



ADVANCED
BIONICS
POWERFUL CONNECTIONS

Bringing **powerful connections** to life.

A parent's guide to cochlear implants.



A Sonova brand

Powerful connections

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Welcome to the world of powerful connections.

Childhood is a time for magical moments and playful discovery. And you want to make sure your child can actively participate in it all. Even if your child has severe or profound hearing loss, cochlear implants can help them fully enjoy the pleasures of these early precious years of life.

For over 25 years, Advanced Bionics has been developing leading hearing innovations. In partnership with Phonak, the global leader in pediatric hearing care, we have created the most innovative and restorative hearing technology. And we firmly believe that better technology means better hearing—and better hearing leads to better living.

By improving your child's hearing, you are giving them the opportunity to make powerful connections with your family, friends, and the world around them.



YOU ARE NOT ALONE.

As parents of a child with hearing loss, you may have many questions and concerns about what the future will bring. Millions of families around the world, just like you, are coming to terms with the fact that their child will need help hearing.

Your journey starts with gathering information and understanding what lies ahead for you and your child. Knowing the right questions to ask will ensure you, along with your team of hearing health care professionals, will make the best decisions possible to ensure your child's hearing allows them to make powerful connections with you, your family, and friends.

This brochure, along with your other research should give you reassurance and hope. Just know that your child's hearing loss is manageable and they can live a rewarding, sound-filled life. Throughout your journey, we'll be here whenever you need us—even as your child grows into adulthood—providing the best care and most advanced hearing technologies that suit your family's specific needs.



HOW A CHILD HEARS THE WORLD.

The human ear has an amazing ability to process sound, but children, especially young children, hear differently than adults. They lack the language and life experiences that adults have to help them understand what they are hearing.

Hearing plays an essential role in key areas of a child’s development: speech, language, knowledge, social skills, and emotional well-being. For this reason, hearing loss means a child losses the ability to capture and process the details of sounds needed to fully engage and interact with the world around them through spoken language and sound. If left untreated, hearing loss may cause academic underachievement, challenges in the development of social behavior, and emotional problems.



Did you know?

Children learn language quickly, adding up to 20 new words a day to their vocabulary between ages two to six.¹



PLAY



COMMUNICATE



LEARN



SOCIALIZE

HEARING LOSS OVERVIEW.

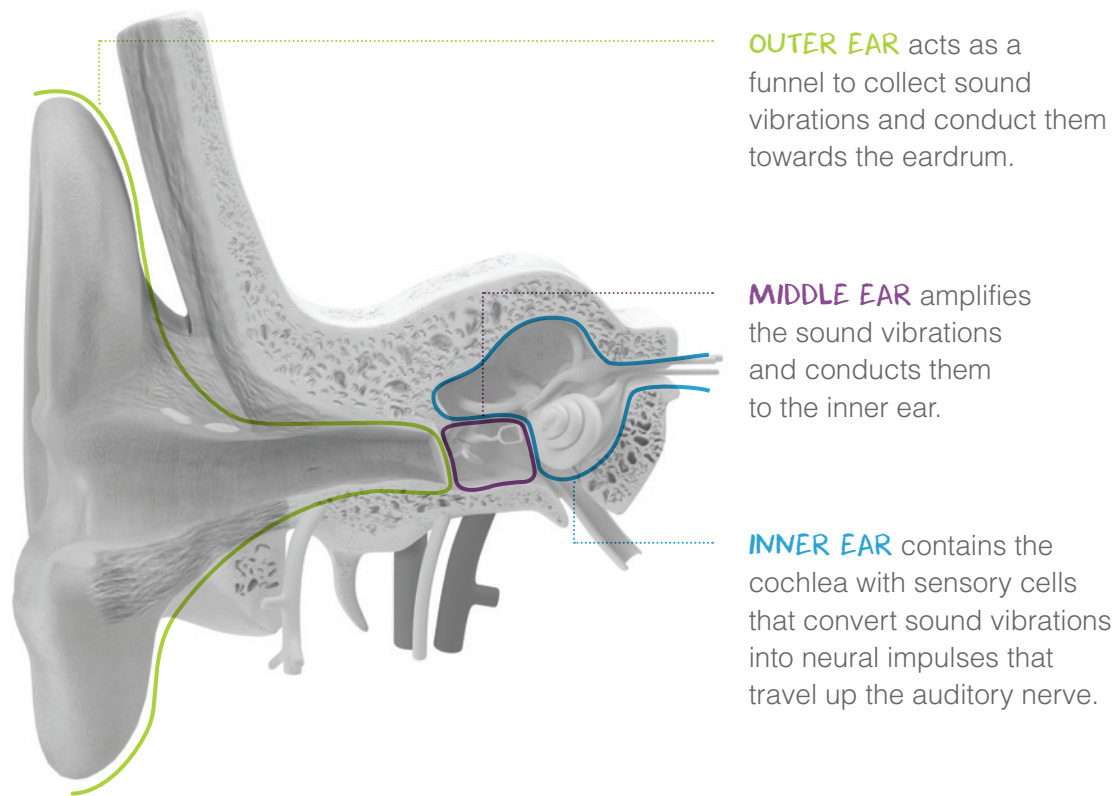
The ability to hear is a complex process that relies on several areas of the ear and the brain to work together in harmony.

