



York and Scarborough
Teaching Hospitals
NHS Foundation Trust

Bone Anchored Hearing Aids

Paediatric Hearing aid management for conductive or mixed hearing loss

Information for patients, relatives and carers

① For more information, please contact:
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Glossary

Abutment: A small titanium implant placed in the bone behind your ear.

Baha: Bone anchored hearing aid

Canal atresia: Where ear canal hasn't developed

Chronic otitis media: Infection in the middle ear

Cochlea: Part of the inner ear that converts mechanical energy (vibrations) into nerve impulses sent to the brain, also known as the organ of hearing.

Congenital: Relating to a condition that is present at birth

d B: The decibel is used to measure sound

ENT: Ear, nose and throat

KHz: Kilohertz is a unit of measurement of frequency.

PTA: Pure tone audiogram, hearing test

Sensorineural deafness: A permanent hearing as a result of damage to the hair cells within the cochlea or the hearing nerve (or both)

Syndrome: A group of symptoms that together that are characteristic of a disease or other disorder.

Advice for patients

Who is a candidate for a bone anchored hearing aid (baha)?

Suitability depends on the type of hearing loss, and whether an ENT consultant has recommended this is the best course of management.

Conductive or mixed Hearing loss

Possible indications would be chronic otitis media (infection in the middle ear), canal atresia (where the ear canal hasn't developed) chronic discharging ears, very narrow ear canals, congenital syndrome's such as Treachery Collins.

What can we do for patients with these types of hearing loss?

A baha (bone conduction hearing aid). A hearing aid that sits behind the ear attached with a softband, bypassing the middle ear.

How bone conduction works

Bone conduction sound is conducted through the bone directly to the cochlea, bypassing the outer and middle ear. The baha system uses this natural process by amplifying the sound signals, and converting them into vibrations, and transmitting them to an implant in the bone, or softband.

The baha attract system: This transmits the sound vibrations to the inner ear through a magnetic connection between the sound processor and the implant under the skin. The benefit is that there is no abutment penetrating the skin. When patients are considering this option the patient needs as near normal bone conduction as possible, ideally all the frequencies need to be better than 20db. Results with BC direct have shown poorer performance at 4khz with the magnets so any sensorineural hearing loss will be affected more, this will have an impact on speech clarity.

The baha connect system: This transmits vibrations through an abutment which connects the sound processor to the implant on the abutment. The main benefit is maximum transmission of vibrations, providing maximum amplification.

The baha softband: This is a flexible headband to carry the sound processor, which transmits the vibrations to the bone through the skin. This enables early aided of young children before surgery is carried out.

Candidacy: Conductive hearing loss

- Conductive element of more than 30db (PTA), benefit of baha less need for amplification, no obstruction of the ear canal.

Candidacy: Mixed hearing loss

- Conductive element of more than 30db (PTA), sensorineural element less than 65db, benefit of baha less need for amplification, no tight fitting ear moulds
- The bone anchored hearing aid has an accompanying wireless accessory for you to enjoy all aspects of the aids new technology.

This accessory has been provided by Cochlear and is not issued by York Audiology department. The accessory is under warranty for 1 year and during that time we are happy to send it for repair if it develops a technical fault. Children benefit from using the mini microphone. This transmits speech and sound directly into your sound processor over a distance of 25 metres (clear line of sight). This can be especially useful in the classroom environment.

Evaluating baha

At your assessment appointment a full history will be taken in relation to your hearing and any difficulties you may be having. Further hearing tests will be carried out to determine your suitability for a hearing aid. If it is felt appropriate that benefit can be obtained from a hearing aid, you will be offered the choice of aid. You will be shown the various options of baha, including colour choices if available. If a baha is chosen you will then be given a trial of the baha to use at home/school for 2 weeks. A home trial log should be completed and returned to the department.

