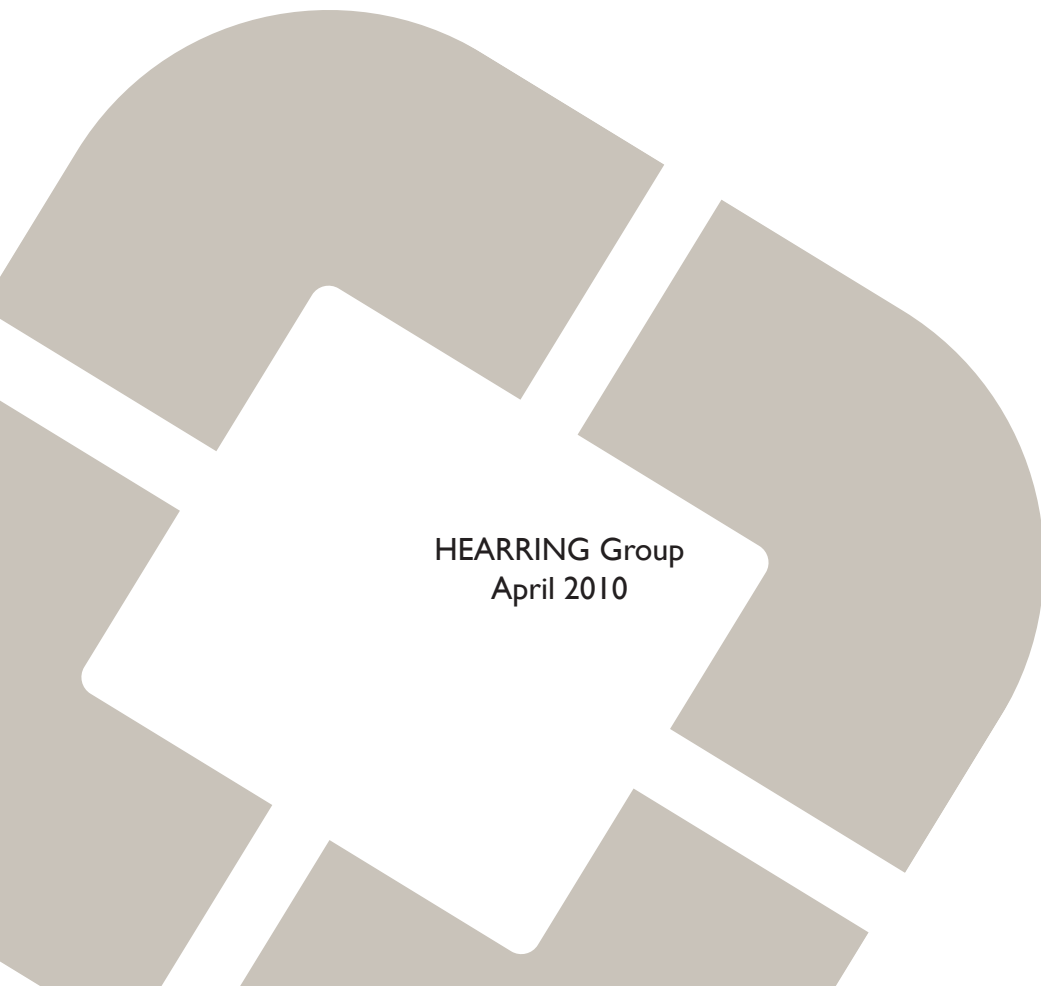


Quality Standards for Adult Cochlear Implantation



HEARRING Group
April 2010

This clinic is a member of the HEARRING network.

HEARRING is a **learning network of collaborative experts** in the field of hearing implants. It is an association of preeminent international centers offering comprehensive hearing implant solutions for the treatment of hearing loss.

HEARRING members are committed to leading the exploration of new avenues of research in hearing implant science, to advancing clinical procedures and to developing and perfecting surgical techniques. Membership in the HEARRING network is founded on the belief that research, and any subsequent advancement in the field of hearing implants, is possible only through **international collaboration** and the pooling of collective experience from leading clinical centers around the world.