The ear is responsible for collecting sounds and transmitting them to the brain for interpretation. This process involves three separate areas of the ear: the outer, middle, and inner ear. Each and every sound a child hears can be described in four dimensions: loudness, pitch, direction, and time (changes in the previous three dimensions from moment to moment).

Hearing loss occurs when there is abnormality or damage to any of these parts which affects the four dimensions. An audiologist will help identify the problem and will begin by conducting a hearing test.

How is the ear structured?

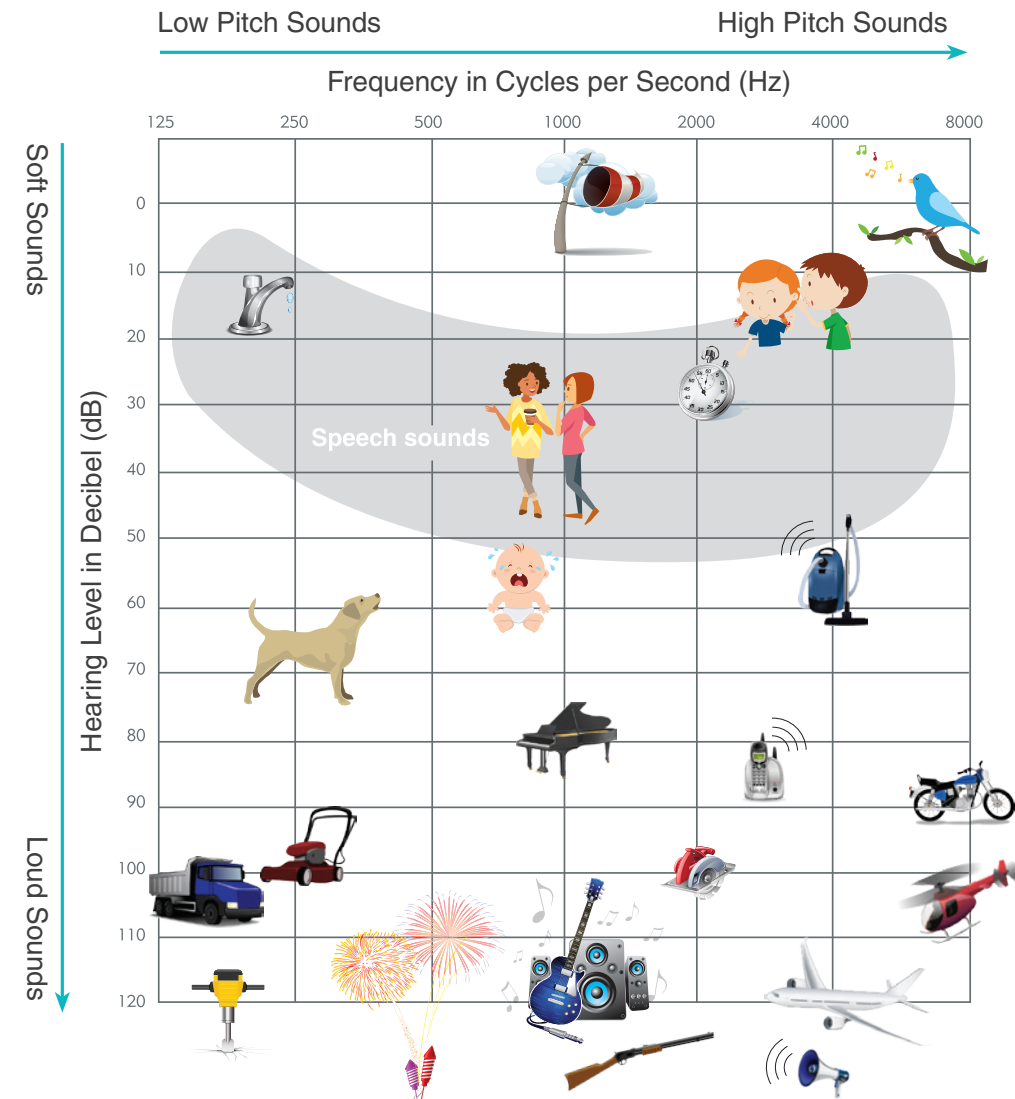
The structure of your child’s ear is fully formed at birth and consists of three sections; each plays an important role in hearing.



