Cochlear®
Hear now. And always

Raising confident teens

Practical advice for teachers

Teens and hearing loss

As a teacher, you're probably familiar with some of the challenges facing students as they enter the high school environment. Oftentimes, transition from primary school can be quite jarring for some students and it may take some time for them to settle into their new environment.

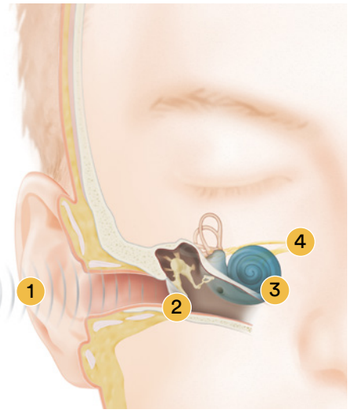
Starting high school can be especially daunting for children with hearing loss. Teenagers with hearing loss report feeling overwhelmed with trying to keep up with the new pace and routines of a high school environment.

For your student with hearing loss to thrive in their new environment, it will take a bit of understanding, patience and much support. Remember, not only will they have to overcome the learning challenges associated with hearing loss, but may also have a different set of communication, emotional or social barriers compared to their hearing peers.

Many teenagers with hearing loss do not want to be identified as being different from their peer group. Having an informed class and creating a space where self-advocacy is encouraged is the first step to creating an environment where teenagers with hearing loss can build their confidence, feel accepted and be empowered to learn. We suggest having a conversation with your student and their parents on how best to approach this situation and what information they are comfortable sharing with the wider class.

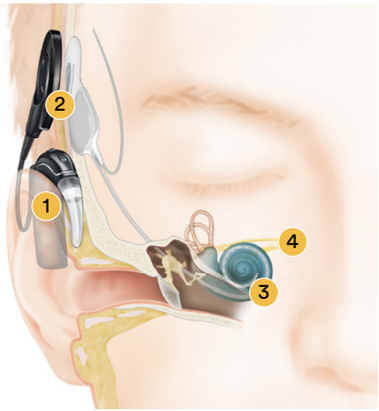
Hearing with a cochlear implant

Understanding how the needs of students with hearing loss compares to their hearing peers is supported by gaining insight into how the hearing system works and how a cochlear implant transmits sound. Equipping yourself with the basics of hearing loss, may help you to better understand some of the listening challenges your student has to overcome in the classroom and get a better idea of what may help them to learn. We also recommend talking to your student about their experience, as they are the experts in their own communication strengths and challenges.



How the ear hears

1. Sound moves through the ear canal and strikes the eardrum.
2. Sound waves cause the eardrum and the three bones within the ear to vibrate.
3. The vibrations ripple through the fluid in the spiral inner ear, known as the cochlea, and cause the tiny hair cells in the cochlea to move.
4. The hair cells absorb the movement and change it into electric impulses, which are sent to the hearing nerve and then to the brain, where they are interpreted as sound.



How a cochlear implant transmits sound

1. The sound processor captures sound and converts it into digital code.
2. The sound processor transmits the digitally coded sound through the coil to the implant, just under the skin.
3. The implant converts the digitally coded sound to electrical signals and sends them along the electrode array, which is positioned in the cochlea.
4. The implant's electrodes stimulate the cochlea's hearing nerve fiber, which relays the sound signals to the brain to produce hearing sensations.

Hearing loss and the impact on classroom learning

There are a number of ways hearing loss can affect your student. It can range from:

- How it may affect their learning
- Their confidence to participate in classroom discussion
- How they feel emotionally in your class

It's also important to consider other ways hearing loss may impact your student. Such as their:

- Communication abilities
- Listening and spoken language skills
- Social skills
- Theory of mind
- Executive function

Being aware of some of these challenges may help you work more closely with your students and develop solutions to help them. Or, if your student is a little less forthcoming, recognize when they are experiencing difficulties and be able address them in a timely way.

1 Participation in larger classroom discussions

Students with hearing loss may feel unsure of themselves in larger classrooms, particularly if there is a lot of discussion. They may have concerns about following conversations or worry that their response will be inappropriate or inaccurate.

We recommend sitting down with the student and their family to discuss what modifications can be made to help facilitate their involvement and understanding in group discussions. Reviewing the discussion afterwards or providing written or visual support are techniques that may support learning for all of your students, and can be particularly useful for students with hearing loss.