In order to provide each patient with the best possible hearing implant solution for the treatment of her/his individual hearing loss, the HEARRING network is committed to the **highest standards of quality**.

HEARRING surgeons are worldwide **leading experts** in restoration AND preservation of hearing.

Because the field is developing quickly and encompasses an ever-growing knowledge base which includes new scientific insights, technologies and materials, HEARRING members' **collaborative research** initiatives are extremely important to the success of each individual member clinic. To meet the challenges of the future, HEARRING will continue to not only develop and advance standards in the field but will also make these standards transparent.

... network with the experts

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I Introduction

Cochlear Implantation is a multidisciplinary therapy that involves as a key element the surgical implantation of an electrode array in to the cochlea to provide direct electrical stimulation of the auditory nerve. Cochlear implants (CI) are designed for individuals with hearing impairment to compensate a moderate to profound sensorineural hearing loss, if there is no or only little benefit from hearing aids. CIs bypass the non-functioning part of the auditory system in order to deliver electrical signals directly to the auditory nerve. They can be used effectively by both prelingually and postlingually deafened children and adults.

Studies have shown that cochlear implantation is a recognised safe and effective procedure.

A cochlear implant consists of two parts, an external and an internal component.

I.1 Internal

The implant consists of a housing, which contains the electronics, and the electrode array as well as the receiving antenna and a magnet that holds the coil in place behind the ear.

I.2 External

The audio processor is worn behind the ear and consists of a control unit, a battery pack, and a coil that transmits information through the skin to the implant.

To secure standards of service and the effectiveness of adult cochlear implantation and in order to provide each patient with the best possible hearing implant solution for the treatment of her/his individual hearing loss, the HEARRING network is committed to the highest standards of quality and has set up this set of quality. The standards are a realistic minimum attainable by all HEARRING member clinics, and should be employed alongside current best practice guidelines.

2 Structure

2.1 Structure of the adult cochlear implant team

An adult cochlear implant team may function independently or as part of a wider service within a hearing or hearing implant center, including paediatric and teens cochlear implant services. It is a multidisciplinary team made up of the following key personnel:

a. Otolologists

The responsibility for cochlear implantation and all completed diagnostic procedures will remain with the surgeon.

The senior ENT surgeon will have experience in otology and cochlear implant surgery. The otologist will comply with recommendations for minimum 20 cochlear implant operations to be carried out yearly.

Newly appointed surgeons will have had extended sub-speciality training at an advanced level in otology and cochlear implant surgery in appropriate specialist centres in their country or overseas. This will have included attending a temporal bone dissection course for cochlear implant surgeons.

Once appointed, a consultant surgeon will work as a member of the consultant surgical cochlear implant team, initially under the mentorship of senior surgical colleague/s, with at least six months of supervision by a senior colleague for an appropriate number of cochlear implant operations. The surgeon will participate in the process of audit of cochlear implant cases and in keeping a database of such cases.

b. Audiologists, Clinical Scientists, Physiologists, Rehabilitationists, Hearing Therapists, Speech & Language Therapists, Clinical physiologists, Engineer, co-ordinator

These personnel must be qualified to post-graduate level, hold an accredited MSc, or similar qualification according to national standards. This must be supplemented with two years practical experience and recognised hearing therapy qualification.

They will furthermore have extensive clinical experience within the field of cochlear implantation, together with knowledge and understanding of the multidisciplinary areas within the program. Their role may also include wider research responsibilities. The Co-ordinator is responsible for the day to day management of the program and will ensure that appropriate services are provided for each adult through the cochlear implant patient pathway. He/she will be a core team member and

with further specialist training in cochlear implantation and clinical management of the profoundly deaf. The co-ordinator will have a high degree of clinical, organisational, leadership and professional skills.