Understanding the audiogram.

An audiogram is a graphical representation of your child’s hearing ability. A child with mild-to-moderate hearing loss (20–70 dB) may experience difficulty hearing and understanding soft speech, speech from a distance, or even regular speech at close distances. Those who are diagnosed with severe-to-profound hearing loss (70–90+ dB) may only hear loud noises or perceive certain loud noises as vibrations.

Your hearing care professional will determine the best options for your child based on where the results of your child’s hearing test fall on the audiogram.



UNDERSTANDING YOUR CHILD'S HEARING LOSS.

Every child is unique. And hearing loss can affect them in different ways. Four key factors—age, degree, intervention, and support—can determine what impact hearing loss might have on their lives.



1 AGE

A child's first years are the most important for speech and language development. So the impact of hearing loss is greatest in those who are born with or develop hearing loss soon after birth.

2 DEGREE

The degree of hearing loss may range from mild to profound. The greater the severity, the greater the impact.

3 INTERVENTION

The sooner a child is identified with hearing loss, and the earlier they receive support services, the greater the opportunity for learning spoken language.

4 SUPPORT

Children with hearing loss who receive timely and appropriate treatment and intervention can grow and develop like others with normal hearing.

Did you know?



Research shows that children who are born deaf or acquire hearing loss very early in life—and who receive appropriate interventions within six months of age—are at par with their hearing peers in terms of language development by the time they are 5 years old.²

Connecting to life.

Every day. Every hour. Every moment...connections are made. Connections to family, friends, and the world around us.

At Phonak and Advanced Bionics, we believe everyone deserves to experience life's most essential connections. United by a common purpose, we're empowering patients by connecting them to the life they want, and to the people they love.

As the world's largest and most innovative provider of solutions for patients with every type and degree of hearing loss, we're driving a fully integrated approach that's pushing the boundaries of what's possible as no other audiology company can. We offer a comprehensive range of technologies—from hearing aids to cochlear implants to wireless communications solutions—to treat all major forms of hearing loss that children and adults face today.

We are Phonak+AB. We're connecting you to life.



Phonak and Advanced Bionics are proud contributors to the Hear the World Foundation, which supports people with hearing loss in developing countries—providing education, funding, and hearing technologies.



MANAGING HEARING LOSS.

Once your child has been diagnosed with hearing loss, it's important to address it as soon as possible. The goal is to minimize developmental delays and facilitate communication, education, emotional, and social development.

For those children who develop hearing loss at a later age, hearing screenings and tests can effectively identify hearing loss soon after its onset, allowing for intervention and, similarly, limiting its impact.

Understanding your options & technologies.

After identifying your child's hearing loss, you will be introduced to an expert team who will answer all your questions and assist you in the process of deciding which management option is best for your child.

