

How does a cochlear implant differ from a hearing aid

For many children, hearing aids are sufficient to improve hearing to an acceptable level of benefit. Cochlear implantation is considered for children who require access to sounds that hearing aids cannot provide. To learn more about hearing loss visit [AdvancedBionics.com/ToolsForToddlers](https://www.advancedbionics.com/ToolsForToddlers) and click on the link for resources after the identification of hearing loss.

Who is a candidate for a cochlear implant?

Children 12 months of age and older with significant hearing loss may be candidates for a cochlear implant. Typically candidates are evaluated by a team and candidacy is determined on a case by case basis. Are you wondering if your Child is a Candidate for Cochlear Implants? Check all that apply to find out:

- ☐ My child has delayed speech and language development as a result of his or her hearing loss.
- ☐ My child rarely responds to his or her name.
- ☐ My child's attempts to make sounds does not change or increase when he or she first puts on their hearing aids in the morning.
- ☐ My child does not seem to notice or respond to environmental sounds, like the door bell ringing, the dog barking, or music.

If you checked one or more of the above your child may be a candidate for a cochlear implant. Consult your child's audiologist and contact [hear@advancedbionics.com](mailto:hear@advancedbionics.com) to learn more.

How is candidacy determined?

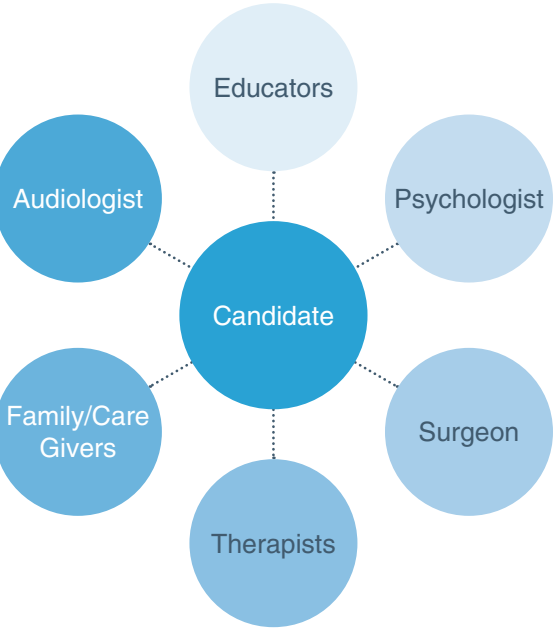
Your child's candidacy will be determined using a team approach. The candidacy evaluation involves several components such as assessing your child's hearing anatomy, medical background, hearing, and speech and language skills. If the team determines your child is a candidate, each member of the team will also play a role in your child's success with the device.

*"In 1997, Jake lost his speech and hearing at age 4. If someone had told me then that I'd one day be able to talk to Jake with his back to me, I would have thought that was such a miracle. If you'd told me then that he'd be going on to the university, I'd be amazed. The first implant enabled him to gain access to education, the second implant seems to have enabled him socially."*

— Jane Foreman, mother of Jake, implanted at age 5, bilaterally implanted at age 13



CANDIDACY IS A TEAM DECISION



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COCHLEAR IMPLANT BASICS

Your child's journey to hearing is just beginning and there is a lot of new information to learn. Right now you may be wondering what a cochlear implant is, how it works, and how a child with cochlear implants can maximize his or her success. The information that follows is intended to provide a brief overview of cochlear implants and help you as your embark on your child's journey to hearing.

What is a cochlear implant?

A cochlear implant is a surgically implanted device that uses state of the art technology to provide hearing to individuals with significant hearing loss. Most children with cochlear implants demonstrate improvement in their ability to hear, understand speech, and develop language.

What are the components of a cochlear implant?

A cochlear implant system consists of an internal device and an external sound processor.

How does a cochlear implant work?

Follow the graphic below to learn how a cochlear implant works.



1. The T-Mic microphone captures sound waves that pass through the air.
2. The sound waves are converted into detailed digital information by the sound processor.
3. The headpiece sends the digital signals to the internal device.
4. The signals are then sent to the electrode array in the inner ear and stimulate the hearing nerve.
5. The hearing nerve sends impulses to the brain, where they are interpreted as sound.







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## What is the process for getting a cochlear implant?

The idea of implantation may evoke a range of feelings, including excitement, hope, or apprehension. Rest assured, cochlear implant surgery is relatively simple, minimally invasive, and performed thousands of times per year across the world. Most children resume their regular activities within a couple of days. There are two stages to getting a cochlear implant. First your child will have the internal device placed during a surgical procedure. A few weeks later, once the surgical site has healed, your child will be fit with the external components.

## Surgical placement of internal components

The surgical placement of the internal device into the inner ear is performed under general anesthesia and takes approximately two hours. Typically, the surgery is done on an outpatient basis in which the child arrives in the morning and goes home that same day. Occasionally, an overnight stay may be necessary.

## Fitting the External Components

The day your child is first fit with the external components is called the initial stimulation. The objective for the initial stimulation is to find a comfortable program or map to optimize hearing. Children can have a variety of reactions to sound on the day of initial stimulation. They may be alarmed by what they hear, they may ignore it, or they may have a very positive reaction. Any of these responses are considered normal.

