

Detecting Hearing Loss in Infants

» Why Newborn Screening Is Important

About two to three of every 1,000 babies are born with some sort of hearing loss. One of the ways babies learn is through hearing. For babies with hearing loss, a lack of treatment means trouble with language development.

Research shows that if children with hearing loss receive proper intervention by 6 months of age, they will usually develop good language and learning skills. This means newborn hearing screening is crucial.

Without newborn screening, it can be difficult to detect hearing loss early in the first months and years of life.

Causes of Hearing Loss

About half of all cases of hearing loss in children are genetic. About 30% of these children have a condition linked with hearing loss, such as Down syndrome or Usher's syndrome. The remaining 70% have hearing loss that is not linked to any other condition. Another 25% of hearing loss cases are not linked to genetics. They include causes such as the following:

- an infection the mother had during pregnancy, such as cytomegalovirus
- illness or trauma during pregnancy or when a baby is born, or illness that occurs later in childhood, such as meningitis
- low birth weight
- severe jaundice at birth
- some medications that are given to infants or children to treat very serious infections
- sudden loud noises or exposure to loud noise for a long time
- recurrent severe ear infections.

The remaining hearing loss cases in children have an unknown cause.

Common Symptoms

Some symptoms that children with hearing loss exhibit include the following:

- an inconsistent response to sound
- delayed language and speech development
- unclear speech
- the tendency to turn up the volume on electronic equipment
- no response when called.

When Should Infants Be Screened?

The Centers for Disease Control and Prevention's Early Hearing and Detection and Intervention program suggests the "1-3-6" plan. This plan features the following steps or principles:

- All infants should be screened for hearing loss before 1 month of age. Ideally, this would be before they leave the hospital where they are born.
- All infants who do not pass the hearing screening should have a diagnostic hearing evaluation before 3 months of age.
- All infants with hearing loss should receive appropriate early intervention services before 6 months of age.

Types of Screening

Two types of initial screening can be used for babies:

- Auditory brainstem response, which measures how the brain responds to sound. The baby wears soft headphones, and an audiologist places three electrodes on the baby's head. Clicks or tones are played through the headphones, and the electrodes measure the brain's response.
- Otoacoustic emissions, which measures sound waves produced in the inner ear. A tiny microphone that is placed inside the baby's ear canal measures the response, or echo, when clicks or tones are played in the ears.

Between 1% and 10% of all babies do not pass a hearing screening test. Because less than 1% of all babies actually have hearing loss, this means that some babies referred for diagnostic testing had a false-positive hearing screening test result and actually have no hearing loss.

Intervention Services

Various options are available as intervention services for children with hearing loss. They include the following:

- hearing devices, such as hearing aids or cochlear implants
- language and communication tools, such as learning American Sign Language, or other approaches such as cued speech (natural lip movements plus hand shapes) or an oral-auditory approach (natural hearing ability augmented by lip reading and hearing devices)
- for older children and adults, assistive technologic devices such as closed captioning on televisions and in movie theaters. NP

The information in this handout was gathered from several sources, including the Centers for Disease Control and Prevention (www.cdc.gov), the American Academy of Pediatrics (www.aap.org) and the National Institute on Deafness and Other Communication Disorders (www.nidcd.nih.gov).

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