



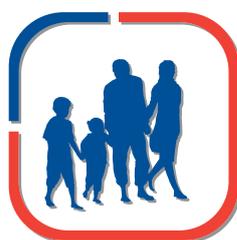
# DeafHearie

Services for Deaf & Hard of Hearing People



## Testing for Hearing Loss in Children

A Factsheet for Parents of Deaf and Hard of Hearing Children



## Parents Corner



# Testing for Hearing Loss in Children

This Factsheet explains how the health services screen and test for hearing loss in children, and the different audiological tests that may be used to diagnose and assess a child's hearing loss.

## Screening for Hearing Loss.

Between one and two children per thousand are born with a significant hearing loss. A hearing screening test is designed to identify the group of children that appear to be at risk of hearing loss. At present, in Ireland the main test for hearing screening in children is the Distraction Test, which is normally completed about 7-9 months of age. This test is not very reliable or accurate, and in the past has meant that some children's hearing loss has been diagnosed quite late.

Most European countries use modern technology to screen all babies for hearing loss shortly after birth, and this is known as Universal Newborn Hearing Screening (UNHS). This means that a diagnosis can be made as early as three months of age, and thus intervention and support can also be provided much earlier. In April 2011 the HSE have begun to screen all babies born at Cork University Hospital, and screening of newborns at further locations is expected to begin later in the year.

## Newborn Hearing Screening

Newborn Hearing Screening normally starts before the baby leaves the hospital. The first screen usually used is an Otoacoustic Emissions (OAE) test. Otoacoustic Emissions are sounds produced by the outer hair cells of the cochlea, in response to sound stimulation. In this test the emissions are measured and recorded from the ear canal. If there is any damage to the hair cells then a hearing loss is present and there will be no OAE produced. This is a simple, quick and non-invasive test which gives immediate results, your baby stays with you at all times and is usually asleep when the test is carried out. The test involves placing a small probe into your baby's outer ear canal, the probe produces a gentle sound that is heard in the ear and then the ear should respond by producing a small sound which the probe will measure.

If the OAE test does not produce a clear result, it does not mean that your child definitely has a hearing loss; maybe the environmental conditions were not exactly favourable at the time or there was fluid

in the ear canal. The tester may refer your baby for a further test called an AABR, which is a more sophisticated hearing screening test.

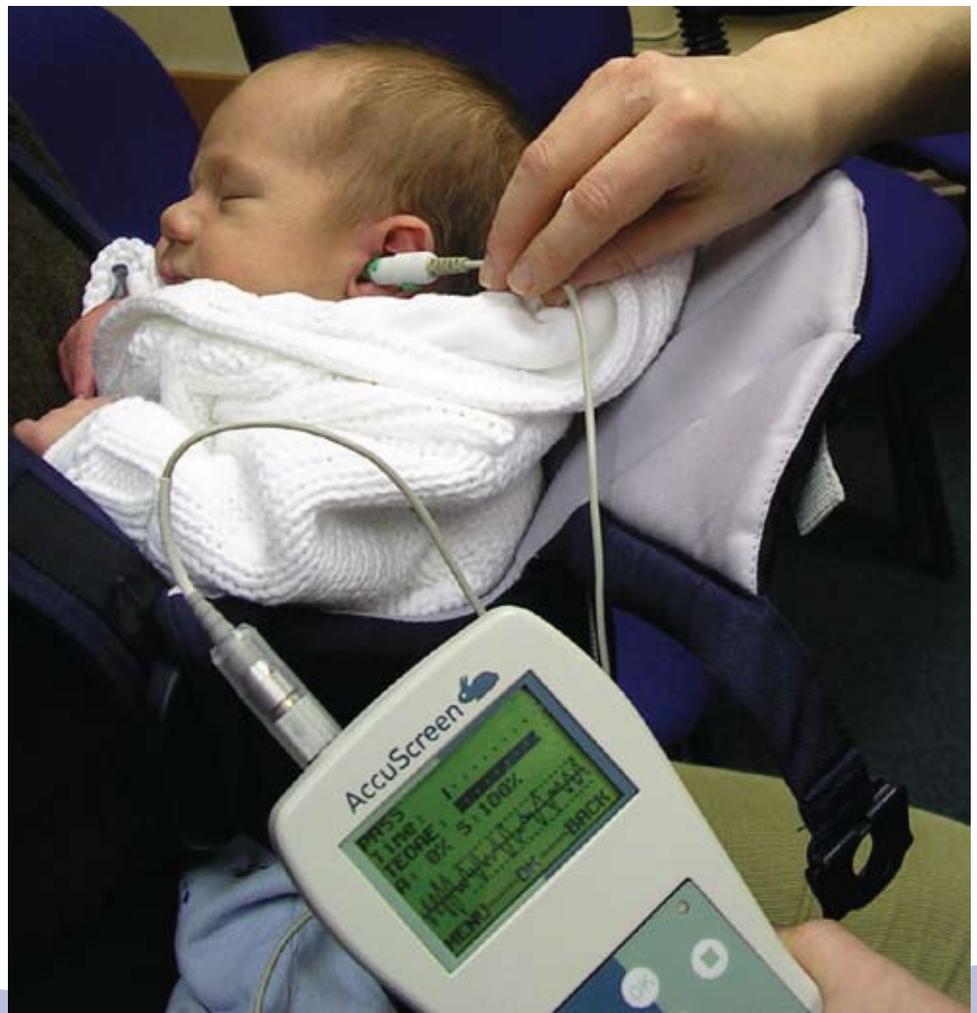
An Automatic Auditory Brainstem Response (AABR) screen is usually carried out in the audiology clinic or hospital environment. Its non-invasive and your baby must be asleep.