2 Struggle with academic performance

Depending on the age that your student acquired their hearing loss and their access to good quality sound input and rehabilitation, this may put them at an educational disadvantage. For example, language delay can result in difficulties with language comprehension and literacy[1]. With most classroom lessons being delivered verbally, this can make it difficult for your student with hearing loss to follow lessons.

To help your student, try using visual props or visuals aids to supplement your teaching.

Hearing loss and the impact
on classroom learning

3 Downplay their hearing loss

Teenagers with hearing loss may downplay their listening needs in order to avoid being singled out. High school aged cochlear implant recipients report not wanting to feel different, draw attention to themselves or cause any drama. We recommend speaking with your student to understand how they feel about using their wireless accessories and the level of support they need from their hearing support teacher.

Another way you can help is by arranging one-to-one time with your student. Talk about their academic performance and ask them to share their goals and discuss their future. Clarifying their goals and talking about what helps them to learn, may help them feel more at ease in the classroom. But remember, sometimes they may just need a bit of time to adjust and settle into their new environment.

If possible, it may also be a good idea to reach out to their primary school principal or teacher to obtain their past school reports. This may give you a better understanding of what strategies worked for them and what areas are more important to spend more time on.

"I didn't want an itinerant teacher early in high school—I didn't like feeling different. But by 10th grade, I asked for the support again. It was the same with the Mini Mic. I was told to use it for every class, but it's rare to find a teenager who is willing to use it all through high school."

Bec – Nucleus recipient

Communication in the classroom

"Growing up, there were times that I did not understand what was said or struggled to hear in loud environments. My deaf educators taught me to be assertive and tell my teachers and friends what I needed."

Tess – Nucleus recipient

Communication in
the classroom

Encouraging your teenage students to advocate on behalf of their hearing needs is important. However, it's also important to be sensitive to the emotional needs of your student. Remember, they may be hesitant to draw attention to their hearing loss in the classroom.

Below are some strategies that you can adopt to help find the balance between optimizing learning, supporting their needs and encouraging them to voice their needs in the classroom.

Seating

- **Classroom learning**
  Aim to position your student so that they are able to get the best auditory and visual information from you and fellow classmates.
- **Group learning**
  Reduce the number of students in each small group. For classroom learning, it will be easier for them to follow conversations if students are seated in a circle or horseshoe arrangement for discussions.

Acoustics

- Background noise makes it more difficult for students with hearing impairment to understand spoken language.
- Where possible, try to ensure that any noise sources in the classroom are positioned behind your student.
- Position them away from noisy distractions such as fans, vents, doors and windows.
- If possible, reduce background noise by using soft materials such as curtains, rugs or corkboards on the wall.

Remote microphone technology

- If your student uses an FM system or the Cochlear Wireless Mini Mic 2+, we recommend learning how to use the devices for maximum benefit. It will optimize your student's listening and speech understanding in a busy classroom and make your job of teaching them much easier.
- If you need more information about how to use the device, please refer to the Wireless Technology in the Classroom guide or reach out to your local Cochlear customer service team for more information.

Classroom Communication

- Speak naturally in a clear voice at a regular rate and do not talk with your back to the class.
- If there is access to a sound field system or speaker system in the classroom, take advantage of this technology. The benefit is two-fold, it will reduce the strain on your voice and help all students in your class to hear you more clearly.
- Repeat questions or comments posed by another student before responding or calling on the next student. If classmates are not speaking clearly, you can summarize their comments once they are done speaking. This is a subtle way of helping your student with hearing loss, hear better.
- Create a buddy system. Sometimes it can be hard for your student with hearing loss to follow lessons and take notes at the same time. By arranging a buddy system and having another student share their notes, they can continue to listen to you with the added visual cues.
- Choose activities that encourage interaction amongst students. Small break-out groups may make it easier for your student with hearing loss to hear and feel more confident to contribute to discussions.

Giving Instructions

- When giving instructions, write key information on the board, use diagrams and use short simple sentences. Also, consider creating supplemental handouts for all students. These are all visual aids that will help your student in class.
- Wait for the whole class to be quiet before giving new spoken instructions.
- Speak with your voice directed towards the students. i.e. Don't talk to the class with your back towards them or when walking away.
- Start with *gearing up to listen* words because your student may miss the first few words when you begin to speak. For example, "Everyone, take out your laptops" may work better than "Take your laptops out."
- Rephrase - don't repeat the same words. If the student does not understand what was said the first time, say it in a different way the second time.
- It may be useful to provide your student with access to aspects of the curriculum before or after classes. E.g. videos or information about lesson topics before covering it in class.