- c. The Administrator / Secretary
The administrator will hold appropriate secretarial qualifications, have a high level of organisational, communication and information technology skills, and work closely with the Head of Service.
- d. Cochlear Implant Head of Service roles
The Head of Service, in addition to the above, is accountable for the delivery of the multidisciplinary service. He/she will provide scientific and clinical leadership and will have managerial responsibility for service design, forward planning, finance, patient management and human resources. They will typically be the senior clinician of their profession and be qualified to PhD level (or equivalent knowledge and skills) with further specialist training and experience (ideally a minimum of 10 years) within the field of cochlear implantation, together with knowledge and understanding of the multidisciplinary areas within the program.
- e. Cochlear implant team personnel should be members of the relevant cochlear implant professional groups, nationally and/or internationally.
- f. Clinical team members should attend regular training in developments within the field of cochlear implantation. Attendance at relevant courses, conferences and meetings at national and international levels is desirable. Regular attendance at national meetings should be available for all team members. All team members should have a plan for their continuing professional development.
- g. All team members should be trained in 'deaf awareness' and practical aspects of communicating with deaf people, as part of their induction.
- h. Personnel requirements for cochlear implantation should be in line with national standards, Good Clinical Practise- GCP, and/or national guidelines. One person can be in charge of different roles, described above.

IN SHORT:

- All professionals must be suitably qualified, registered with their professional body, and comply with their national requirements.
- Newly appointed members of the team who are less experienced must undergo an appropriate program of training and supervision provided by relevant experienced members of a cochlear implant team.
- All team personnel must maintain a program of continued professional development to ensure ongoing competency.
- Responsibility for all aspects remains with the surgeon.

2.2 Cochlear Implant Team: Additional support

The core team should include individuals with skill and experience in fitting of hearing aids to severe and profoundly deaf people, or have access to this service. Where the core team does not include professionals from the following services or disciplines it should have access to them as required:

- a. Tinnitus
- b. Balance
- c. Radiology
- d. Medical physics
- e. Psychology
- f. Psychiatry
- g. Genetic counselling
- h. Audiological medicine
- i. Interpreter services
- j. Social services for the deaf
- k. Deaf advocate

Cochlear implant teams may develop partnership services with local services where appropriate. Such partnership services must have appropriate training and expertise.

3 Accommodation (where applicable)

- 3.1** To ensure ease of communication there should be suitable telecommunication access for deaf patients and their relatives. This should include the necessary facilities for the patient to contact the clinic through a variety of modes (e.g. speech-to-text, text-to-text, fax, or e-mail).
- 3.2** All patient areas should be appropriate to the needs of a deaf population. This should include consideration of visual alerts (e.g. patient appointment information), visual alarms (e.g. fire alarms) and appropriate assistive listening devices in the patient clinic.
- 3.3** Clinic areas should be large enough to comfortably accommodate the patient, family member, clinician and observer or interpreter together with the necessary equipment.
- 3.4** A suitable room should be available for group work including patient activities and team meetings / training.
- 3.5** There should be a suitable waiting area near the treatment rooms, large enough and with sufficient comfortable chairs to accommodate the number of people likely to be waiting at any one time. The waiting area should be more than a corridor. This should include a separate area suitable for children.
- 3.6** The treatment rooms and waiting area should be sufficiently separated that noise from the waiting area does not disturb the treatment, and that privacy is maintained.
- 3.7** Examination rooms must meet current appropriate health and safety guidelines.
- 3.8** All rooms should comply with health and safety regulations.

IN SHORT:

- All facilities must comply with according national Health and Safety Executive regulations.

4 Clinical Facilities

4.1 Clinical facilities should be available for:

- a. Pure tone audiometry
- b. Sound field audiometry (if required: Sound localisation tests)
- c. Hearing aid testing and fitting
- d. Probe-tube microphone measurements
- e. Tympanometry
- f. Otoacoustic emissions
- g. Objective measurement facilities
 - (1) Evoked response audiometry
 - (2) Electrical evoked potentials
 - (3) Electrocochleography
 - (4) e.g. neural response telemetry
- h. Speech perception testing
 - (1) In quiet
 - (2) In noise
- i. Access to balance function testing
- j. Access to imaging

4.2 Audiological equipment

All audiological equipment should be calibrated to national standards as required, on an annual basis and undergo a daily on-site system check.

