



EXECUTIVE SUMMARY

**(Re)habilitation**



Treatment process in patients referred to a cochlear implant centre

Preoperative Assessment	Surgery and In-patient Care	Postoperative Care
Medical	Multidisciplinary Team	Fitting + Tuning
Audiological	Clinical Facilities	Rehabilitation + Assessment
Hearing and Evaluation		Follow-up + Long term Assessment
Communication		
Psychological Status		
Information + Counselling		

## Introduction

Hearing implant recipients require aural rehabilitation to maximize the potential benefit received from the device after activation (Bernstein, et al 2021).<sup>1</sup> Aural habilitation is defined as 'a person-centered approach to assessment and management of hearing loss that encourages the creation of a therapeutic environment conducive to a shared decision process which is necessary to explore and reduce the impact of hearing loss on communication, activities, and participations' (Montano, 2014).<sup>2</sup> These guidelines set forth recommendations for AR in post-lingually deafened adults and older adults (i.e., 65 years and older; WHO, 2002) following cochlear implantation (Völter, et al, 2020).<sup>3</sup>

## Key points

Rehabilitation following implantation has been demonstrated to significantly improve speech recognition performance, psychosocial function, and communication of adult implant recipients with post-lingual hearing loss (Bernstein et al, 2021).<sup>1</sup>

### **Who?**

A multi-disciplinary approach to the care of implant recipients should include an aural rehabilitation specialist.

This professional is an individual with

- focused training the fields of speech-language pathology, deaf education, and/or audiology, and
- clinical experience in developing the audition, speech, language and/or communication skills of individuals with hearing loss.

### **When?**

Traditionally, rehabilitation is perceived as a cornerstone of follow-up care after implantation; however, a person-centered intervention approach demands a shared decision-making process which relies heavily on expectations, counseling, and even treatment provided during the pre-operative care stage. An optimal rehabilitation program begins before implantation once candidacy has been established.

### **Where?**

- Each CI centre offers person-centred care including flexible, traditional clinic-based services and/or remote rehabilitation through software applications (e.g., live synchronized online therapy, smartphone or tablet-based self-paced application, and asynchronous video sharing)
- Counselling is important to align and set realistic expectations regarding auditory perception, speech and language development, and occupational progress. Counselling should occur pre-operatively and post-activation in an ongoing manner.



## Team structure

- The rehabilitation team may function independently or as part of a wider service within a hearing or hearing implant centre, including paediatric, teen, and adult CI services.
- The rehabilitation team ideally involves a multidisciplinary team comprising a team coordinator, rehabilitation therapists with different backgrounds, significant others, caregivers, and a liaison worker who supports the cooperation between the CI recipient and the rehabilitation professionals.
- All team members should be regularly trained in developments in the field of cochlear implantation and in awareness of all aspects related to working with people with hearing loss.
- A successful rehabilitation team may also benefit from the inclusion of professionals of other disciplines e.g. neuropsychology, social workers
- The members of the Rehabilitation team should meet on a regular basis to ensure effective internal communication and high-quality service. They should maintain contact with the CI team, the referring agent, the GP, the local professionals, and other services if possible and if need be.



## Accommodation

- Proper and easily accessible accommodation should be provided to ensure undisturbed counselling and treatment.







## Pre-operative care

- The rehabilitation team should provide information in a clear and understandable manner. This may also involve interpreters and/or written summaries in addition to verbal counselling.
- The rehabilitation team should continuously monitor, review, and update quality and quantity of the information provided according to a written protocol.
- Multiple disciplines (e.g., audiology, speech-language pathology, psychology, and/or social) may be engaged at various times throughout the preoperative process to provide counselling on topics including, but not limited to:
  - › Device selection, use and care
  - › Assistive listening devices
  - › Self-advocacy and peer support
  - › Psychological status
  - › Resources and accessibility to services
- Preoperative rehabilitation assessment and management includes
  - › evaluation of baseline function in speech perception, functional listening skills, auditory memory processing, and/or complex verbal-cognitive ability
  - › setting expectations and defining a plan for intervention according to the individual's unique priorities, resources, and circumstances
  - › management of ongoing communication needs impacted by the hearing loss



## Post-operative care

- Postoperative rehabilitation should begin immediately after first fitting to support the CI recipient's adjustment to sound provided by the implant, to encourage the reacquisition of lost communication skills, and help restore social connections and enhance that individual's quality of life.
- Postoperative care of adults focuses on a range of functional skills, including:
  - › Perceptual training with a focus on analytic and synthetic auditory training activities
  - › Assertiveness training for self-advocacy and developing communication skills
  - › Speech production and intelligibility when needed
  - › Counselling and conversational training for the recipient as well as significant others
- Core principles of a person-centered approach to aural habilitation is comprised of
  - › intervention goals derived from the CI recipient's own priorities and functional communication needs;
  - › an emphasis on active listening emphasized across environments; and
  - › engaged communication partners (e.g., family, friends) to the fullest extent possible.



## References

- <sup>1</sup> Bernstein CM, Brewer DM, Bakke MH, et al. 2021. Maximizing cochlear implant outcomes with short-term aural rehabilitation. *J Am Acad Audiol* 32(3):144-156.
- <sup>2</sup> Montano JJ, Preminger JE, Hickson L, et al. 2022. A new web-based tool for group audiologic rehabilitation. *Am J Audiol* 22(2):332-4.
- <sup>3</sup> Voelter C, Schirmer C, Hinsén D, et al. 2020. Therapist-guided telerehabilitation for adult cochlear implant users: developmental and feasibility study. *JMIR Rehabil Assist Technol* 7(1):e15843.

Based on: [HEARRING Group. 2013. Quality standards for cochlear \(re\)habilitation. Cochlear Implants Int. 2013 Jun; 14 Suppl 2:S34-8](#)