Audiology tests will be performed whilst you are in clinic, we will endeavour to complete as much testing as possible on your first appointment, but sometimes we may require you to return on a separate appointment to complete this.

Audiology information required

- Full pure tone audiogram
- Soundfield hearing test with and without a hearing aid
- Speech testing & Questionnaires

Counselling

- Realistic expectations should be set and commitment to aftercare. Once the hearing aid is fitted you will be reviewed in three months to ensure everything is ok, and to make any adjustments if necessary. Regular maintenance and attendance of follow up appointments is something that you and your child need to be fully committed to.
- A follow up appointment will be made to measure the outcome of the hearing aid trial; if this has been successful a hearing aid will be ordered for you. Your next appointment will be for this to be fitted. If you also decide that you would like to proceed with a surgical option we can fit the baha to a softband, and refer you the ENT consultant to discuss your suitability for surgery.

Following surgery: Fitting the hearing aid

Approximately 8-10 weeks after surgery the abutment will be secure enough to attach the baha, timings are pretty similar for the magnetic option as well. If you have safety line fitted **always** keep this attached to prevent loss of the hearing aid

- You can wear your baha aid all day long, but take it off for sleeping.
- When taking part in activities where you could lose the hearing aid (contact sport) it's probably best to remove it.
- The hearing aids are not waterproof; never wear it in the shower/bath or in the swimming pool.
- To avoid feedback with the baha do not let the object come into contact with the processor, i.e. hat, ensure the battery drawer is fully closed.
- Ensure the hearing aids are kept clean, keep hair products away from the hearing aid.

If you decide not to try any form of hearing aid what can we do to help?

Careful classroom placement is crucial in enabling your child to reach their full potential. Hint and tips to help assist your child:

- Establish eye contact, and speak at the child's level. Gaining visual attention as well as auditory attention
- Use words like "listen" "get ready" before giving information.
- Sitting at the front of class, away from any other distracting noises.
- Use a daily/weekly schedule to ensure the child/student knows what is expected.
- Asking your child to repeat an instruction back to you to ensure that they have it correctly.
- Flow of information to the teaching staff about your child's hearing loss.

References

Clinical commissioning guidance, bone anchored hearing aids 2013

Cochlear BAHA systems candidate selection guide

Oticon – The bone anchored hearing system

Agreement form

Please can you read and sign the following consents for the service

BAHA Trial

You have been issued a NHS hearing aid as a **trial** only

Bone anchored hearing aid

You (parent/guardian) agree to return the hearing aid device within 2 weeks to the Audiology department. If the device isn't returned on time, you may be charged to cover the cost of the equipment.

You (parent/guardian) agree to attend **assessment, fitting and follow up** appointments for your aftercare, as part of your commitment to using the hearing aid. You (parent/guardian) agree to proper maintenance of the implant site with good regular hygiene.

Please sign below if you understand the above conditions to your hearing aid trial.

Patients name

Date

Patient signature

Hospital no

Issuing Audiologist

Our Policy on Baha 4/5 Wireless Accessories

You have been issued today with a new Baha 4 and accompanying this is a wireless accessory for you to enjoy all aspects of the aids new technology.

This accessory has been provided by Cochlear and is not issued by the Audiology department.

The accessory is under warranty for one year and during that time we are happy to send it for repair if it develops a technical fault.

Unfortunately if a fault develops when the accessory is no longer under warranty then we are not responsible for its maintenance or for the replacement of the device.

All wireless accessories are available to purchase and if you wish to do so we are happy to provide details about where to look for information to enable you to do so.

***Please note that York Teaching Hospital will not be held accountable for any damage to the device not covered by the warranty.**

Type of accessory issued

.....

Aid and accessory serial numbers

.....

Signature of issuing audiologist

.....

Warranty end date.....

Please sign below to say that you understand this information.

Print name

Signature

Date

Paediatric Home Trial Log

It is important to monitor how effective you find the aid in your normal everyday listening situations.