IN SHORT:

- All testing should be carried out to professionally recommended protocols and procedures.
- All equipment must be calibrated according to national standards, preferably at least annually using recommended methods on equipment which in turn is traceable to nationally recognised standards.

5 Referral and Selection Criteria

- 5.1 Guidelines for referral of patients for assessment for suitability of cochlear implantation and patient selection criteria should be available in writing.

5.2 The selection criteria for cochlear implantation in adults:

a. Postlingual deaf adults:

Postlingual deaf adults with a moderate to profound hearing loss are considered good candidates to benefit from a cochlear implant, if hearing aids provide no adequate speech understanding.

b. Perilingual deaf adults:

According to individual communication abilities and needs some perilingual deaf adults obtain benefit from cochlear implantation. Thorough assessment and counselling is required before.

c. Prelingual deaf adults:

In general prelingual deaf adults are not good candidates. Special circumstances for implantation may apply after intensive counselling.

Selection of candidates should be in line with national standards, Good Clinical Practise- GCP, and/or national guidelines.

5.3 In the event of a patient falling out of the selection criteria, but for whom the cochlear implant team recommend cochlear implantation, the team should apply to the local funding authority for financial support by means of an individual patient Case of Need, if necessary.

5.4 Patient selection criteria should be kept under regular review by the HEARRING Group, to inform national authorities regarding recommendations for future developments in this area.

5.5 Acknowledgement of the receipt of the referral must be undertaken according to current targets and mechanisms set by the (national Health authority) Department of Health, and comply with local agreements.

IN SHORT:

- The referral and selection criteria for adult cochlear implantation must be in line with the individual national guidance and available in writing on request.
- Acknowledgement of referral should be sent to the referring agent within the targets set by the national governmental authority and in line with locally agreed targets.

6 The Assessment Process

The assessment process shall be performed in most efficient and timely mannered way.

The net-time of the overall assessment process shall not exceed 18 weeks.

- 6.1 The purpose of the assessment process is to assess the patient's functional hearing abilities and to determine whether these are likely to be significantly improved through cochlear implantation.
- 6.2 Co-ordinated management of the pre-implant assessment process by a named Coordinator or Head of Service is essential.
- 6.3 Waiting times to diagnostic testing and treatment should comply with current national and local targets.
- 6.4 Details on locally agreed patient pathway should be available on request.
- 6.5 Fast tracking of patients through the assessment process must be available when clinically indicated.

6.6 Pre-operative assessments should include the following:

6.6.1 Medical:

- a. All patients referred to the cochlear implant center should have a medical consultation with the team consultant otologist.
- b. The referral of patients for MRI, CT or x-ray is the responsibility of the consultant otologist or locally agreed other appropriately trained and experienced professional.
- c. Appropriate referral for balance / vestibular assessment should be available if indicated.
- d. It is the responsibility of the surgeon, themselves or through an appropriately trained nurse practitioner, for each patient:
 - (1) To undertake a medical consultation during the assessment process, and pre-admission, to ensure the patient is medically fit to undergo the treatment
 - (2) To discuss associated risks of the treatment pre- and post-surgery

- (3) To discuss necessity for vaccination to minimize the risk of pneumococcal meningitis
- (4) To refer for genetic counselling if required
- (5) To obtain fully informed patient consent for the treatment

6.6.2 Audiological

- a. Each patient must receive a full audiological assessment performed to professionally accepted protocols.
- b. The audiological assessment must include:
 - (1) Otoloscopic examination of the ears with a microscope
 - (2) Determination of hearing thresholds bilaterally using pure tone audiometry or other recognised methods suitable for the patient
 - (3) Determination of uncomfortable loudness limits
 - (4) Objective hearing threshold assessment must be available
 - (5) Determination of bilateral middle ear function using tympanometric techniques
 - (6) Speech perception testing in quiet and in noise
 - (7) Hearing aid testing and evaluation
- c. In addition to the above core audiological assessments, the Cochlear Implant Program must have access to appropriate electrically evoked response audiometry, promontory stimulation test and otoacoustic emissions.