While hearing aids are usually a great solution for children with mild-to-moderate hearing loss, cochlear implants are the leading option for those with severe-to-profound hearing loss.³ Typically, children who show signs of hearing loss will be fitted with hearing aids first. Your team of hearing care professionals will keep a close eye on how your child performs with these hearing aids, and will determine if they are a candidate for a CI.

How to hear better in challenging environments.

Hearing with two ears dramatically helps children with spatial orientation, making it easier to sense which direction sounds—such as the honk of an oncoming car or a friend calling out on the playground—are coming from. Two-ear hearing also helps children hear speech better in noisy situations, like during playtime or lunch in the cafeteria.

It's for this reason that the most complete hearing solutions enable the use of both ears. This could be cochlear implants on both ears or an implant on one ear and a compatible hearing aid on the other. With Phonak and Advanced Bionics, you'll benefit from technology that goes beyond other options. The integrated technologies in our hearing devices "talk" to each other via a wireless signal that ensures your child is hearing as much of their environment as possible.



HOW DOES AN ADVANCED BIONICS COCHLEAR IMPLANT WORK?

Your child's hearing loss means that a portion of the ear is not functioning appropriately. Often, a hearing aid can compensate for the loss by making sounds louder and easier to hear. However, when the loss is too severe, making sounds louder may not be enough.

Cochlear implants are the standard treatment for children with severe-to-profound hearing loss. These amazing devices make sounds clearer and easier to understand by bypassing the damaged portion of the cochlea and sending sound directly to your child's hearing nerve.



1

The Advanced Bionics **microphones** pick up sounds at the opening of the ear canal for the most natural listening experience.

2

The sound waves are converted into detailed digital signals by our **sound processor**.

3

Our **headpiece** sends the digital signals to the **cochlear implant** and electrode array in the inner ear.

4

The **electrode array** stimulates the hearing nerve.

5

The hearing nerve sends impulses to the brain, which interprets them as sounds.

The transformative benefits of a cochlear implant.

A cochlear implant is a life-changing decision, as your child may:

- Have the potential to develop normal hearing, speech, and language skills.
- Be able to enjoy listening to music, watching television, and holding conversations over the phone.
- Gain a sense of inclusion, allowing them to socialize and connect with friends and family.
- Build the skills and confidence that will help them as they mature and attend school and begin working.



HEARING WITH AN ADVANCED BIONICS COCHLEAR IMPLANT.

The journey to better hearing with an Advanced Bionics CI is a process. As your child's brain becomes familiar with the way sounds are being transmitted from the implant, your child will make rapid, continual progress, learning to recognize the different sounds they hear—whether it's speech or a car honking.

To smooth the way, Advanced Bionics uses the most cutting-edge technology and offers comprehensive support and educational tools on your child's journey to better hearing.

Visit [HearingJourney.com](https://hearingjourney.com) to engage with other families who have chosen the Advanced Bionics CI and learn about their experiences.



Your child's implantation surgery.

Unlike hearing aids, cochlear implants require a surgical procedure. While any type of surgery has some associated risks, it is important to know that complications are extremely rare. Keep in mind that surgery is a necessary but brief part of the process, and that hundreds of thousands of people have undergone the procedure all around the world. Most go home the same day or the very next day. It is also important to know that having surgery doesn't automatically mean your child will lose whatever hearing ability they may have.

Activating your child's cochlear implant.

After the implantation, you and your child may experience the roller coaster of “hurry up and wait,” as activation of the cochlear implant typically takes place two-to-four weeks after the procedure—depending on the healing process.

Initial stimulation (being “switched on”) will take place in your child's audiologist's office, and is an extremely exciting and emotional milestone. During this appointment, the audiologist will also create a customized set of listening programs for the external sound processor, and show you how to use and take care of the CI. This initial activation process will vary depending on your particular cochlear implant center.

Post-activation—the longer term.

Follow-up programming and training sessions to improve your child's hearing performance are typically scheduled in the weeks and months following the initial session. Long-term, your child will have frequent check-ups to ensure they're getting the most out of the implant.

