be hearing loss.

Some children may not be diagnosed with hearing loss until they are in school. This is true even if they were born with hearing loss. Inattention and falling behind in class work may be signs of undiagnosed hearing loss.

## Exams and Tests

Hearing loss makes a baby unable to hear sounds below a certain level. A baby with normal hearing will hear sounds below that level.

The health care provider will examine your child. The exam may show bone problems or signs of genetic changes that may cause hearing loss.

The provider will use an instrument called an otoscope to see inside your child's ear canal. This allows the provider to see the eardrum and find problems that may cause hearing loss.

Two common tests are used to screen newborn infants for hearing loss:

- Auditory brain stem response (ABR) test. This test uses patches, called electrodes, to see how the auditory nerve reacts to sound.
- Otoacoustic emissions (OAE) test. Microphones placed into the baby's ears detect nearby sounds. The sounds should echo in the ear canal. If there is no echo, it is a sign of hearing loss.

Older babies and young children can be taught to respond to sounds through play. These tests, known as visual response audiometry and play audiometry, can better determine the child's range of hearing.

## Treatment

Over 30 states in the United States require newborn hearing screenings. Treating hearing loss early can allow many infants to develop normal language skills without delay. In infants born with hearing loss, treatments should start as early as age 6 months.

Treatment depends on the baby's overall health and the cause of hearing loss. Treatment may include:

- Speech therapy

- Learning sign language
- Cochlear implant (for those with profound sensorineural hearing loss)

Treating the cause of hearing loss may include:

- Medicines for infections
- Ear tubes for repeated ear infections
- Surgery to correct structural problems

## **Outlook (Prognosis)**

It is often possible to treat hearing loss that is caused by problems in the middle ear with medicines or surgery. There is no cure for hearing loss caused by damage to the inner ear or nerves.

How well your child does depends on the cause and severity of the hearing loss. Advances in hearing aids and other devices, as well as speech therapy allow many children to develop normal language skills at the same age as their peers with normal hearing. Even infants with profound hearing loss can do well with the right combination of treatments.

If the baby has a disorder that affects more than hearing, the outlook depends on what other symptoms and problems the baby has.

## **When to Contact a Medical Professional**

Contact your provider if your baby or young child displays signs of hearing loss, such as not reacting to loud noises, not making or mimicking noises, or not speaking at the expected age.

If your child has a cochlear implant, contact your provider right away if your child develops a fever, stiff neck, headache, or an ear infection.

## **Prevention**

It is not possible to prevent all cases of hearing loss in infants.

Women who are planning to become pregnant should make sure they are current on all vaccinations.

Pregnant women should check with their provider before taking any medicines. If you are pregnant, avoid activities that can expose your baby to dangerous infections, such as toxoplasmosis.

If you or your partner has a family history of hearing loss, you may want to get genetic counseling before becoming pregnant.

## **Alternative Names**

Deafness - infants; Hearing impairment - infants; Conductive hearing loss - infants; Sensorineural hearing loss - infants; Central hearing loss - infants

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