

HOW HEARING LOSS IS DIAGNOSED IN NEWBORNS / CHILDREN

Every infant born in Indiana should have a Universal Newborn Hearing Screen completed at the birth hospital before going home (or before one month of age). If a baby does not pass the hearing screen, he or she should be referred for Early Hearing Detection and Intervention (EHDI) follow-up testing and services. Babies who have at least one risk factor for hearing loss should also be referred for EHDI follow-up testing and services.

Babies who are referred for EHDI follow-up testing and services should have a complete hearing evaluation done at an audiology facility by an audiologist trained in pediatrics (trained to perform diagnostic testing on newborns and children). For a list of Level 1 audiology facilities in Indiana, please [click here](#).

DIAGNOSTIC TESTING FOR HEARING LOSS

Every child who does not pass his or her newborn hearing screen should be referred for a diagnostic hearing evaluation. This evaluation is done to determine how a baby is hearing, as well as look for possible causes of a baby's hearing loss.

In order to determine how your baby hears, an audiologist should use the following tests:

Diagnostic Auditory Brainstem Response (also called the ABR)

During the Auditory Brainstem Response test, sounds are played into the baby's ear at various loudness levels (measured in decibels, or dB) and pitches (also called frequencies). During the test, these sounds will be played through earphones placed directly into the baby's ears. A bone oscillator (which vibrates, or moves, against the bone behind the ear or the forehead) will also be used during the ABR to determine what type of hearing loss a baby has.

Otoacoustic Emissions (also called OAE)

During the OAE test, sounds are played into the baby's ear through a small earphone placed in the baby's ear. A microphone measures an echo response from the inner ear. This information helps define the type of hearing loss. Diagnostic otoacoustic emissions are usually used with the ABR and other hearing test results.

Tympanometry

This test is used to determine how the eardrum and middle ear are working. During a tympanogram test, a small earphone is placed in the baby's ear canal and air pressure is gently changed. This test is helpful in showing if there is an ear infection or fluid in the middle ear. This test is important because fluid or other problems in the middle ear can affect hearing.

Once a baby is between 6 and 9 months of age, an audiologist will attempt to test your baby's hearing using pure tone behavioral testing. This means that the audiologist will present a series of tones (sounds) to your baby and observe him or her for a change in behavior each time a new sound is introduced. Babies will often move or change their facial expressions (such as smiling or crying) after hearing a sound. A behavioral pure-tone audiogram is done in a sound-proof room (also called a booth) to make sure that no extra noises are heard by your baby during the test. Pure tone information will give you and the audiologist information about how your baby responds to sounds of different pitches (frequencies).

What are the types of pure tone tests?

Air Conduction

During an air conduction test, sounds are played into the baby's ears through earphones placed directly in the baby's ear. This type of pure tone test gives you and the audiologist information about how all parts of your baby's ear are working.

Bone Conduction

During a bone conduction test, sounds are produced by a bone oscillator, which is placed on the baby's forehead. A bone conduction test will give you and the audiologist information about your baby's sensorineural function (or how your baby's inner ear is working).

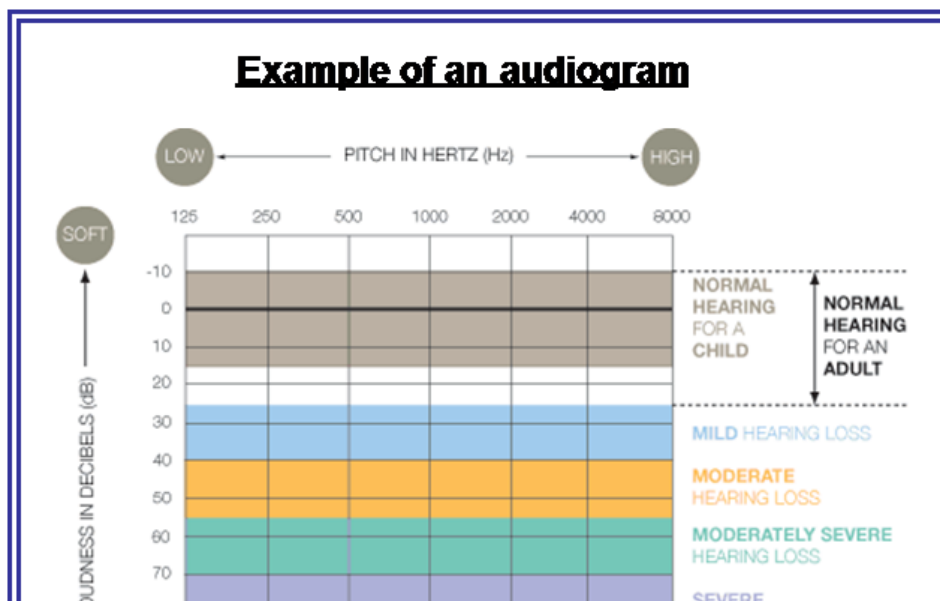
Audiograms

An audiogram is a picture of the softest sounds a person can hear.

The numbers down the side refer to the intensity (or loudness) of sounds that the ear can hear. Lower numbers on the scale refer to softer sounds. High numbers on the scale refer to louder sounds. Intensity or loudness are measured in decibels (dB).

A circle on the audiogram represents the softest sound the right ear can hear.

An "X" on the audiogram represents the softest sound the left ear can hear.



Be sure to ask your child's audiologist for more information about your child's audiogram.

Families of children who are diagnosed with hearing loss should access family support resources.

For more information about each family support resource, please click on a name below.

[Indiana State Department of Health Early Hearing Detection and Intervention \(EHDI\) Program Parent Consultant](#)

Lisa Condes, Guide By Your Side Program Coordinator
(317) 233 – 7686 or (888) 815 – 0006

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Julie Swaim, EHDI Program Parent Consultant (Spanish)
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[First Steps Early Intervention](#)

[Hands & Voices \(Indiana chapter\)](#)

[Hear Indiana \(Indiana AG Bell chapter\)](#)

[Parent-Teacher-Counselor Organization at the Indiana School for the Deaf \(ISD\)](#)