While the implant is designed for life, Phonak and Advanced Bionics are continually developing new external components that can improve your child's hearing. The regular check-ups will dictate which product upgrades, features, etc. will benefit your child the most as they grow.

And of course, Advanced Bionics will continue to support your child's journey to better hearing with educational resources, technical support, and outstanding customer service to ensure that they stay powerfully connected to a full world of sound.



The Advanced Bionics CI: *Bringing technology to life.*

Advanced Bionics provides a comprehensive range of products designed to give your child a hearing system that delivers all their needs and seamlessly fits into their constantly changing lives.

Our cochlear implant system offers more ways to hear than any other CI. And every aspect of our CI has been optimized for clarity, comfort, ease of use, and reliability—allowing your child to hear their best.

And our CI offers children the widest range of external components and accessories that let them focus on what's most important: being a kid.

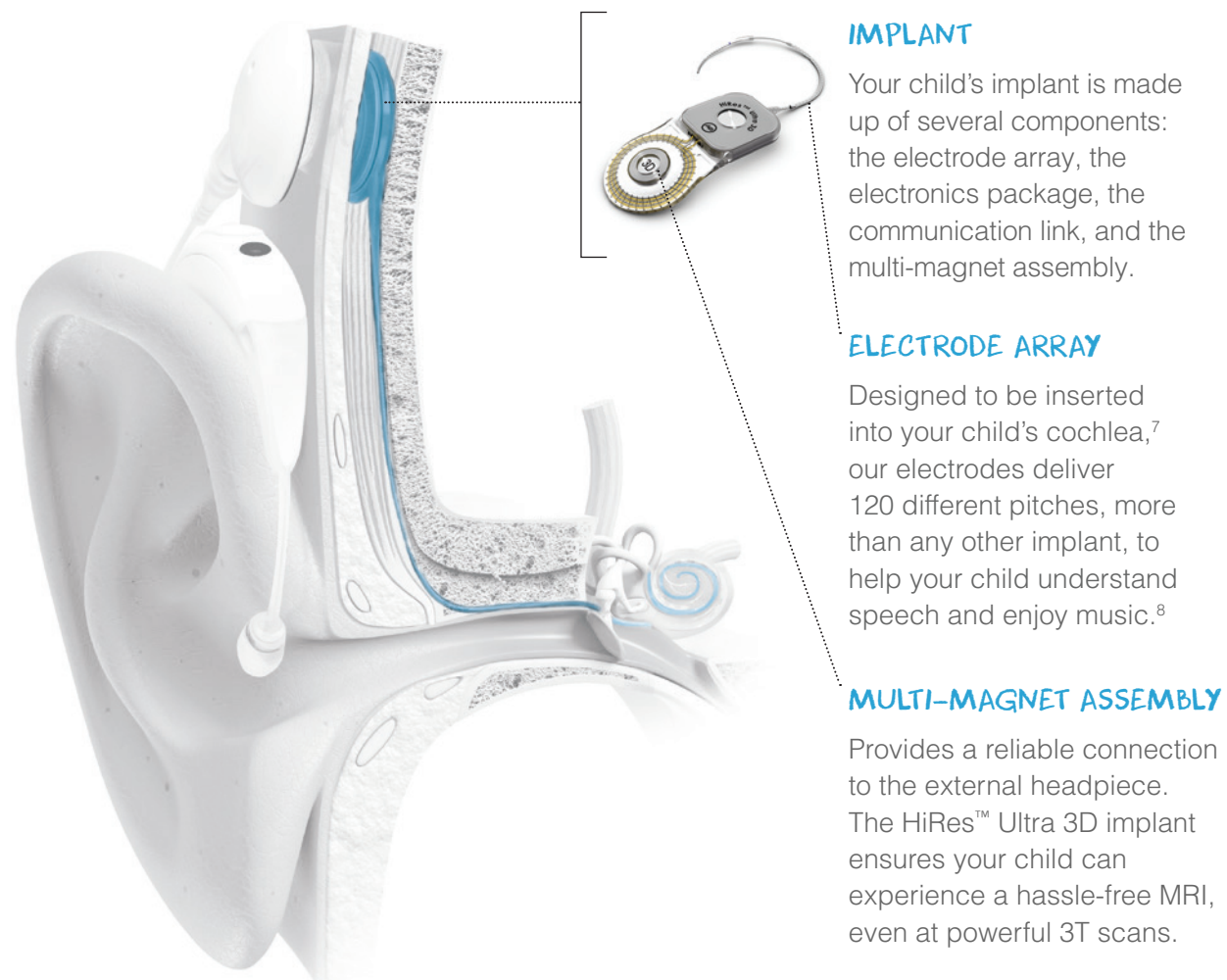
Thanks to our partnership with Phonak, we're constantly developing and implementing groundbreaking new approaches, giving your child the best and most-detailed hearing possible.