The audiologist places a probe each into a set of ear couplers which are then placed over the baby's ears, three small sensor pads with electrodes attached are placed on your baby, on the forehead, shoulder, and the back of the baby's neck. At this stage sound is sent to the ear via the acuscreen and the sensors pick up the brain activity.

The machine will give one of two results, a "Pass" which indicates the hearing is normal. A "Refer" means that the response is not satisfactory, and the baby is then referred on for a full audiological assessment.

Children who have been admitted to a Neonatal Intensive Unit for more than 48 hours will normally receive both an OAE and an AABR as part of their hearing screen.

Also, if the AABR does not produce a clear result, it does not mean that your child definitely has a hearing loss. However it is important that your child would be assessed by an audiologist or ENT specialist.



# Testing for Hearing Loss in Children

## Distraction Test

While this is not an actual audiological test, it is often the first time that your child's hearing would have been checked/tested; this is generally carried out by your Public Health Nurse (PHN), when your child is around the age of seven months. Your child sits on your lap, while a PHN attempts to keep their attention by playing with some toys, another PHN standing away from your child's line of vision makes a variety of different sounds.

The PHN assesses if your child reacts to the stimulation by turning towards the direction of sound. The distraction test checks your child's ability to react to the direction of sounds, and he/she should be able to hear exactly where a sound is coming from. The test can give a general indication of a baby's hearing, but is it not a very accurate way of assessing a child's hearing. It relies heavily on the judgement of the tester, it frequently fails to identify children with hearing loss, especially those with mild or moderate hearing losses, and it often results in false positives-meaning children with no hearing loss are referred for assessment.

## Audiological Tests

The following tests may be used to diagnose and assess hearing loss in children of different ages.

### Auditory Brainstem Response - (ABR)

This test looks for neurological (electrical) responses from your child's hearing nerves and brain to sound stimulus. Your child will be tested if they have an unsatisfactory AABR or if the audiologist considers it necessary to assist with diagnosis. It is non-invasive and is completed by an audiologist. Your child will wear earphones in each ear and some sensor pads which will be attached to their head, neck and shoulders, these are connected to a computer.

It is not an automated test as in the AABR because the audiologist will use a range of intensities and frequencies of sound to measure your child's responses, the results of which are printed from the computer and assessed. This test needs to be completed when your child is totally still and relaxed. Because young babies can be restless, this test may be completed under anaesthetic.



### Conditioned Play Audiometry

This test involves your child listening to a range of intensities and frequencies of sound. For young children who won't allow headphones, they can be tested using speakers. Then the test will not be specific to each ear but will give overall levels of two ears together (binaural hearing) which usually represents the better ear. As your child develops and they can put on headphones to carry out testing, each ear can be tested separately through headphones.

This test uses play to acquire a conditioned response from your child to a sound source, such as put a peg in a hole or drop a block into a bucket.

[www.deafhear.ie](http://www.deafhear.ie)

35 North Frederick Street, Dublin 1. Tel: 01-8175700 Text: 01-8783629. Email: [info@deafhear.ie](mailto:info@deafhear.ie)

© This factsheet is the copyright of DeafHear.ie (registered as the National Association for the Deaf). Published 2011.