Try and test it in a variety of situations and complete your personal log with:

- The date
- The amount of time it was worn for
- The type of listening situation
- Overall opinion

Example:

Date	Time	Situation(s)	Benefit
17/04/2015	2 hours	Watching television	<input type="checkbox"/> Perfect <input type="checkbox"/> Great Benefit <input type="checkbox"/> Some Benefit <input type="checkbox"/> No Benefit

Tips:

Check placement of processor

Set volume to your preference

Try and use as many different listening situations as possible, for example:

- Nursery/school
- Playtime
- One to one Conversations
- Group Conversations
- Television
- Music
- Noisy Environments e.g. shopping, restaurants

Date	Time	Situation(s)	Benefit
			<input type="checkbox"/> Perfect <input type="checkbox"/> Great Benefit <input type="checkbox"/> Some Benefit <input type="checkbox"/> No Benefit

Date	Time	Situation(s)	Benefit
			<input type="checkbox"/> Perfect <input type="checkbox"/> Great Benefit <input type="checkbox"/> Some Benefit <input type="checkbox"/> No Benefit

Date	Time	Situation(s)	Benefit
			<input type="checkbox"/> Perfect <input type="checkbox"/> Great Benefit <input type="checkbox"/> Some Benefit <input type="checkbox"/> No Benefit

Date	Time	Situation(s)	Benefit
			<input type="checkbox"/> Perfect <input type="checkbox"/> Great Benefit <input type="checkbox"/> Some Benefit <input type="checkbox"/> No Benefit

Date	Time	Situation(s)	Benefit
			<input type="checkbox"/> Perfect <input type="checkbox"/> Great Benefit <input type="checkbox"/> Some Benefit <input type="checkbox"/> No Benefit

If you're using the aid for single sided deafness:

Conversation	Benefit
How much did the aid help you hear general conversation when the person was talking on your 'deaf' side?	<input type="checkbox"/> Perfect <input type="checkbox"/> Great Benefit <input type="checkbox"/> Some Benefit <input type="checkbox"/> No Benefit

Direction	Benefit
How much did the aid help you tell what direction a sound was coming from?	<input type="checkbox"/> Perfect <input type="checkbox"/> Great Benefit <input type="checkbox"/> Some Benefit <input type="checkbox"/> No Benefit

Name:.....

Hospital
Number:.....

Type of Aid:.....

Further Comments

Delete as appropriate:

I wish to proceed / I do not wish to proceed / I require a further appointment in Audiology to discuss my options.

Please complete the form and return to:
Stacey Gurnell/Tracy Devine Paediatric Audiologist
Audiology Department
York Hospital
York Teaching Hospitals NHS Foundation Trust
Wigginton Road
York
YO31 8HE

Tell us what you think of this leaflet

We hope that you found this leaflet helpful. If you would like to tell us what you think, please contact:

Stacey Gurnell, Paediatric Audiologist, Audiology Department, The York Hospital, York and Scarborough Teaching Hospitals NHS Foundation Trust, Wigginton Road, York, YO31 8HE, telephone 01904 631313 or email Stacey.gurnell@york.nhs.uk

Teaching, training and research

Our Trust is committed to teaching, training and research to support the development of health and healthcare in our community. Healthcare students may observe consultations for this purpose. You can opt out if you do not want students to observe. We may also ask you if you would like to be involved in our research.

Patient Advice and Liaison Service (PALS)

PALS offers impartial advice and assistance to patients, their relatives, friends and carers. We can listen to feedback (positive or negative), answer questions and help resolve any concerns about Trust services.

PALS can be contacted on 01904 726262, or email pals@york.nhs.uk.

An answer phone is available out of hours.

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Owner	Stacey Gurnell, Paediatric Audiologist
Date first issued	March 2017
Review Date	December 2023
Version	2 (issued December 2020)
Approved by	BAHA Team
Document Reference	PIL 1096 v2
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