Cochlear implant assessment
A patient's guide

Information for patients
Sheffield Hearing Implant Programme,
Regional Department of Neurotology
**Introduction and welcome**

Welcome to the Sheffield Cochlear Implant Assessment and Rehabilitation service. This programme has been running since 1992 within our specialist regional audiology service and we now have a team of staff dedicated to cochlear implant assessment and rehabilitation.

This leaflet explains how you will be assessed for a cochlear implant and what happens if an implant is right for you and you choose to proceed. It explains the stages of assessment, what tests and procedures you may have and how long each appointment will take. You are welcome to bring someone with you to all of the appointments.

Please read this carefully and do not hesitate to contact us if you have any questions. Our contact details can be found at the end of this leaflet.
Interpreter services

Please let us know if you require a BSL interpreter or foreign language interpreter for any appointments and we will arrange this for you.

Si tiene alguna dificultad en entender inglés, por favor, avísenlo al personal sanitario que buscará a un intérprete para ayudarle.

Si vous avez la moindre difficulté à comprendre l’anglais, veuillez informer le personnel infirmier qui cherchera un interprète pour vous aider.

Sollten Sie irgendwelche Schwierigkeiten haben, Englisch zu verstehen, bitte sagen Sie es einer der Schwestern, die es dann arrangieren kann, dass ein Dolmetscher Ihnen hilft.

Αυτό το φυλλάδιο εχει οτοχο να ως παρεχει ορισμενες πληροφοριες οι οποιες θα σας χρεισμενουν κατα την παραμονη σας ως το Σεφηλντ για στερεοτακτικη ακτινοχειρουργικη. Εαν δυσκολευεστε στην κατανοηση της Αγγλικης γλωσσας, παρακαλω ενημερωστε το Γραφειο Στερεοτακτικης Ακτινοχειρουργικης πριν την εισαγωγη σας, ώστε να καλεσουμε διερμηνεια.
What is a cochlear implant?

A Cochlear Implant (CI) is an electrical medical device which works with an external speech processor to produce a sensation of sound in somebody who has a severe or profound hearing loss and cannot benefit from hearing aids. Instead of making sound louder like a hearing aid, cochlear implants directly stimulate the auditory nerve using electrical signals.

1. A **sound processor** worn at ear level captures sound and turns it into digital code. The sound processor has a battery that powers the entire system.

2. The sound processor transmits the digitally-coded sound through the **coil** on the outside of your head to the implant.

3. The **implant** converts the digitally-coded sound into electrical impulses and sends them along the electrode array placed in the cochlea (the inner ear).

4. The implant's electrodes stimulate the cochlea's **hearing nerve**, which then sends the impulses to the brain where they are interpreted as sound.
## The assessment process

<table>
<thead>
<tr>
<th>Activity</th>
<th>Duration</th>
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<tbody>
<tr>
<td>Hearing aid assessment / initial implant assessment</td>
<td>1.5 hours</td>
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<tr>
<td>Speech and language therapy assessment</td>
<td>1 hour</td>
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<td>Joint hearing and balance assessment clinic</td>
<td>30 minutes</td>
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<td>Magnetic resonance imaging scan</td>
<td>1 hour</td>
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<tr>
<td>Cortical evoked response / Auditory brainstem response testing</td>
<td>1.5 hours</td>
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<td>(if required)</td>
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<tr>
<td>Meet a cochlear implant user</td>
<td>1 hour</td>
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<td>Joint hearing and balance decision clinic: referral for surgery, or</td>
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<td>discussion of next steps if CI not suitable or you do not wish to</td>
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<td>proceed</td>
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How many appointments will I have?

Where possible we try to arrange some of these appointments together so you will have fewer visits. You may have more than one test on the same day. Some people may also see our psychologist or have tests of their balance as part of the cochlear implant assessment.

Some people may also need adjustments to their hearing aids, or new hearing aids, and a trial of the new aids or settings before we begin assessment. We will arrange this for you if needed.

If we find a cochlear implant is not suitable for you, you may not need to complete all the above assessments. We will discuss this with you as you are being assessed and decide with you what your next steps will be to help you with your hearing loss.