HiRes Ultra 3D Cochlear Implant

AN ADVANCED COCHLEAR IMPLANT FOR CHILDREN.

Our HiRes™ Ultra 3D cochlear implant is designed for your child to get the most out of every listening experience—whether it's hearing music, the sounds of the world around them, or their teacher's voice in a loud classroom.

Our implant delivers the proven benefits of clearer speech⁴ and a broader range of sound,⁵ and is designed to exceed industry standards for impact resistance⁶ so your child can enjoy life's adventures without limits—from the playground to the playing field.



Gentle on the inner ear.

Ensuring your child has a positive implantation and activation is our top priority. That's why we offer two different electrodes (HiFocus™ SlimJ and HiFocus™ Mid-Scala) that surgeons can choose from, based on what's best for your child's unique anatomy. Both electrodes are designed to protect the delicate cochlear structures and provide complete coverage of the cochlea for full-spectrum sound.

Future-proof.

Your child will have their implant for life, so our implants are designed to keep up as technology advances for decades to come. By upgrading your child's processor, they can enjoy new listening features and expanded capabilities without needing to change the implant.

Hassle-free MRI.

No one wants to think about needing an MRI in the future. Which is why we're keeping this in mind for you. Our sophisticated Ultra 3D multi-magnet assembly ensures your child will not need extra surgeries before and after an MRI examination. This means one less thing for you to worry about.



The HiRes Ultra 3D has been awarded MedTech's Breakthrough Award 2019 for Best Overall Medical Device Solution.

NAÍDA CI Sound Processor

HIGH-PERFORMANCE TECHNOLOGY FOR HIGH-PERFORMANCE CHILDHOOD.

MICROPHONES

Your child's cochlear implant system captures the sound around them with one or more microphones. The Advanced Bionics CI has microphones on the front and back of the processor, in the headpiece, and a T-Mic™ microphone positioned at the opening of the ear canal to capture sounds around them.

SOUND PROCESSOR

Our sound processors use the industry's most advanced technology to make hearing easier for your child. They include the only sound processing strategy in the industry recognized by the FDA to improve speech understanding in noise.

HEADPIECE

Processed sound is transmitted through the headpiece to the implant. Advanced Bionics implant systems feature the most advanced sound processing circuitry in the world, with programming flexibility that provides nearly unlimited ways to deliver sound.



Our Naída CI sound processor provides unique, groundbreaking features proven to help your child effortlessly hear better in any environment, while offering the durability and flexibility that lets them to do what they do best—play.

Our thin, light processor is discreet and comfortable for everyday use, and nine color options give your child the freedom to blend in or stand out, as they like. Rechargeable or disposable batteries make powering up easy.

Superior performance and sound quality.

Your child can enjoy natural sound quality and phone use with the only microphone located near the opening of the ear, so that they can hear secrets whispered in the ear, and use headphones to enjoy their favorite music. Our state-of-the-art technology ensures they hear their best in noise and never miss any of life's most important sounds.

Coordinated and customized hearing solutions.

Keep both ears working together with the Naída CI. The automatic, wireless, ear-to-ear network allows your child's sound processors to work seamlessly together or with other hearing devices. Customizing a solution for the specific hearing needs of your child is easy.

Clear, effortless hearing in every setting.

The Naída CI offers the most cutting-edge, sophisticated sound processing for high-performance hearing. Our upgradeable technology is designed with a single goal in mind: to help your child hear their best in virtually any environment, from a quiet library to a noisy classroom.