6.6.3 Hearing Aid Evaluation

Each patient should have their current hearing aid provision re-evaluated and where appropriate have new and best available hearing aids fitted or settings revised. Verification of the suitability of amplification should be undertaken using an appropriate combination of the following:

- a. Aided soundfield hearing thresholds
- b. Speech perception testing using standardised pre-recorded speech material, and live voice where appropriate.
- c. Facilities should be available to measure the electroacoustic performance of hearing aids according to current standards and program them to the most suitable settings.

6.6.4 Patients fitted with new hearing aids or with a change of hearing aid settings

Patients fitted with new hearing aids or with a change of hearing aid settings may require access to a structured program of auditory rehabilitation. For some patients the period may be extended to several months for clinical reasons.

6.6.5 Communication

Pre-operative assessment may include a full assessment of the adult's communication and social strategies. These assessments may take the form of observation, subjective description or evaluation using formal test procedures. The assessment procedure will take into account the patient's age and hearing status and will normally include a detailed case history, and an assessment of the patient's receptive and expressive skills.

The following areas may be assessed

- a. Receptive skills - listening skills for speech
 - (1) lip reading skills
 - (2) comprehension of spoken language

- b. Expressive skills
 - (1) language skills in all communication modes
 - (2) intelligibility, voice and speech sound system

- c. Details should be collated about the environments in which each adult typically communicates and where they find most difficulty.

6.6.6 Psychological status

Not all patients require a psychological assessment. However, a referral to a qualified psychologist or psychiatrist should be instigated when there are concerns regarding the candidate's mental health, learning ability, personality and motivation, adaptation to their deafness, or unrealistic expectations about cochlear implantation which cannot be addressed through counselling by the cochlear implant program team.

6.6.7 Candidature for unilateral/bilateral implantation

It is stated, that bilateral implantation is state of the art to ensure maximum outcome for the individual patient. Whenever possible, a bilateral implantation should be performed. However, due to national restrictions this may vary.

IN SHORT:

- Patients must undertake informed consent.
- Service delivery should work towards the aims and objectives of the national governmental authority Frameworks.
- Patient waiting times to diagnostic assessments and treatment should be as short as possible. Current targets are six weeks to diagnostics and 18 weeks to treatment.
- The Otologist is responsible for ensuring that the patient has been informed of the risks of pneumococcal meningitis and has been given advice regarding vaccination. They should adhere to the current recommendations provided by the medicines and health care products agency.
- Unless clinically indicated all patients must have a comprehensive cochlear implant assessment. For each patient, the assessment track must be followed according to a written check-list and recorded in the patients hospital file.
- Following the pre-operative assessment a written report detailing the outcome of the assessment will be sent to the referring agent within the responsible Trusts reporting timescales, or within two weeks of a decision being made by the cochlear implant team, which ever is the shortest.

7 Cochlear Implant Team Liaison with other Services and Agencies

- 7.1** All members of the cochlear implant team should meet on a regular basis to ensure effective communication thereby ensuring a quality service for each patient.
- 7.2** Contact must be maintained with the referring agent and local professionals.
- 7.3** The cochlear implant program should liaise as appropriate with other agencies including the following:
 - a. Other hospital departments
 - b. Audiology, radiology, medical physics, wards, ambulatory care etc.
 - c. Social services
 - d. Local/national support groups
 - e. Community services
 - f. Educational services

- 7.4** Contact with support services should only be made with the permission of the patient and at the discretion of the cochlear implant team.

