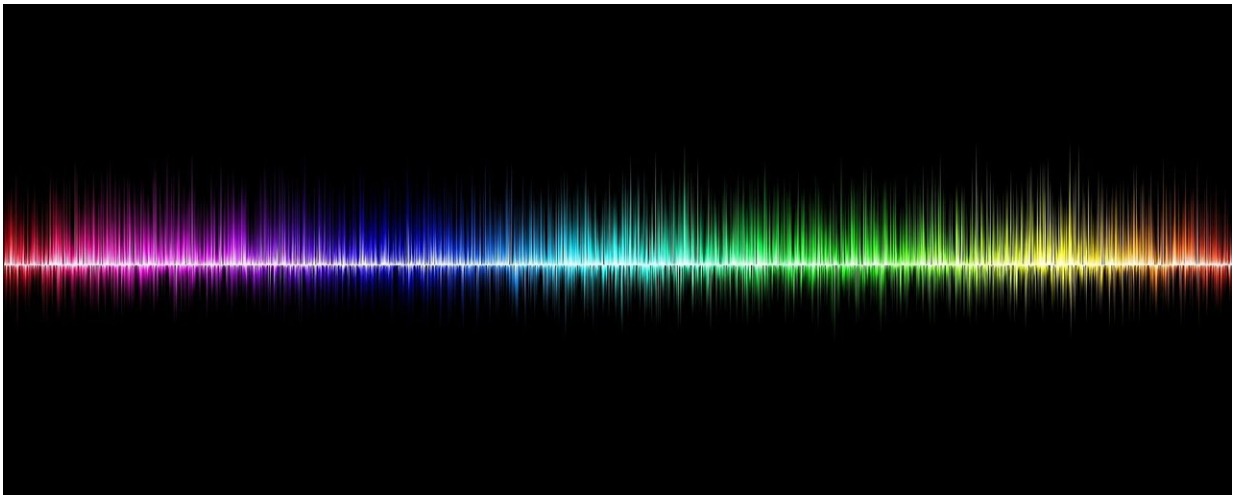


For newborns with hearing loss, screening opens window to a world of sound

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Four-year-old Betty Schottler starts each morning with the same six sounds: (m), (ah), (oo), (ee), (sh), and (s).

Her mom makes the sounds first, then Betty repeats them to check that her cochlear implant is working.

Betty was born profoundly deaf and got her first set of glittery rainbow [hearing](#) aids at 6 weeks old. Then, before her 1st birthday, she had surgery to place a cochlear implant in the bone behind her ear. The

device sends signals to the brain, and the brain recognizes those signals as sound.

For Betty and thousands of children born in the U.S. with a [hearing impairment](#), [newborn screening](#) is the first step toward introducing them to the world of sound.

Most babies in the U.S. get screened in the first few days after birth; in 2016, up to 98% of newborns were tested, according to the Centers for Disease Control and Prevention.

Typically, a hearing screener comes to the mother's bedside and tests the baby in the bassinet. It works best when the child and the environment are quiet.

"A lot of times we swaddle the baby so that the baby is comfortable and can sleep, put the probe in the ear and that test doesn't take more than five to seven minutes per ear," said Irene Sideris, a pediatric audiologist with Children's National Hospital, which is based in Washington, D.C.

The tiny probe looks like an earbud or infant thermometer. It emits a low clicking noise, which stimulates tiny hairs in the baby's inner ear and makes them vibrate. The test measures the echoes from those vibrations, or otoacoustic emissions.

Most babies pass, and that's the end of their testing.

Others newborns get "referred," meaning the doctor recommends they be screened again as soon as possible, usually within days or weeks.

Newborn Betty Schottler didn't pass.

"They told us that she 'referred.'" They say referred instead of fail," said

her mom, Jen Schottler.

Sideris said a baby might not pass the initial hearing screening for many reasons, including residual fluid or debris in the ears.

The CDC estimates 1.7% of babies were referred for additional screening in 2016. Hearing loss is the most common congenital condition in the U.S. Three in 1,000 infants are born with it, according to the American Academy of Pediatrics.

When the hearing screener came to test Betty, Jen Schottler said the whole thing happened quickly.

"Newborns get screenings for a million things, and it's one of them," Schottler said. "I just remember receiving the piece of paper with the results and the list of audiologists to reach out to."

Follow-up tests showed that Betty has profound hearing loss and was, therefore, a candidate for the cochlear implant. Trained as a speech pathologist, Schottler knew that if she wanted Betty to start hearing and learning spoken language, the clock was ticking.

Other parents choose to have their child learn [sign language](#) or other ways of communicating.

"Every family's different," Schottler said.

In 2000, the [federal government](#) set a goal to have all children screened in the first month of life and to have kids with hearing loss identified and diagnosed by their third month. The government's goal is to get kids enrolled in [early intervention programs](#) by the time they're 6 months old.

Before screenings were so universal, Sideris said, parents often did not

realize their child had problems hearing until age 2 or 3.

"At that point, the child has already lost two years of speech-language learning time," Sideris said.

Those years are critical, she said, because a child's brain still has plasticity. If the neurons usually used for hearing and processing spoken language aren't activated within this window, they'll be used for something else.

For parents who want their kids exposed to sound, experts say [early intervention](#) is urgent.

"That doesn't mean that if you are 4, 5 or 10 and you have a hearing loss that you would not benefit from hearing aids," Sideris said. "But the earlier that you are identified, the easier it is."

The Schottlers, who live in Arlington, Va., connected with a local parent-infant education program and borrowed loaner hearing aids for baby Betty before she got her cochlear implants. Other children may use hearing aids for their entire lives and need those devices replaced as they grow.

Twenty-three states require that health insurance companies cover hearing aids for children. To hear about one Texas mom's fight to win that coverage, check out Season 3, Episode 1 of "An Arm and a Leg," a podcast that is co-produced by Kaiser Health News.

Early intervention was a family affair for the Schottlers. Speech therapists came to the Schottlers' home to teach the family how to help Betty start acquiring spoken-language skills.

In the beginning, Jen and her husband, Brian, did all sorts of things to

draw Betty's attention to sounds when she was in the bath, playing on the floor or eating in her high chair. They'd look for subtle signs—like a blink or a raised eyebrow—that she had registered the noise. In the early days, it took Betty's big sister, Ellie, banging on a toy drum to capture the newborn's attention.

"Oh, you heard that?" They'd ask her. "I heard that too. I wonder what it was?"

Later, she would react even when a drop of water sizzled softly on the coffee maker's hot plate.

Today, Betty loves to color—especially with purple crayons. She's already reading some of Ellie's books from kindergarten and is often a leader when playing with friends. She's a preschooler with plenty to say.

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