VARIETY OF COLORS

Choose from a variety of colors to suit your child's personality.



**Color options vary by region. Ask your audiologist what's available to you.*

BUILT FOR ALL OF LIFE'S ADVENTURES.

Getting a cochlear implant is only the beginning of your child's hearing journey. Their needs will evolve over the years as they mature, develop, and embrace new challenges such as school, sports, relationships, and work.

Your child should have the ability to actively participate in every activity they enjoy—from swimming to gaming, and everything in between. That's why we offer a broad set of accessories that will ensure your child gets the most out of life with their implant.

The Advanced Bionics and Phonak Research and Development teams are on the forefront of the latest innovations so your child's hearing improves as technology advances. You can be sure that as your child's needs change as they grow, we'll be there every step of the way. That's our commitment to you.



Individual needs require an individual approach. Up to 40% of children with hearing loss have additional developmental disabilities. If your child has special needs beyond hearing loss, we are fully equipped with specially-designed tools and technologies that will cater to your child's unique needs. Our goal is to assist you in supporting your child's development in the best way possible.

Babies & Toddlers: Stimulating early language and communication skills through play and social activities is key. Our **AquaMic™** headpiece and **AquaCase™** enclosure ensure young children are actively engaged at bath time, in the swimming pool, and in other active settings. This means they never miss an opportunity for social bonding and language development.



(Pre) School Aged Kids: Hearing is a vital component during school-age years, helping your child develop complex cognitive skills and fostering the transition from solitary play to interacting in social groups. Our CI features integrated **Roger™** technology that helps your child learn in the classroom, connect on the playground, and prepare for learning as a teen and adult.



Teens: These are the years your child undergoes many physical, mental, emotional, and social changes. The ability to hear is especially important in helping your teenager adapt to these changes. Our **Naída™ CI Connect** receiver offers the ability to stream directly and connect to any Bluetooth®-enabled device—keeping them involved, connected, and prepared for more independence and responsibilities.

Adults: We become more self-aware and in control of our behavior as adults—managing relationships and the social factors that affect us. Having had a CI for most of their life, your child will have gained years of confidence and skills needed for this higher stage of development. Our **Roger™ Table Mic II** will help them thrive in the workplace, always being at the center of the discussion in meetings and social settings.



BABYBEATS: MAKING EARLY CONNECTIONS.

Sound begins to play a key role in your baby's development the moment they are born. It's at this stage that their brains are starting to attach meaning to different kinds of sounds.

BabyBeats™ early intervention resource is specifically designed by our researchers together with experts in early child development and education to help babies learn to listen and communicate.

The app provides fun, musical activities that engage and motivate your child's sense of hearing, allowing them to bond, play, and learn as they are exposed to singing, talking, and listening in the home. All the activities are designed to build a foundation of listening, learning, and communication skills that will foster powerful connections as they age.

What BabyBeats has to offer.

- Supports development of communication and emerging preverbal skills.
- Supports bonding and attachment with the parent or caregiver.
- Enhances development of your baby's brain.
- Supports use of their hearing devices.

Visit ABRehabPortal.com and sign-up for more information.



Did you know?

"Music is one of the most natural ways a child can bond with parents and begin brain development."

—Christine Rocca, creator of BabyBeats



Improving **hearing**. **Connecting** lives.

At Advanced Bionics, we believe every child can live without the limitations of hearing loss. That's why we've developed the most flexible, innovative, and patient-centric cochlear implant solutions available today.

Our industry-leading cochlear implant platform matches the best technology and services to your child's specific needs to help improve their hearing. And when your child can hear, they can fully connect with the world of sound around them. It's as simple—and life changing—as that.

All around the world, tens of thousands have already benefited from our cochlear implants. Experience the power of connection for yourself, and for your child.

Visit us at [AdvancedBionics.com](https://www.advancedbionics.com) and start your child's journey to better hearing today.



FOOTNOTES

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For information on additional AB locations, please visit advancedbionics.com/contact

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Please contact your local AB representative for regulatory approval and availability in your region.