Hearing Screening

Because early detection of hearing loss is so critical to positive outcomes, the National Institutes of Health made a statement in 1993 recommending universal newborn hearing screenings within the first 3 months of life for neonatal intensive care unit patients as well as full-term infants. Since this statement, forty-three states and territories including Puerto Rico and the District of Columbia have mandated hearing screens for all infants. Universal hearing screening is a recommendation of the American Academy of Pediatrics. Early detection of hearing loss is key in preventing later speech and communication disorders, as well as any potential developmental problems stemming from poor speech and hearing loss.

There are two types of hearing loss, conductive and sensorineural, though a mixture of the two also is possible. *Conductive hearing loss* usually occurs when fluid in the outer or middle ear blocks sound or when there is a structural abnormality of the outer or middle ear. *Sensorineural hearing loss* involves the inner ear or damage to the nerves from the inner ear that carry sound to the brain. Sensorineural hearing loss may be caused by structural abnormalities to the inner ear, maternal infections such as cytomegalovirus and rubella, or a genetic condition passed on to the baby from a parent. Hereditary causes are the main source of sensorineural hearing loss. It is very important for family history to be reviewed, especially any family history of hearing loss, prior to the hearing screen.

There are currently two forms of hearing screen tests: the Otoacoustic Emission (OAE) and the Auditory Brainstem Response (ABR). The OAE involves placing small probes in both ear canals, which release external sounds and stimuli and then measure internal cochlear sounds. If the cochlea is not functioning, there will either be no internal sounds recorded or the sounds will be too low to be recorded. The ABR involves placing earphones on both ears and electrodes all over the baby's head. Sounds are released and electrical signals across the electrodes are recorded. If hearing is present in the baby, the responses are recorded as low-level stimuli. With hearing loss, the responses are recorded as high-level stimuli. Your hospital or institution has chosen at least one of these testing measures for universal hearing screening for all newborns.

The best testing results occur when the baby is sleeping or not active. Parent education should focus on the type of hearing test used at your institution (OAE vs. ABR), test time, an explanation that the procedure is pain free, and the importance of follow-up testing at outside referral centers when further testing is required. According to data analyzed by the National Institute on Deafness and Other Communication Disorders, as many as 50% of babies who fail the in-hospital screening are lost to follow-up (National Institutes of Health, 1993). Hospital staff plays a critical role in improving these odds. Reinforce with parents that even though their infant passed the hospital hearing screen, hearing may change due to illness or medications used while hospitalized, or both. Routine screenings throughout childhood are important.

Reference

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Hearing Screening: Information for Parents

Hearing is very important for the normal development of all babies. Every year, about 12,000 babies are born with hearing loss in the United States. Even a small hearing loss in one ear can affect your baby's communication skills. When babies cannot hear well, they may develop problems talking and understanding words. For this reason, all babies will have a hearing test before going home.

The hearing test is a painless procedure that is done when your baby is sleeping or still and quiet. This test measures how well the outer and inner ear work. It takes 10–20 minutes, unless the test has to be repeated. Special probes or earphones are placed in or around both of your baby's ears and connected to the hearing screening machine. This will be used to test both ears.

If your baby does not pass the first hearing test, it will be repeated. If your baby is awake and moving too much or if your baby has fluid in his or her ears, the test will need to be repeated. If your baby does not pass the hearing test, your baby's provider will refer you to someone who specializes in infant hearing. This specialist is called a *pediatric audiologist*. The audiologist has special skills and experience giving hearing tests and explaining what the results mean. Be sure to make and keep all appointments with your baby's primary provider, as well as any hearing test appointments. Although hearing loss is serious, the sooner you know about it the sooner you can find help—and the better the outcome will be for your baby. If you need help and information, contact your state's early hearing detection and intervention program.

Your baby's hearing continues to develop over time. Even if your baby has passed the hearing test in the hospital, you will still need to watch your baby's milestones of development. Some babies will require periodic hearing tests after they go home from the hospital. Talk to your provider about the milestones of development for hearing and talking. You can find more information at www.HealthyChildren.org. Under the tab "ages and stages," select baby 0–12 months. Visit www.babyhearing.org for more information.

A newborn undergoes a hearing screening. © Getty Images