



## Children's Hearing Health

### Insight into normal milestones, risk indicators, and hearing tests

- Who might be at risk for hearing loss?
- What to look for in your child?
- How, when, and why should hearing be tested?

Three million children under the age of 18 have some hearing loss, including four out of every thousand newborns. Every parent and caregiver should be watchful of the signs of hearing loss in his or her child and seek a professional diagnosis. Hearing loss can increase the risk of speech and language developmental delays.

### *Which children may be at risk for hearing loss?*

#### **During pregnancy**

- Mother had German measles, a viral infection, or flu.
- Mother drank alcoholic beverages.

#### **Newborn (birth to 28 days of age)**

- Failed newborn hearing test.
- Weighed less than 3.5 pounds at birth.
- Has an unusual appearance of the face or ears.
- Was jaundiced (yellow skin) at birth and had a blood transfusion.
- Was in neonatal intensive care unit (NICU) for more than five days.
- Received an antibiotic medication intravenously.
- Had meningitis.

#### **Infant (29 days to 2 years)**

- Received an antibiotic medication intravenously.
- Had meningitis.
- Has a neurological disorder.

- Had a severe injury with a skull fracture, with or without bleeding from the ear.
- Has recurring ear infections with fluid in ears for more than three months.

### **Family**

- Has one or more individuals with permanent or progressive hearing loss that developed early in life.

### ***What are behavioral signs of hearing loss?***

#### **Newborn (birth to 6 months)**

- Does not startle, move, cry, or react in any way to unexpected loud noises.
- Does not awaken from loud noises.
- Does not imitate sound.
- Cannot be soothed by voice alone.
- Does not turn his or her head in the direction of your voice.

#### **Young infant (6 months to 12 months)**

- Does not point to familiar persons or objects when asked.
- Does not babble, or babbling has stopped.
- By 12 months, does not understand simple phrases by listening alone, such as “wave bye-bye,” or “clap hands.”

#### **Infant (3 months to 2 years)**

- Does not accurately turn in the direction of a soft voice on the first call.
- Does not respond to sounds or locate where sound is coming from.
- Does not begin to imitate and use simple words for familiar people and things around the home.
- Does not sound like or use speech like children of similar age.
- Does not listen to TV at a normal volume.
- Does not show consistent growth in the understanding and the use of words.

### ***How, when, and why should hearing be tested?***

If you suspect that your child may have hearing loss, discuss it with your doctor. Children of any age can be tested by trained individuals.

#### **Tests for newborns and infants under one year**

Hearing tests are painless, and they normally take less than half an hour.

Newborns are tested with either the otoacoustic emissions (OAE) test or the automated auditory brainstem response (AABR) test. During the OAE test, a speaker (or earphone) is placed in the baby's ear. It sends soft clicking sounds, and a computer records the inner ear's response to the sounds. In the AABR test, the baby is exposed to certain sounds. Sensors are placed on his or her head to measure brain wave activity in response to the sound.

For infants over six months of age, the diagnostic auditory brainstem response and the visual reinforcement audiometry (VRA) tests are commonly used. The diagnostic auditory brainstem response test is similar to the AABR test, but it provides more information about the precise hearing sensitivity. The VRA test presents a series of sounds through earphones or in an audiologist's booth. The child is asked to turn toward the sound, then he or she is rewarded with an entertaining visual image.

### **Tests for older children and adults**

Children between two and four years old are tested through conditioned play audiometry (CPA). The children are asked to perform a simple play activity, such as placing a ring on a peg, when they hear a sound. Older children and adults may be asked to press a button or raise their hand.

All children should have their hearing tested before they start school. This could reveal mild hearing losses that the parent or child cannot detect. Loss of hearing in one ear may also be determined in this way. Such a loss, although not obvious, may affect speech and language.

### ***Some causes of hearing loss***

Hearing loss can result from earwax or fluid in the middle ears. Many children with this type of temporary hearing loss can have their hearing restored through medical treatment or surgery.

In contrast to temporary hearing loss, some children have "nerve deafness", or more properly, sensorineural hearing loss, which is permanent. Most of these children have some usable hearing. Few are totally deaf. Early diagnosis, early fitting of hearing aids, and an early start on special educational programs can help maximize the child's existing hearing.

Please note that this leaflet is not a substitute for an ear examination or a hearing test.

### ***Steps to take***

- If you have checked one or more of the indicators above, your child might have hearing loss and you should take him or her for an ear examination and a hearing test. This can be done at any age, even just after birth.
- If you did not check any of these factors, but you suspect that your child is not hearing normally, even if your child's doctor is not concerned, have your child's hearing tested, and when appropriate, have his or her speech evaluated by a speech and language pathologist. The test will not hurt your child, and will reassure you.