Encourage Advocacy

- Teach the class about basic strategies to make listening and communication easier. Before you do this, check that your student is comfortable for you to proceed.
- If your student is enthusiastic about sharing their story with the class and ready to explain how their implant works, encourage them to do so. This is a great way for your student to build their confidence. It may also make future peer interactions more effective and promote better classroom participation.
- Take the time to regularly check in with your student and encourage them to share their thoughts on their progress and find out if they need help. The more often you have these conversations, the better it will be for building trust and rapport.
- It is important that your student (with the support of family members) also takes responsibility for their own learning and progress. A way you can do this is to task your student with developing plans and strategies for their learning and present this to you. If you go down this path, be prepared to take some of their suggestions on board, or this may discourage them from future efforts to advocate.

A young cochlear implant recipient's advice to teachers.

1. Check on your student discreetly i.e. how they are following the lesson and if they can hear in the classroom.
2. Offer a 1:1 meeting with your student outside of class to give them the opportunity to ask you questions they may be too shy to ask in front of other students.
3. Try to build a positive rapport with your student.

Cassidy – Nucleus recipient

Navigating the technology

Familiarizing yourself with the different parts of your student's Cochlear Nucleus or Baha Sound Processor and Wireless Accessories can help with basic troubleshooting in the classroom or in situations when you need to communicate any issues with the child's parents.

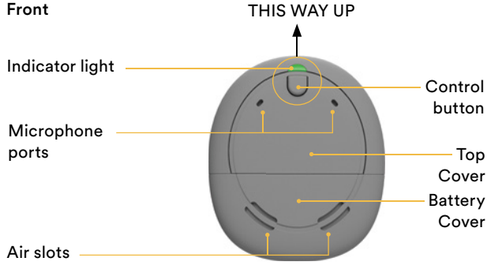
Cochlear implant Sound Processors

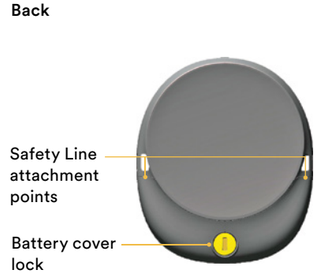
Behind the ear sound processors

Nucleus 7

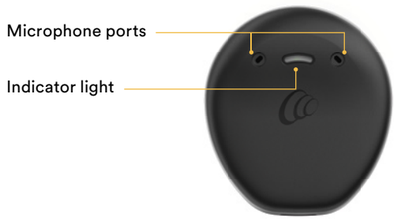
Off the ear sound processors

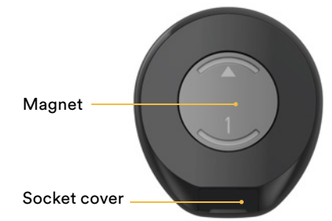
Nucleus Kanso





Nucleus Kanso 2





Wireless streaming

Mini Microphone 2+ (MM2+)

The MM2+ is part of Cochlear's True Wireless™ accessory range. It connects directly to sound processors using Bluetooth® technology and can help recipients hear more clearly in noisy classrooms.[2,3]

You can clip the MM2+ onto your collar during lesson time, or during group games and learning.

Pairing:

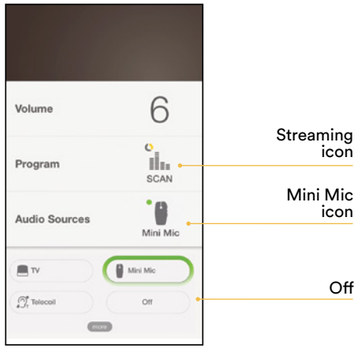
Follow the steps below to pair the sound processor to the MM2+

1. Remove the sound processor from the ear. Remove the battery or open battery door.
2. Turn on the MM2+.
3. Press the pairing button on the MM2+ once using the tip of a pen or similar object. The LED will flash yellow every 2 seconds and the Mini Microphone will now be in pairing mode for 20 seconds.
4. While pairing mode is active (20 seconds), turn on the sound processor. Successful pairing will be indicated by either an audible melody played in the sound processor, or by a flashing light on the sound processor (depending on the type of sound processor).

