



ENT and Audiology services

Bone conduction hearing devices (BCHDs)

Information for patients, families and carers

BCHDs are appropriate for certain types of hearing loss. Similar to conventional hearing aids, they stimulate the cochlea (hearing organ). Unlike conventional hearing aids, they do not need the outer or middle part of the ear to be working normally. This information leaflet describes the types of BCHDs available at Alder Hey.

How BCHDs work

Instead of sending sound through the ear canal like conventional hearing aids, IADs transmit sounds through the skull and middle ear bones to the hearing organ.

They are usually suggested for people who cannot wear conventional hearing aids due to their ear not developing in the usual way, or have a certain type of hearing loss.

BCHDs can be beneficial for people who have a profound hearing loss in one ear (single sided deafness – SSD), or have a mixed or conductive hearing loss in one or both ears. Some people with these types of hearing loss will experience good benefit from BTE hearing aids. However, sometimes conditions such as recurrent ear infections/discharge from the ear, microtia and atresia (absence of external ear and/or absence of opening of the ear canal) can mean that alternatives to BTE's need to be explored.

The BCHD service includes a full range of options following an assessment with our team. It is very important that referrals include all the relevant information.

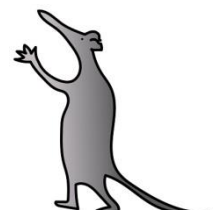
There are some conditions/configurations of hearing loss that may be suitable for consideration of BCHDs:



Diagram of bone conduction with a softband. Image courtesy of Cochlear, 2023.

Conductive and mixed hearing loss

Individuals that have a conductive element to their hearing loss, might derive more benefit from a BCHD compared to a BTE. This can be the case for individuals that have satisfactory bone conduction thresholds (ie the inner ear is working well) or have a mixed hearing loss (the inner ear also has a degree of hearing loss). A BCHD works by sending the sound via vibrations through bone conduction, bypassing the outer and middle ear.

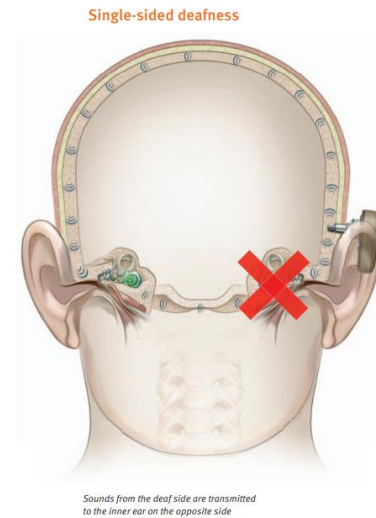


Single sided deafness (SSD)

For children and young people with SSD, a CROS (contralateral routing of sound – looks like BTE) aid should initially be trialled by the local Audiology service. This device takes the sound from the side of the head with the 'bad' hearing and delivers it to the 'good' ear.

People with satisfactory hearing in the 'good' ear and no functional hearing in the 'bad' ear, may obtain benefit from a BCHD. The sound processor picks up sound on the affected side and sends it via bone conduction to the other inner ear (cochlear).

It is important to understand, that by having a BCHD when having SSD, it will not restore the hearing to the affected ear. The system will utilise the good hearing in the opposite ear and send the signal to the 'good' side.



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Diagram of SSD. Image courtesy of Oticon Medical, 2021

What happens when I get referred for an assessment?

You will have an initial assessment with an audiologist from the BCHD team. This appointment will often be offered to take place via telephone consultation. At this point, we will review your previous hearing test results and discuss the options available to trial.

There are three types of device that may be suitable for you to try:



Picture of child wearing a softband. Image courtesy of Cochlear, 2023.

BCHD worn on a softband

A BCHD can be fitted on a softband. This will either be from a manufacturer called Cochlear or Oticon.

This device has Bluetooth capabilities that allow streaming of music/TV programmes from devices. If you chose to proceed with this device long term, the manufacturer will provide a free of charge wireless accessory that can be used to hear the teacher better in an educational setting, or used by the family at home.



BCHD worn on a Sound Arc

A BCHD can also be fitted on a Sound Arc. This will be from a manufacturer called Cochlear.

It is only suitable for the age of 7-8 upwards. This device has Bluetooth capabilities that allow streaming of music/TV programmes from devices. If you chose to proceed with this device long term, the manufacturer will provide a free of charge wireless accessory that can be used to hear the teacher better in an educational setting, or used by the family at home.



Picture of child wearing a Sound Arc. Image courtesy of Cochlear, 2023.



Picture of child wearing an Adhear and the device. Image courtesy of Medel, 2023.

Adhear worn on an adhesive

A BCHD device made by a manufacturer called Medel can be worn on an adhesive.

This type of device is not suitable if you have a mixed hearing loss, or if you have a history of certain types surgery on your ears.

An Adhear does not have the same Bluetooth streaming capabilities as other types of BCHDs

There will then be time to ask questions, and we will discuss if you are suitable for a trial of a BCHD. If you wish to proceed, a face to face appointment will then be booked. We will fully assess your hearing, ask you some questions and perform a test to see how well you can understand speech with and without your current hearing aid (if you have one).

If you are suitable, you will be fitted with your device(s) on either a softband, Sound Arc or adhesive at this appointment so the trial can commence. You will then take the device(s) away to try in your daily life for 3-4 weeks. Please note any assistive listening devices such as streamers are not available during the trial period.

What happens after the trial?

We will either arrange a telephone consultation or face to face appointment to see how you have found the device you have been given to trial. We will repeat speech testing and possibly some questionnaires to measure how well it works for you. We will then discuss if you would like to stay with this type of device moving forward. If suitable, we will then be able to order your own device, where you can pick the colours. This will be fitted around 4-6 weeks after, where you will then return the demo device.

Moving forward

We will then arrange further follow up appointments to check your progress and monitor hearing levels. All batteries and replacement softbands etc are available to request via email from the Audiology team at any point in between appointments.

Surgical options

You may be suitable for consideration of a type of surgery meaning a softband/Sound Arc/adhesive are not required to keep the BCHD in place. This is called an implantable acoustic device (IAD).

There are three types of IADs available at Alder Hey:

1. Percutaneous bone conduction implant (BCI).
2. Active transcutaneous BCI.
3. Middle ear implant.

Each type has its own advantages and disadvantages. Not everyone is suitable for each type of device.

Your child's ENT surgeon or Audiologist will discuss the options that are suitable for your child. Further information on IADs is available in a separate information leaflet.

Contact details:

Audiology:
audiologymail@alderhey.nhs.uk or
0151 252 5943
ENT: 0151 228 4811 ext 3757 or
0151 252 2506
Useful websites:
www.cochlear.com/uk
www.oticonmedical.com/uk
www.medel.com/uk
www.ndcs.org.uk

This leaflet only gives general information. You must always discuss the individual treatment of your child with the appropriate member of staff. Do not rely on this leaflet alone for information about your child's treatment.

This information can be made available in other languages and formats if requested.

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