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SENDING SIGNALS

A 2-year-old boy who was born deaf in both ears and received a cochlear implant that translates sounds into electrical signals is now reacting to noises he used to ignore.

By Tanya Flanagan
[Review-Journal](#)

Three months after a historical procedure to place a cochlear implant behind the left ear of 2-year-old Noah Frizzell, the toddler is beginning to decipher sounds in much the same way a newborn baby would, his mother said.

An enthusiastic boy, Noah is all over the family home on Dapple Drive near Cheyenne Avenue and Decatur Boulevard, leaping off the sofa and giving his 4-year-old sister, Anne, a hard time.

But how much he comprehends what his mother, father and sister say to him remains a mystery, said his mother, Barbara. Still, she said things are different now for Noah, who was born deaf in both ears and diagnosed when he was 6 months old.

Noah now reacts to sounds that he used to ignore, his mother said.

"Like now he turns up the TV and he runs away from it. Whereas it used to be he could turn it up as loud as it would go and he never moved. We just plugged our ears," she said.

On June 24, Noah became the first child in Nevada to receive a CLARION Cochlear Implant device manufactured by California-based Advanced Bionics Corp.

The CLARION system causes sounds to bypass the damaged parts of Noah's inner ear and translate into electrical signals that reach his hearing nerve. The device sends 104,000 pieces of information per second, allowing for a detailed interpretation of sounds, according to CLARION.

For people with normal hearing, sound waves strike the eardrum, causing it to vibrate and send a message to three tiny bones in the middle of the ear. This message moves fluid in the snail-shaped cochlea, which makes thousands of tiny hair cells stimulate the hearing nerve. That nerve then sends the current to the brain where the signals are interpreted as sound.

Since receiving the implant, Noah has been attending speech therapy class twice weekly at Sunrise Children's Hospital, where the surgery was performed by Dr. Ashley **Sikand**, an ear, nose and throat specialist. **Sikand** made an incision in Noah's skull and embedded the device into the side of the child's head. **Sikand** then covered the opening and stitched the skin back together to conceal the device. Now that Noah has recovered from the operation he wears an external hearing aid, which feeds signals to the

internal device.

In addition to speech therapy classes, Noah also attends a Special Children's Clinic communication class one day a week at the hospital. There, he is surrounded by other deaf or hearing impaired children who use different methods to talk with each other.

Audiologist Rachel Waite teaches him select letters of the alphabet as well as syllables and sound patterns, Frizzell said.

"She wants him to recognize his name so she is working with the (letter) O. And the P and B because he can see the mouth move and feel breath when you (speak) the letters," she said.

"He is learning. He is trying to mimic sounds, He tries to laugh as loud as his sister and sometimes he makes the O-shape with his mouth," she said.

Noah was quite vocal before the implant, but his mother has noticed an increase in his talkativeness and said he likes wearing the device. "In the morning he will point to it, to have it put on.

Noah wears the hearing aid at all times except when sleeping and taking baths.

Although he is being given a chance to learn to hear and orally communicate, Noah still signs with family members -- something his parents encourage despite criticism by other hearing impaired people.

Barbara Frizzell said her son's therapist has suggested that continuing to sign might hinder Noah's adaptation to the hearing device.

Deciding to have their son undergo the surgery was hard to do, Frizzell said.

"The deaf community is very 'I'm deaf. I was born that way and what's wrong with it?' And there are people on the other side who want their children to speak," she said. "We don't have any regrets. It's fine with us if he is deaf. We just wanted to give him every opportunity, even if the hearing aid just gave him an opportunity to hear outside noises like cars honking."

As Noah becomes more comfortable with the hearing device, his visits to therapists will be less frequent. He saw specialists weekly through September to have the device tested to determine what sound waves he heard. But now the implant will be tested only once a month through December. The idea is to scale back the testing gradually until Noah only needs the device fine-tuned once a year.