

New York Times ran an article on the importance of newborn hearing screening, for which Marcus Gaffney of the EHDI team was interviewed:

What to Do When a Newborn Can't Hear

By PERRI KLASS, M.D.

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The 8-year-old boy already had [hearing aids](#) when I met him, back in the 1990s. He had been born before newborns were routinely screened for hearing problems, so the diagnosis had not taken place until he was a slow-to-talk toddler.

An extensive trail of subspecialists had evaluated him after that first test showed severe [hearing loss](#) in both ears. A geneticist, a developmentalist, a kidney specialist — no one could find anything wrong. He was a healthy, cheerful child who couldn't hear very well.

Nowadays, 97 percent of babies born in this country have their hearing screened in the newborn nursery. (More in a minute about the clever technologies that make this possible.) That means essential follow-up testing and treatment can begin very early indeed. But the key term is “follow-up.”

As many as 46 percent of children who failed the newborn screening test in 2007 did not have documented repeat testing and treatment, said Marcus Gaffney, a health scientist with the [Early Hearing Detection and Intervention program](#) at the [Centers for Disease Control and Prevention](#).

“Screening a child doesn't do a lot of good,” Mr. Gaffney told me, “if you don't take the appropriate follow-up.”

Before newborn screening changed the picture in the late 1990s, the average age for diagnosing hearing loss was about 2 ½. And the testing was usually done only because the child's speech was slow to develop. In children with relatively mild hearing loss, or loss in only one ear, it sometimes took even longer.

“Hearing loss has often been thought of as the silent disability,” said Dr. Judith E. C. Lieu, a pediatric ear, nose and throat specialist at [Washington University](#) in St. Louis. It may be hard to spot even in older children, she went on: “It may look like not paying attention; they talk while the teacher is talking.”

Dr. Lieu is the author of [a new study](#) showing that even hearing loss in only one ear is linked to poorer language skills in children.

But invisible or silent as it may be, hearing loss is one of the most common congenital disabilities, affecting 2 to 4 of every 1,000 babies. It can be genetic, or it may result from prenatal infection: Of the so-called TORCH infections that can attack a developing fetus (the letters stand for [toxoplasmosis](#), [rubella](#), [cytomegalovirus](#), [herpes](#) and “other”), several can damage hearing.

Back before [immunization](#), rubella was the major menace, causing [deafness](#), hearing loss and brain damage. Now the most common culprit is cytomegalovirus, an infection that may not cause any symptoms in a pregnant woman but can affect her developing fetus, especially if she contracts it in the first trimester. Hearing loss from cytomegalovirus can be severe, but may develop only after the child is born.

Premature infants, or those sick enough to need time in the newborn intensive-care unit, are also at risk for hearing loss, sometimes from oxygen deprivation, sometimes from severe infections and sometimes from medications.

Then there are the genetic factors, which are remarkably complex. Hearing loss can be part of more than 400 genetic syndromes; that’s why my patient had his kidneys checked ([Alport syndrome](#)), and why a geneticist went over his physical exam looking for unusual facial features ([Waardenburg syndrome](#), among many others).

In cases that do not involve a syndrome, more than 100 different genes may be implicated. Parents are not necessarily aware that the problem exists in other family members; [inheritance patterns](#) vary with the specific genetic abnormalities, and as many as 95 percent of children with genetic hearing loss are born to parents with normal hearing.

So how do you test a newborn’s hearing? There are two different technologies. In otoacoustic emissions, a tiny microphone is inserted into the ear of the sleeping newborn to measure echoes from the cochlea when it is stimulated by sound. With [automated auditory brainstem response testing](#), a few small sticker electrodes are placed on the baby’s head to measure the brain’s response to small sounds.

The test is the first step in the so-called 1-3-6 plan: screen every baby by 1 month of age, do a diagnostic evaluation on all who fail by 3 months, and get those babies into treatment by 6 months. [Research done in the 1990s](#) by Christine Yoshinaga-Itano, a professor of [audiology](#) at the [University of Colorado](#), showed that children who got help by 6 months had better speech and language development than those who were identified later.

[Help](#) can come in the form of speech and language therapy; counseling and training for parents; and amplification, including hearing aids, if necessary. By the time the 8-year-old boy became my patient, he was seeing a speech therapist regularly and he was talking quite well.

Children who are born with normal hearing and pass their screening, but develop hearing loss after birth, may be missed. When the question of speech delay in a 1-year-old comes up in our clinic, we have to guard against feeling complacent because the child passed the test at birth. Newborn screening doesn't prevent the development of problems later on: "It's not a vaccination," said Brian Fligor, director of diagnostic audiology at Children's Hospital Boston.

After all, hearing can deteriorate after birth as well — and the cause can be genetic factors, cytomegalovirus or damage from [head trauma](#), [meningitis](#) or exposure to very loud noise.

"Hearing loss can develop any time in childhood," Dr. Lieu told me. "Any time a parent has a concern about a child's hearing, whether it's selective hearing, or speech and language, they really need to check out the hearing."