IN SHORT:

- If the outcome of the assessment demonstrates that the patient would not benefit from a cochlear implant, the report to the referring agent will include:
 - (1) Reasons why a cochlear implant is considered to be unsuitable for the adult.
 - (2) Recommendations for future management, and referral for other equipment and /or services for deafened adults if appropriate.

8 Pre-operative Information and Counselling

- 8.1** Whenever possible, information should be given to patients in a language or medium that is appropriate to their preferred method of communication.
- 8.2** Interpreters should be offered as and when required and in accordance with local practice.
- 8.3** Teams should continuously monitor, review and update the quality and quantity of the information they provide and have a written protocol to determine which information is given at which time.
- 8.4** Verbal information should be supported by a written summary to the patient whenever indicated.
- 8.5** Throughout the assessment period patients should have a clear understanding of the main benefits and limitations of implantation. They should demonstrate that they have realistic expectations of cochlear implantation, e.g. by using a measurement tool such as an expectations questionnaire.
- 8.6** It is recommended that candidates, and where possible a family member/ friend, meet adults who have experience of using a cochlear implant. Matching candidates and users in terms of age and duration of deafness and cochlear implant device may be beneficial.

- 8.7** Patients' relatives and friends should be encouraged to become involved in all aspects of pre-and post-implant management. This should always be done with the permission of the patient and at the discretion of the cochlear implant team.
- 8.8** Issues surrounding cochlear implantation including the views of the deaf community should be discussed and the patient should have an opportunity to meet people who have decided against implantation, if they wish.
- 8.9** Waiting times for surgery and information about the hospital stay and postoperative follow-up should be outlined at the end of assessment.
- 8.10** Patients should be given information about cochlear implantation organisations national and local charities and self help organisations, equipment and services for Deaf and Deafened people.
- 8.11** The patient should be offered contact between the team and their employers and / or work colleagues. Contact should only be made with the permission of the patient and at the discretion of the cochlear implant team.
- 8.12** There should be a timetabled final discussion at the end of assessment between the patient and key team members at which agreement is reached about whether or not to proceed.
- 8.13** If the outcome of the assessment is that cochlear implantation is not recommended for a patient, an exit clinic appointment should be offered to discuss this recommendation and provide patient support. Recommendations for future management should be discussed together with the opportunity for re-referral in the future. These issues must be covered in a written report to the referring clinician or agency.

IN SHORT:

- Basic information and counselling should be given to the patient according to a written check-list and recorded in the patient's hospital file.
- The patient should be given the opportunity to discuss the recommendation not to offer cochlear implantation and be aware of any further management options.

9 The Cochlear Implant Device

- 9.1 There are different Cochlear Implant manufacturers currently supplying CI centres. Further information regarding the technical specifications of these different devices should be made available.
- 9.2 The patient should be given information on the cochlear implant devices currently available along with their advantages and disadvantages. The patient should be given an explanation as to why they have been offered a particular device, or choice of devices. Written information on the device/s offered should also be made available.
- 9.3 HEARING centers only use and implant devices that are legally approved by national authorities.

IN SHORT:

- The Cochlear implant device offered to the adult will
 - (1) Have a proven track record for safety and reliability
 - (2) Have all necessary approvals (i.e. CE, FDA)
 - (3) Conform to the recommendations of the individual, national Regulatory Agency
 - (4) Have highest quality clinical and technical support available from the manufacturer
 - (5) Meet national purchasing requirements, where applicable

10 Surgery and In-patient Care

- 10.1 The Consultant Cochlear Implant surgeon is responsible for the overall medical care of the patient.
- 10.2 The surgical team, which may include a suitably trained nurse practitioner, is responsible for briefing the patient about the surgical procedure and potential complications and for obtaining the patient's informed consent.
- 10.3 The surgeon will continue to check and monitor the patient's progress during the post-operative period and will be responsible for dealing with any surgical or medical problems that may arise in relation to the implant.