## How does the audiologist create a program?

After the initial stimulation, your child will visit his or her audiologist to create programs on their sound processor. Programming involves setting soft and comfortable levels for different pitches as well as setting several other parameters that contribute to how the sound processor will deliver incoming sound. Programming requires frequent adjustments so your child will see his or her audiologist for several appointments after initial stimulation. Appointments will be less frequent after your child has gone through the adjustment period. Eventually most children are seen for programming two to three times a year.

## How will my child's hearing improve?

Your child will perceive sounds differently over the first days, weeks, and months after implantation. It is important to keep in mind that it takes time, practice, and full time use of the device during all waking hours to hear with cochlear implants. It is a process, not an instant fix. Overtime many children with cochlear implants will learn to listen, talk, and attend mainstream schools.

## What factors help to determine how successful a child will be with a cochlear implant?

There are many well-known factors that contribute to a child's hearing potential after implantation. Length of deafness, previous experience with sound, age at implantation, and the family's commitment to listening therapy are some of the main factors that help to determine success. The keys to maximizing a child's hearing potential are daily full time use of the cochlear implant combined with listening and spoken language therapy.

*"Her cochlear implants allow her to participate in many different Student Council activities that involve being in social settings. She feels part of a group and not like an outsider. Most importantly her friends and peers see her as Addison, the funny, kind-hearted, smart young lady that she is and not the "girl with the bionic ears."*

— Rachelle Blackmon, mother of Addison, implanted at age 19 months, bilaterally implanted at age 7

## What is listening and spoken language therapy?

Listening and spoken language therapy, also known as habilitation therapy, teaches children how to listen with their cochlear implant, and teaches parents how to help their child learn to listen and communicate. Therapists that specialize in listening and spoken language therapy understand how hearing, speech, and language evolve and will create an appropriate therapy plan to help your child develop these skills. It is important to realize that parents and caregivers must become involved in the therapy process and help their child strengthen his or her hearing and language every day. You can find free activities that help children learn to listen online at websites such as The Listening Room, [www.thelisteningroom.com](http://www.thelisteningroom.com). These activities are appropriate for all children with hearing loss, even if they wear hearing aids, so get started today!



Have you downloaded the Advanced Bionics **BabyBeats early intervention resource** app? BabyBeats is a motivating, fun musical approach to develop your baby's listening and language!

## Do all cochlear implants work the same way?

No. Just as your child is unique, each cochlear implant system offers different features and technology. We know you have big dreams for your child and family. There is so much to learn about the amazing technology Advanced Bionics (AB) offers. Below are just a few of the features and solutions offered by AB that allow children to live in a world of sound without limitations.



## Join that mommy and me class.

Sure it's noisy and crazy but your child's AB devices are built to handle it. Only AB provides devices for both ears so kids can hear better in even the noisiest situations. Ask your audiologist about AB's solutions for hearing in both ears so your child will have a fuller and richer hearing experience.



## Rush out of the house in the morning without a second thought

Busy parents who have children who use implants in both ears do not need to worry about keeping track of right and left ear devices. Your child's sound processors automatically work with whichever ear they are placed on. More time for a cup of coffee! Ask your audiologist about the benefits of this as well as AB's other kid tough features.



## Go on that beach vacation.

Yes you can! AB's waterproof technology allows your child to continue wearing their cochlear implant IN and around water. Only AB has waterproof solutions with uncovered and uncompromised access to sound. Ask your audiologist how AB's waterproof options differ from other cochlear implant devices.



## Download your child's favorite music on their smart phone.

Only AB has the T-Mic, which uses the unique shape of the ear to capture sound and allow for natural placement of the phone or headphones. Your child will enjoy talking with friends on the phone and love listening to all the latest hit songs using headphones. Ask your audiologist about why the T-Mic's microphone placement is important.



## Upgradeability

Only AB has untapped system capability for future upgrades.

- In use
- Untapped technology

Did you know an Advanced Bionics team member is available to answer questions and help you learn more about our technology? Email [hear@advancedbionics.com](mailto:hear@advancedbionics.com) or call **866-844-HEAR(4327)** to connect with one of our hearing healthcare specialists today!

## See what the future has in store

As technology improves, so will an AB implant. The internal device a child receives today has the capacity for future hearing technologies without the need for additional surgery. This means that as your child's hearing needs change from infancy, through the school age years, teenage years and adult years, an AB implant will grow with your child. No other company comes close to offering the upgradeability of the AB system. Ask your child's audiologist how AB's upgrades allow little ears to grow big.

## How can I connect with parents or caregivers who have already been through the process?

Many people find it helpful to connect with other parents or caregivers who have already been through the process. Easily connect with a mentor who will provide one-on-one support and help navigate the process of choosing and living with cochlear implants by emailing [hear@advancedbionics.com](mailto:hear@advancedbionics.com) or visiting [HearingJourney.com](http://HearingJourney.com).

The **HearingJourney™ online forum** is the premier place to chat, laugh, learn, and share stories about cochlear implants and hearing loss. AB is pleased to sponsor this online community of CI recipients, people considering cochlear implants, their families, friends, and loved ones. At [HearingJourney.com](http://HearingJourney.com) you can: browse topics, ask questions, get answers, find mentors, attend live chats.