Cochlear implant surgery

We run a follow up programme for cochlear implants in Sheffield. Once your assessment is complete you would be referred to another hearing implant centre for your surgery, switch-on and first year of care. We offer a choice of referral to all local hearing implant centres. This will be discussed with you and a choice of sites will be offered.

We currently work with The Midlands Hearing Implant Programme, University Hospitals Birmingham to provide a smooth service for patients in the Sheffield area who wish to have surgery and return to our local programme for life-long aftercare. This allows us to work closely with one specialist site and provide a smooth service for transfer for surgery and return to our care, if you wish to have your long term care provided locally.

The following sections explain in more detail what happens throughout the assessment process.
What will happen during assessment?

Hearing aid assessment

During this appointment, you will see one of the clinical scientists who will look at your current hearing aids and ensure that your hearing aids are set correctly for your hearing loss.

If you are wearing older aids that have been superseded by newer models, you may be fitted with new hearing aids.

If you only wear one aid you may be asked to try two where suitable.

You will be given full instructions regarding use and maintenance of any new aids and you may be asked to trial the hearing aids for a longer period to get used to the sounds before assessment.

Initial assessment of hearing aid benefit

During this appointment, the benefit you receive from your hearing aids will be assessed using several different speech tests. You will be asked to listen to a sentence and repeat back what you hear, with and without seeing the speaker’s face.

It is normal to find these tests quite difficult. If you struggle greatly with hearing the sentences, then you may be asked to identify a range of different environmental noises to assess whether you are able to hear these, or sounds of speech but not words.

You will be shown the different cochlear implant systems that the programme supports and you will be given some information to take home and read at your leisure.
Speech and language therapy assessment

During these appointments, you will meet with our speech and language therapist who will take a detailed history of your hearing loss to help us determine whether an implant will be beneficial to you. The therapist will also explore your current communication to see what skills you are using now and how an implant might improve or supplement these skills.

You are likely to discuss your expectations of a cochlear implant to make sure that you are well informed and to ensure that your expectations are realistic and achievable. These sessions also allow for planning of the rehabilitation exercises you will need to do after the cochlear implant has been inserted and switched on in order to get the best from your implant.

Psychology assessment

Not all patients need or wish to see the psychologist. In this programme, clinical psychologists offer help with adjustment to hearing loss and coping strategies for hearing loss, tinnitus and balance problems. Before having a cochlear implant, you may wish to meet with a clinical psychologist to talk about your hearing loss and how you have coped with it until now and to talk through your understanding and expectations of the implant.

For some people, the decision about whether to proceed with the implant is very difficult and a meeting with the psychologist can be an opportunity to help you weigh up the pros and cons. It is not up to the psychologist to decide whether or not you can have the surgery – instead the focus is on supporting you with the process and making sure you feel well prepared. People are also welcome to arrange a follow up appointment after the surgery to discuss how they are adjusting.
Joint hearing and balance assessment clinic

During this appointment, you will be seen by one of the scientists and also by one of the ear, nose and throat consultant doctors. During this clinic, the doctor will review your medical notes and discuss any relevant medical history that may be of importance when considering cochlear implantation. Your history of hearing loss and amplification will also be discussed with you. The doctor will make a referral for a magnetic resonance imaging (MRI) scan – you will be asked several questions to ensure you are medically fit for an MRI scan.

You will have the opportunity to discuss the surgery, any associated risks and any other medical-related questions that you may wish to discuss with the doctor.

Magnetic resonance imaging

This appointment will take place within the Radiology Department and you will be seen by one of the radiographers. An MRI scan uses a strong magnetic field and radio waves to create pictures, on a computer, of tissues, organs and other structures inside your body. You will be asked to lie within the MRI scanner and asked to remain still whilst the scanner moves across and takes an image of your head. This will allow your consultant to check the structure of the cochlea and the integrity of the hearing nerve.

The process is painless and usually takes approximately 40 minutes.

