Auditory Implant Programme
Referral Information
for Cochlear Implant Assessment

The Service

Who can attend / receive the service?
Individuals who have a bilateral severe to profound sensorineural hearing loss and are not accessing speech through conventional hearing aids may be referred for cochlear implant assessment. Depending on an individual's hearing loss the assessment will be for either a traditional cochlear implant or an electrical acoustic stimulation (EAS) cochlear implant. (see EAS booklet for more information)

The service is based in the ENT department, 2nd Floor, Lambeth Wing, St Thomas' Hospital, Westminster Bridge Road, London, SE1 7EH.

How do I make a referral?
Please write to either of our ENT consultants stating the referral is for cochlear implant assessment.

For paediatric referrals, please download a copy of the referral form from our website. Alternatively a letter containing as a minimum, copies of their latest audiogram and ENT status. If you're not sure about referring a child, the team are happy to chat through cases by phone. Please speak to Katherine Wilson or Marsha Jenkins, joint co-ordinators/principal audiologists.

How to contact us

- Reception (T) 020 7188 6245
- Fax 020 7188 2192
- For an appointment email AIAdmin@gstt.nhs.uk
- Firstname.lastname@gstt.nhs.uk (to email individual team members)
Who are the Team?
Our internationally trained staff provides professional and caring services to children and adults.

Consultant Otolaryngologists
Mr Alec Fitzgerald O'Connor, Mr Dan Jiang

Adult Audiological Scientists
Mr Terry Nunn, Ms Jennifer Demler, Ms Catherine Kelleher, Ms Arveni Dooki, Ms Sheena Mclaren, Ms Elaine Burke

Paediatric audiological Scientists
Ms Katherine Wilson, Ms Marsha Jenkins, Ms Stacey Cooper, Ms Tisa Thomas, Mr Steve Watson, Ms Anzel Britz

Hearing Therapist
Karen Archer

Speech and Language Therapists
Ms Sandra Driver, Ms Emma Stark, Ms Hazel Walters, Ms Lauren Fry, Ms Kathryn Webb

Teachers of the Deaf
Ms Heather Crofts, Ms Linda Baxter, Ms Kathy Owston

Administrators
Ms Susie Altham, Ms Melika Emmanuel, Ms Sandra Allen

ENT Nurses
Carol Kimberlin, Ramon Gamab
Referral Criteria for adults

- Severe to profound SNHL
- Hearing thresholds >70dBHL based on 4-tone average at 500, 1000, 2000 and 4000 Hz.
- Adults: post-lingual onset of profound deafness. No age limit – pt offered an implant if there is good indication that quality of life will be significantly improved
- Limited or no benefit from hearing aids (min 3 mnth trial) – consistent use
- Medically fit for surgery (GA)
- Medically suitable for an implant (MRI/CT scan)
- Use spoken language (making use of lip-reading)
Referral guidelines for children

Referrals will be considered from ENT Consultants, Audiological Physicians, Scientists and Technicians, Paediatricians, Speech and Language Therapists, Teachers of the Deaf, and GP’s.

In order to proceed with funding, a medical referral will be required.

The following guidelines give an indication of which children may be suitable for cochlear implantation:

- Children should have a severe to profound bilateral sensorineural hearing loss. Children who have more residual hearing than this in the low and mid frequencies will be considered, if their high frequency thresholds are at a profound severity.

- Hearing aids must have been issued with the following criterion being met:

  a) Prescriptive target gains unobtainable (especially in the high frequencies) therefore giving limited or no useful benefit from hearing aids.

  b) Limited access to speech sounds and failure to develop expected/acceptable levels of auditory dependant skills (e.g. speech and language delay).

- Children with meningitis and sudden onset hearing losses may be considered earlier.

