For Some Young Patients, Implants Work Wonders

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Early results are mixed, but Alfred I. duPont Hospital offers a procedure giving deaf children a chance to hear.

A cochlear implant opened up the world of background noise to 9-year-old Travis Costello, replacing silence with sounds of running water, computer fans and rushing wind.

The Newark boy is one of the first patients of the Cochlear Implant and Auditory Rehabilitation Center at Alfred I. duPont Hospital for Children in Rockland. Since the center opened in May, four children have been surgically fitted with cochlear implants, devices that electrically stimulate the hearing nerve and give deaf children access to sound.

The program is the first pediatric cochlear implant center in Delaware, doctors said, and one of more than 300 cochlear implant centers in the United States. Hospital spokesman James F. Lardear said the program is part of a larger effort to bring more specialized services to the hospital.

Previously, Dr. Michael Teixido, an ear, nose and throat specialist working with du Pont Hospital's new program, offered the implants, but most of his patients were adults. The state had no central place designed to give children the extensive post-surgical rehabilitation and therapy that basically teaches them how to hear.

"Patients were having to go to Philadelphia or Baltimore," said Dr. Robert O'Reilly, director of duPont Hospital's cochlear implant and vestibular disorder program.

Experts caution that cochlear implants are not miracle devices. Marc Marschark, a professor at the National Technical Institute for the Deaf at the Rochester Institute of Technology in New York, said the average deaf child with an implant can hear as well as someone who is hard of hearing. While some children do much better, he said, others experience little benefit.

The devices also have generated concerns from the deaf community and others. Catherine Clark, an audiologist and assistant professor at the Rochester institute, said some people have worried that families choosing implants might not accept their children's deafness. Others have wondered if children might get caught between the hearing and deaf worlds, unable to communicate fully with those who can hear or those who cannot.

Travis' mother, Kelly Costello, has heard such concerns, but decided in favor of a cochlear implant. Travis was born with hearing loss, which had grown more severe over the years. Although he could talk and hear with hearing aids, the aids gradually became less helpful.

"If Travis had the ability to function as a hearing child in a hearing world," Costello said, "that was what we wanted."

"It helps me hear better"

While at the hospital for a therapy appointment, Travis disconnected his implant for a moment to show visitors how it worked. Sounds faded until he hooked it up again.

"It helps me hear better," he said.

The device consists of electrodes inside the cochlea, where auditory nerve endings are. It also includes a receiver under the skin, a transmitter outside the head that magnetically attaches to the receiver, a processor outside the body, and a headset that fits over the ear.

Cochlear implants have been around for decades, but have grown far more advanced in recent years.

In the mid-1970's, implants included one electrode; they now include 22, doctors said. "multichannel" implants, approved for use in children in 1990, provide stimulation at multiple locations in the cochlea.

Nationally, Clark said, about 10,000 children have been fitted with implants. An estimated 45,000 children are potential recipients, but not every hearing-impaired child is eligible

The cost for surgery, the implant device and a hospital stay is about $40,000, and a year of auditory and verbal therapy costs $4,416. These expenses are usually covered by insurance, including Medicaid, government health insurance for the poor.

Program coordinator Amanda Mangiardi, part of a team of 10 doctors, audiologists and other professionals, said the twice-a-week follow up therapy is critical. Marschark said it is one of several variables that can help determine a child's success, along with age, biology and other factors.

"A child can get a cochlear implant and never get the ability to use that implant," Mangiardi said. "The ear can perceive that there's sound coming in. The therapy helps them understand the sound."

Travis, who had surgery in late September and had the device turned on in October, said he is still learning to focus on important sounds.

"It's easier to understand people if there's not other sounds in the room," he said.

Between Two Worlds

Years ago, the decision to implant these devices in children was more controversial.

Clark said many people didn't want children subjected to a medical procedure that often had less-than-optimal results –especially if they were relying on the implant and therapy and choosing not to learn sign language. People also worried that children weren't being given the chance to live in the deaf community or identify with other deaf people, who have created a culture of their own.

Doctors and experts said the controversy has subsided somewhat as technology has improved and brought better results. Many people with implants also have shown they can successfully straddle the deaf and hearing communities, identifying and communicating with people in both.

There are also financial concerns about the implants that reach beyond the deaf community. Marschark said children from higher-income families may be in a better position to benefit from implants because their parents can more easily take time off from their jobs for the follow-up appointments. And although insurance covers many costs, families may have to bear some expenses such as travel and implant replacement parts, batteries and warranties.

Despite such concerns, Clark and O'Reilly said, more and more families are choosing the devices. Experts said parents are helping drive an anticipated 20 percent to 25 percent annual increase in the overall number of implant recipients. There are more than three times as many children as adults who have received implants.

"Meanwhile, research on the implants is continuing, said Marschark, who has written several books on deafness and related issues. Although the devices seem to improve speech and hearing, he said, researchers still don't know whether they help children academically. But Marschark is certain about one thing: Children are not getting lost between the hearing and deaf worlds.

"I have not seen kids say, "oh, gee, I don't know who I am, hearing or deaf," " he said. "I have seen a lot of kids say, "cool, I can be both.'"

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