You may be given some headphones or some ear plugs to wear during the test as the MRI scanner can be quite noisy, even for people who have a hearing loss.
Cortical evoked response audiometry (CERA) and Auditory brainstem response (ABR) testing

Some patients undergoing cochlear implant assessment may require CERA and/or ABR testing. If you require this, you will have an appointment with one of the scientists who will attach sticky pads (electrodes) to the top of your head, your forehead and behind each ear. You will wear headphones and some clicking sounds will be presented. CERA testing looks at how the brain detects sound, so you will be required to sit upright in a chair and stay awake and alert - you may find it helpful to bring a book or newspaper to read. ABR testing looks at how the hearing nerve responds to sound. If ABR is required you will be asked to lie back in a reclining chair and try to fall asleep; ABR testing only works if you are asleep.

Meet a cochlear implant user

During this appointment, you will have the opportunity to meet a cochlear implant user who has experience of our programme. The scientist team will try to arrange for you to meet someone who has a similar history of hearing loss or experiences as yourself to help you gain an insight into their journey. Family members or friends are welcome to join you to discuss any questions or concerns that you may have. Some people find it helpful to bring a list of questions or topics that they want to discuss to ensure that they cover all of the relevant areas.

Joint hearing and balance decision clinic

Once all your assessments are complete you will meet the ENT surgeon again to review your scans and assessment results and discuss whether to proceed for cochlear implant surgery.
If a cochlear implant is suitable for you...

If the assessment indicates that you would benefit from a cochlear implant and you wish to proceed, your medical history and all relevant test details will be sent on to the Midlands Hearing Implant Programme at Queen Elizabeth Hospital, Birmingham (or your chosen centre). We may also ask you to choose the style and colour of processor you would like and you will be given all the information you need to decide this before the clinic appointment.

What will happen at the Midlands Hearing Implant Programme?

You will be invited to a hearing implant clinic to meet members of the implant team and the consultant ENT surgeon. You will have a hearing test and a short version of some of the listening tests to confirm the results we have sent. Please make sure you bring your hearing aids with you to this appointment. The surgery will be discussed with you and you will sign consent forms for surgery. You will see the nurse for your vaccination against meningitis and you will have a separate appointment later the same day to attend a pre-assessment clinic so that you are ready for surgery. You will also see the hearing therapist to discuss your expectations of the cochlear implant, aspects of rehabilitation afterwards and, if you have not already chosen, to finalise your choice of sound processor.

If a cochlear implant is not suitable for you...

If the assessment suggests cochlear implantation is not right for you, for whatever reason, the decision behind this will be fully discussed with you and a management plan for your future hearing care will be arranged, based on your needs. We endeavour to provide you with the support and care that you require and thus you will be referred to our hearing rehabilitation service, where other forms of communication support can be considered.
Our team

Professor Jaydip Ray
Consultant ENT Surgeon

Dr Harriet Crook
Lead Clinical Scientist, Programme Co-ordinator

Mrs Helen Webber
Speech and Language Therapist

Naima Fredericks
Clinical Scientist

Mrs Emma Johnson
Clinical Scientist

Mrs Alison Sandhu
Clinical Scientist

Miss Emma Heeley
Support Secretary & Administrator
Travelling to Sheffield

There are frequent train and coach services to Sheffield. The coach and the rail stations are shown on the map on the next page.

There are good bus services from the station to the Royal Hallamshire Hospital. Alternatively you could take a taxi. It is about 3 miles from the station to the hospital.

If you are travelling by road, the easiest route is to leave the M1 at junction 33 and follow the dual carriageway to the centre of Sheffield. You will arrive at Park Square roundabout shown on the map on the following page. Follow the road signs for the central hospitals or the University and these will bring you close to the hospital.

When you are near to the Royal Hallamshire Hospital, the road signs change and the individual hospitals are signposted separately.

As soon as you see signs for the Royal Hallamshire Hospital you should follow these and they will bring you to the main entrance. The hospital is located on Glossop Road which is the A57.
Contacts

If you have any questions about the assessment, please contact us and ask to speak to one of the cochlear implant team.

Sheffield Hearing Implant Programme
Regional Department of Neurotology
B Floor
Outpatients Department
Royal Hallamshire Hospital
Glossop Road
Sheffield
S10 2JF

Contact telephone: 0114 226 8682

Mobile text: 07824 461772

Email: sth.sheffieldcochlearimplantprogramme@nhs.net

The department is routinely open: 9.00am - 5.00pm, Monday - Friday (except bank holidays)