- Children can be referred up to the age of seventeen and will be considered on an individual basis; however, children under the age of 2 years old may be given priority. Children referred may have:

  - Congenital deafness
  - Acquired or progressive hearing losses
  - Sudden onset hearing losses
  - Meningitis (Referral should be made at the onset of a suspected hearing loss, which is most likely evident very soon after the illness was contracted, as ossification can occur. The importance of early referral after meningitis is essential.

- Families must be committed to make frequent visits to the centre for assessment and rehabilitation.

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Fitting Range:

Consider a traditional Cochlear Implant
What Is Involved In The Assessment Process?
This information acts as a guide to the types of assessments that will be made over a number of appointments.

The expected length of assessment from referral to final consent appointment is typically eighteen weeks, although the assessment may be slowed down for many reasons, including patient/parental request. The assessment may also be accelerated in specific cases, e.g., post-meningitis cases or other medical/audiological reasons. Following assessment, the patient will either be listed for surgery or discharged. Results of tests will be explained as the assessment progresses. On completion of the assessment, a team report will be sent to the referrer the patient and other relevant professionals.

Initial Screening Assessment (2 hours)
Initial meeting with Audiological Scientist and possibly a member of the rehabilitation team who will:
• Explain the assessment process
• Take a full case history.
• Discuss issues surrounding cochlear implantation
• Carry out some audiological assessment

Medical Assessment (30 minutes) Usually on the same day as the screening appointment
Initial meeting with the ENT surgeon will involve discussion of:
• Medical case history
• Decisions made regarding further assessments required.
• Magnetic Resonance Imaging (MRI) and possibly Computer Tomography (CT) may be discussed.

If the patient is suitable they will continue to full assessment:

Audiology Assessments (2 hours per appointment)
Further clinic appointments will be needed to assess hearing, amplification needs, and functional aided hearing abilities.
The number of appointments required will vary but will typically include the following.
• Hearing Aid Fitting
• Auditory Brainstem Hearing Test (non invasive)
• Speech perception testing

Speech and Language Assessment (2 hours)
• An evaluation of speech and language will be carried out at the clinic, home and/or school. Issues surrounding implantation, expectations and outcomes will also be discussed.

Teacher of the Deaf Assessment
For children, a visit to home and school will occur to:
• liaise with others working with the child
• demonstrate the device to teachers
• Evaluate educational provision

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MRI, CT Scan
MRI, CT (if appropriate) and ABR hearing test (if appropriate) will be carried out to check the integrity of the cochleae and hearing nerves.

Clinical Psychology (2 hours)
For children, the Paediatric Clinical Psychologist will meet with the family to discuss:

- effects of deafness and implantation on the family
- thoughts and hopes about implantation

Information Day (3 - 4 hours)
Patients and families will be invited to attend an information day, open to extended family, to find out more about cochlear implantation. A palentypist will be available for those who find lip reading problematic.

Wrap Up Session (2 hours)
For children, there will be a discussion of:
- Surgery (an information book will be given)
- Preferred sound processor colour
- Predicted audiological and speech outcomes for the child

Final ENT (30 minutes)
A final appointment with the surgeon will involve discussion of:
- Medical issues surrounding cochlear implant surgery
- Surgical consent

Once consent is signed the patient will typically be offered an operation slot within 8 weeks. The device will then be activated about 4 weeks after surgery.

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What ongoing support can I expect for patients following surgery?

The following is an approximate outline of the contact with the team following implantation.