- 10.4** Information regarding the outcome of surgery must be documented and should be made available to the audiological and rehabilitation teams immediately after the operation.
- 10.5** It shall be tried to preserve any residual hearing of a patient, where existing. Therefore surgery techniques shall follow the latest perception and state of the art. The patient's inner ear/cochlea shall be protected under any circumstances.
- 10.6** An (IntraOP) Post OP radiology could be considered to check position of device and electrode array.

IN SHORT:

- Prior to discharge the patient should receive written information regarding care of the wound / ear and pain management post-operatively and written guidelines on what to do should medical /surgical problems arise.
- Advice regarding health and safety with a cochlear implant must be given to the patient, together with written manufacturers' safety guidelines, prior to discharge from hospital.

11 Post-operative Fitting and Tuning of the Speech Processor

- 11.1** Speech processors should be fitted and programmed once the patient's wound has healed satisfactorily.
- 11.2** Speech processors should be fitted and programmed only by an experienced clinical personnel (see 2.1.b) who has been fully trained in the relevant protocols and procedures (and by a less experienced scientist/audiologist only if under direct supervision).
- 11.3** Before the initial programming relevant team members must:
- a. check the external cochlear implant components
 - b. explain the programming procedures

- 11.4 Each device should be programmed according to the manufacturer's recommended programming procedures and to maximum benefit for the patient.
- 11.5 A comprehensive explanation on the use of the speech processor must be given. Patients should be encouraged to contact the implant program if they have any queries or concerns.
- 11.6 Printed materials on the handling, operating and care of the speech processor should be issued to the patient and relatives/carers as appropriate.
- 11.7 The patient must have open access to the cochlear implant center (or a designated more local partner-service) for checking the whole implant system and reprogramming of the speech processor.
- 11.8 A written report should be sent to the referring agent following initial processor fitting and at the one year treatment interval.
- 11.9 A written report should also be send to the referring agent if any serious problems arise.

IN SHORT:

- The appropriate number of programming sessions should be offered to each patient according to clinical need.
- The referring agent should be sent a written report when the speech processor is initially fitted and one year post.

12 Post-operative Rehabilitation and Assessments

- 12.1 Post operative rehabilitation should begin according to individual needs of the patient after initial fitting to:
 - a. facilitate acclimatisation to the new sensation of sound
 - b. reassure the patient and family/carer
 - c. outline the rehabilitation program

- 12.2** The rehabilitation program should be tailored to each individual's needs. Counselling should support the patient and his/her family regarding expectations, the rehabilitation procedures, and continuing commitment to the rehabilitation program.
- 12.3** The rehabilitation program may include evaluation of and training in:
- a. detection of sound, including localisation and spatial tests
 - b. auditory discrimination
 - c. voice quality
 - d. speech intelligibility
 - e. language comprehension and expression
 - f. social skills
 - g. lip reading
 - h. hearing tactics
- 12.4** The patient must have open access to the cochlear implant center (or a local partner-service) for rehabilitation and counselling as required.
- 12.5** Appropriate audiological, standardised speech perception and quality of life measures should be performed after initial tuning and at regular intervals to enable progress to be monitored.
- 12.6** It is recommended that the referrer and local involved professionals should receive written reports on progress.

IN SHORT:

- Sufficient rehabilitation sessions should be offered to optimize cochlear implant use.
- Following implant surgery, the patient must be reviewed by the implant surgical team and have open access to additional appointments as required. The patient should be offered open access to further annual medical review, and a check of the implant and speech processor function.
- After the first year following implant surgery, the patient should be offered annual audiological review. This can take the form of an offered appointment, or patient-led follow up. In addition patients should have access to additional appointments as required.
- Standardised audiological and speech perception measures should be performed on at least two occasions in the first year following surgery.