Nucleus Smart App

The Nucleus Smart App will allow your student to adjust their sound processor settings across a range of environments directly from a compatible Apple® or Android™ device[1]. If your student has a Nucleus 7 or Kanso 2 Sound Processor, it is another way to activate wireless streaming from the MM2+ to your student's sound processor.

1. Turn on the sound processor and the MM2+.
2. Start the Nucleus Smart App.
3. Tap Audio Sources and tap the Mini Mic icon. The sound processor flashes a blue light to indicate streaming.
4. The Mini Mic streaming icon displays on the app.
5. To stop streaming, tap off.



Visit www.support.cochlear.com for additional device support information or contact your local customer service team.

Hear now. And always

As the global leader in implantable hearing solutions, Cochlear is dedicated to helping people with moderate to profound hearing loss experience a life full of hearing. We have provided more than 600,000 implantable devices, helping people of all ages to hear and connect with life's opportunities.

We aim to give people the best lifelong hearing experience and access to innovative future technologies. We collaborate with leading clinical, research and support networks.

That's why more people choose Cochlear than any other hearing implant company.

References

1. Jin, F., Schjølberg, S., Wang, MV., Eadie, P., Nes, RB., Røysamb, E., Tambs, K. Predicting Literacy Skills at 8 Years From Preschool Language Trajectories: A Population-Based Cohort Study. Journal of speech, language, and hearing research. (2020 Oct); 63(8):2752-2762.
2. Jones, M(2017, July) Hearing in Noise Benefi t Using the Cochlear Mini Microphone 2+ with Nucleus Sound Processors, CI2017 Pediatric15th Symposium on Cochlear Implants in Children,San Francisco, CA (with Nucleus 7).
3. Razza, S., Zaccone, M., Meli, A., & Cristofari, E. (2017). Evaluation of speech reception threshold in noise in young Cochlear™ Nucleus® system 6 implant recipients using two different digital remote microphone technologies and a speech enhancement sound processing algorithm. International Journal of Pediatric Otorhinolaryngology, 103, 71-75. doi:10.1016/j..ijporl.2017.10.002 (with Nucleus 6 and MiniMic 2+).

^ The Cochlear Nucleus 7 Sound Processor and Kanso 2 Sound Processor are compatible with Apple and Android devices. The Cochlear Nucleus Smart App is available on App Store and Google Play. For compatibility information visit www.cochlear.com/compatibility.

^^Remote Check is intended for ages 6 and older. The Remote Check feature is only visible and accessible if the feature is enabled by a clinician. Clinicians should consider the suitability of the feature before enabling Remote Check. Remote Check does not replace clinical care and does not involve remote programming of the sound processor.

†The Acoustic Component should only be used when behavioral audiometric thresholds can be obtained and the recipient can provide feedback regarding sound quality. The Hybrid L24 Implant is approved in the US for adults ages 18 and older.

††It is recommended that SNR-NR, WNR, and SCAN be made available to any recipient, ages 6 and older, who is able to 1) complete objective speech perception testing in quiet and noise in order to determine and document performance and 2) report a preference for different program settings.

US: In the United States, the Cochlear Nucleus Implant System is approved for use in children 9 to 24 months of age who have profound sensorineural hearing loss in both ears and demonstrate limited benefit from appropriate hearing aids. Children 2 years of age or older may demonstrate severe to profound hearing loss in both ears.

In younger children, limited benefit is defined as lack of progress in the development of simple auditory skills in conjunction with appropriate amplification and participation in intensive aural habilitation over a three to six month period. It is recommended that limited benefit be quantified on a measure such as the Meaningful Auditory Integration Scale or the Early Speech Perception test.

In older children, limited benefit is defined as ≤ 30% correct on the open set Multisyllabic Lexical Neighborhood Test (MLNT) or Lexical Neighborhood Test (LNT), depending upon the child's cognitive and linguistic skills. A three to six month hearing aid trial is recommended for children without previous aided experience.

Canada: In Canada, the Cochlear Nucleus Implant System (CI500 and CI600 Series) is approved for use in children 9 to 24 months of age who have profound sensorineural hearing loss in both ears and demonstrate limited benefit from appropriate hearing aids. Children 2 years of age or older may demonstrate severe to profound hearing loss in both ears.

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Views expressed by Cochlear recipients are those of the individual. Consult your hearing health provider to determine if you are a candidate for Cochlear technology. Outcomes and results may vary.

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