<table>
<thead>
<tr>
<th>TIMELINE</th>
<th>TEAM CONTACT</th>
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</thead>
<tbody>
<tr>
<td>Operation</td>
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<tr>
<td>10 days after operation</td>
<td>• Medical Follow-up</td>
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<td></td>
<td>• Rehab appointment for children (re device activation and implant system user guidelines)</td>
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<tr>
<td>4-6 weeks after operation</td>
<td>• Switch-on device over two days</td>
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<tr>
<td>1 week after switch-on</td>
<td>• Clinic session for mapping and rehabilitation</td>
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<tr>
<td>1 month after switch on for children</td>
<td>• Clinic session (audio &amp; SALT)</td>
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<tr>
<td>6 weeks after switch on</td>
<td>• Clinic session for mapping and rehabilitation</td>
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<td>For the first 6 months, as needed</td>
<td>• Additional rehabilitation sessions booked as required</td>
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<td>• Children will have home/school visits, liaising with local professionals</td>
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<tr>
<td>3 months after switch-on</td>
<td>• Clinic session</td>
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<tr>
<td>6 months after switch-on</td>
<td>• Clinic session</td>
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<td></td>
<td>• Children will have a video recording at school or home and a psychology review (if required)</td>
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<td></td>
<td>• After this contact with the team will be as needed, including school and home visits</td>
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<tr>
<td>9 months and/or 1 year after switch-on</td>
<td>• Clinic session review, mapping and rehabilitation</td>
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<td>• For children there will be video recording at home or school and teacher of the deaf visit/contacts with the school</td>
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<tr>
<td>18 months after switch-on (as required)</td>
<td>• Clinic session</td>
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<tr>
<td></td>
<td>• For children there will be video recording at home or school and teacher of the deaf visit/contacts with the school</td>
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<tr>
<td>Annually as required</td>
<td>• Clinic session</td>
</tr>
<tr>
<td></td>
<td>• For children a teacher of the deaf visit/contacts with the school</td>
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In cases where families live at great distances from hospital, contact will be through a combination of hospital appointments, implant team outreach support and liaison with local professionals.

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What is a Cochlear Implant?

A cochlear implant is an electronic device used to replace the damaged hair cells in the inner ear. It is made up of two parts. The external portion includes a speech processor, the transmitting coil, and the microphone. The internal portion includes the receiver and electrode.

1. Sounds in the environment are picked up by the microphone which sends the signal to the speech processor.  
2. The speech processor filters the sound into coded signals.  
3. The coded signals are then sent to the transmitting coil which sends the signal through the skin to the implanted receiver.  
4. The receiver electrically activates the electrode array which in turn stimulates the auditory nerve.  
5. Nerve impulses are sent to the brain where they are interpreted as sound.

*image taken from Cochlear Corporation's Literature
Further Sources of Information

Additional information regarding cochlear implants can be found on the following websites:

Advanced Bionics (Cochlear Implant Company)
www.bionicear.eu

Cochlear Corporation (Cochlear Implant Company)
www.cochlear.com

MEDEL (Cochlear Implant Company)
www.medel.com

British Cochlear Implant Group (Professional organization)
www.bcig.org

The Home Counties Cochlear Implant Group
www.hccig.org.uk

The Ear Foundation
www.earfoundation.org.uk

The LINK centre for deafened people
www.linkcentre.org

Further information

If you have any questions please contact the Auditory Implant Programme on:
Phone 0207 188 6245, Fax 0207 188 2192, e-mail AIAdmin@gstt.nhs.uk.

PALS - To make comments or raise concerns about the Trust’s services, please contact our Patient Advice and Liaison Service (PALS). Ask a member of staff to direct you to PALS or:
t: 020 7188 8801 at St Thomas’  t: 020 7188 8803 at Guy’s  e: pals@gstt.nhs.uk

Knowledge & Information Centre (KIC) - For more information about health conditions, support groups and local services, or to search the internet and send emails, please visit the KIC on the Ground Floor, North Wing, St Thomas’ Hospital.
t: 020 7188 3416  e: kic@gstt.nhs.uk

Language support services - If you need an interpreter or information about the care you are receiving in the language or format of your choice, please get in touch using the following contact details.
t: 020 7188 8815  fax: 020 7188 5953  e: languagesupport@gstt.nhs.uk

NHS Direct - Offers health information and advice from specially trained nurses over the phone 24 hours a day.
t: 0845 4647  w: www.nhsdirect.nhs.uk