13 Follow-up and Long Term Maintenance

- 13.1** The patient must have open access to the cochlear implant center (or a local partner-service) for programming, rehabilitation and surgical reviews as required.
- 13.2** Adequate spares/ replacements of external equipment must be available as required. It should be organized in such a way that replacement equipment can be issued or despatched on the same or next working day. Speech processor batteries should be available to implant users either from the cochlear implant program or from a local audiology department by prior agreement.
- 13.3** Individual centres should have a policy for replacement of lost or damaged processors that is equitable for all patients.
- 13.4** Teams should have an agreed strategy for upgrade of speech processors and contralateral hearing aids.

IN SHORT:

- Following the annual review a written report detailing the outcome of the review should be sent to the referring.
- Arrangements should be in place to upgrade the speech processor for each patient at a minimum of 5 yearly intervals, subject to new technology being available for the appropriate implant system.

14 Device Failure

- 14.1** If a cochlear implant internal device failure is suspected, the patient should be offered an appointment promptly (and within one day) to check the internal and external components.
- 14.2** The implant manufacturer should be contacted urgently regarding investigation of the device failure. If indicated, a clinical/engineering representative from the company should be available at the patient appointment to provide support.
- 14.3** Upon confirmation of internal device failure the clinical personnel (see 2.1.b) must inform the otologist surgeon and the head of service/co-ordinator and an urgent appointment should be offered with the implant

otologist surgeon to discuss reimplantation or other options.

- 14.4** If re-implantation is agreed with the patient this should be carried out as soon as medically possible to minimise auditory deprivation.
- 14.5** Re-implantation and programming should be carried out as detailed above. Further rehabilitation needs should be assessed and put into place as appropriate.

IN SHORT:

- If device failure is suspected the patient must be offered an appointment promptly (within one day) to check the external and internal components of the implant device. The device failure should be reported to relevant national authorities.
- If re-implantation is agreed this should be carried out as soon as medically possible and appropriate to minimise any auditory deprivation.

15 Clinical Governance

All aspects of the cochlear implant service should have adequate systems of recordkeeping to facilitate audit and planning.

The implant program should perform regular audit and comply with national requirements of responsible authorities.

The audit should cover:

- a. Clinical activity
- b. Staffing levels
- c. Patient performance outcomes
- d. Medical / Surgical complications
- e. Device failures
- f. Research interests and outcomes
- g. Patient feedback on the service

16 Transfer of Care (national)

- 16.1** A protocol must be in place to transfer the ongoing care of adolescent cochlear implant users into the adult section or program at an appropriate age. The protocol must take into account their educational needs and be

agreed by the cochlear implant team.

- 16.2 A protocol must be in place for the transfer of care of an adult to an alternative program or the acceptance of care of an adult from an alternative program, if requested.
- 16.3 Patients will usually be referred to the nearest cochlear implant centre unless the patient or family request to be transferred to a particular centre.
- 16.4 The referring centre will confirm that they can support the type of device used by the patient before the referral is made.
- 16.5 All the relevant documentation will be sent to the receiving centre. This will include; full details of the patients address, telephone number, email address, information on the internal device and external processor worn, recent programmes, ART results (or similar), aided audiograms, speech perception results, rehabilitation reports and results, medical details of surgery and any complications, contact details for the GP.
- 16.6 The receiving cochlear implant program will acknowledge the referral in writing and confirm that the funding has been agreed for continued support of the patient.
- 16.7 Generally patients will not be referred to another center less than one year following implantation. This is to allow for medical follow up post operatively the establishment of a suitable programming and initial rehabilitation provided.

17 Patient and Other Feedback and Complaints

- 17.1 Documentation provided by the cochlear implant program should include written information about the complaints procedures within the hospital trust and other relevant services.
- 17.2 Patient and carer feedback should be managed according to local policy and should be systematically collected to inform service review.

Acknowledgement:

The “Quality Standards for Adult Cochlear Implantation” were developed by Christopher H. Raine, M.D. (Bradford, UK), Prof. Dr. Joachim Müller (Wurzburg, Germany) and the HEARRING Group based on the British Cochlear Implant Group Standards.