

EXECUTIVE SUMMARY

# Cochlear Implantation in Adults



## 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 Aid Evaluation		Follow-up + Long Term Maintenance
Communication		
Psychological Status		
Information + Counselling		

## Key points

- Cochlear implantation improves communication in adults with moderate-to-profound sensorineural hearing loss with little or no benefit from hearing aids (Carlson 2020).<sup>1</sup>
- Cochlear implantation is safe and effective for adults (Van de Heyning et al. 2020).<sup>2</sup>
- A multidisciplinary team accompanies the candidate along the entire hearing journey from pre-operative assessment through rehabilitation and routine follow-up.
- Whenever possible, bilateral implantation should be considered. Bilateral implantation is recommended to ensure the best outcome for adults (Ehrmann-Müller et al, 2021).<sup>3</sup>
- Research shows that the ability to hear is important to counteract cognitive and psychosocial decline that is often associated with aging (Mertens et al., 2021).<sup>4</sup>
- Cochlear implantation enhances quality of life (Lassaletta et al., 2022).<sup>5</sup>
- Cochlear implantation facilitates music appreciation in adults with hearing loss (Nasresfahani et al., 2022).<sup>6</sup>

## Referral and selection criteria

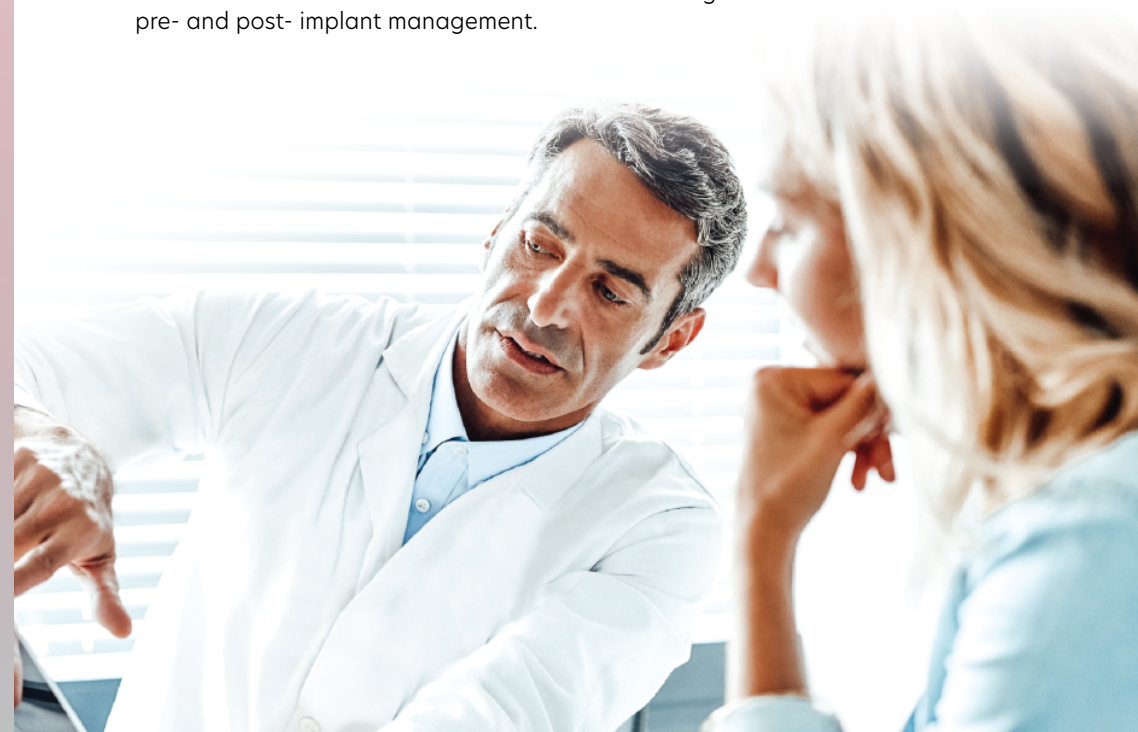
- Adults with progressive moderate-to-profound sensorineural hearing loss are considered good candidates to benefit from cochlear implantation, if hearing aids do not support adequate speech understanding.
- Thorough pre-operative counselling is required for adults with a long duration of severe-to-profound hearing loss, depending on individual communication abilities and needs, because benefit might be limited.
- Adults with a prelingual onset of hearing loss are generally not good cochlear implant candidates. These cases must be carefully considered by the multi-disciplinary team.

## Assessment Process

- The multi-disciplinary cochlear implant team will conduct a comprehensive assessment of the candidate's hearing abilities
- The assessment covers medical, audiological, communicative, and psychological tests.

## Preoperative information and counselling

- The candidate will receive thorough information and counselling about the entire cochlear implant treatment according to a checklist.
- Candidates should have a clear understanding of the benefits and limitations of implantation.
- Expectations must be managed to ensure a positive outcome throughout the entire hearing journey.
- Candidates' relatives and friends should be encouraged to become involved in pre- and post- implant management.





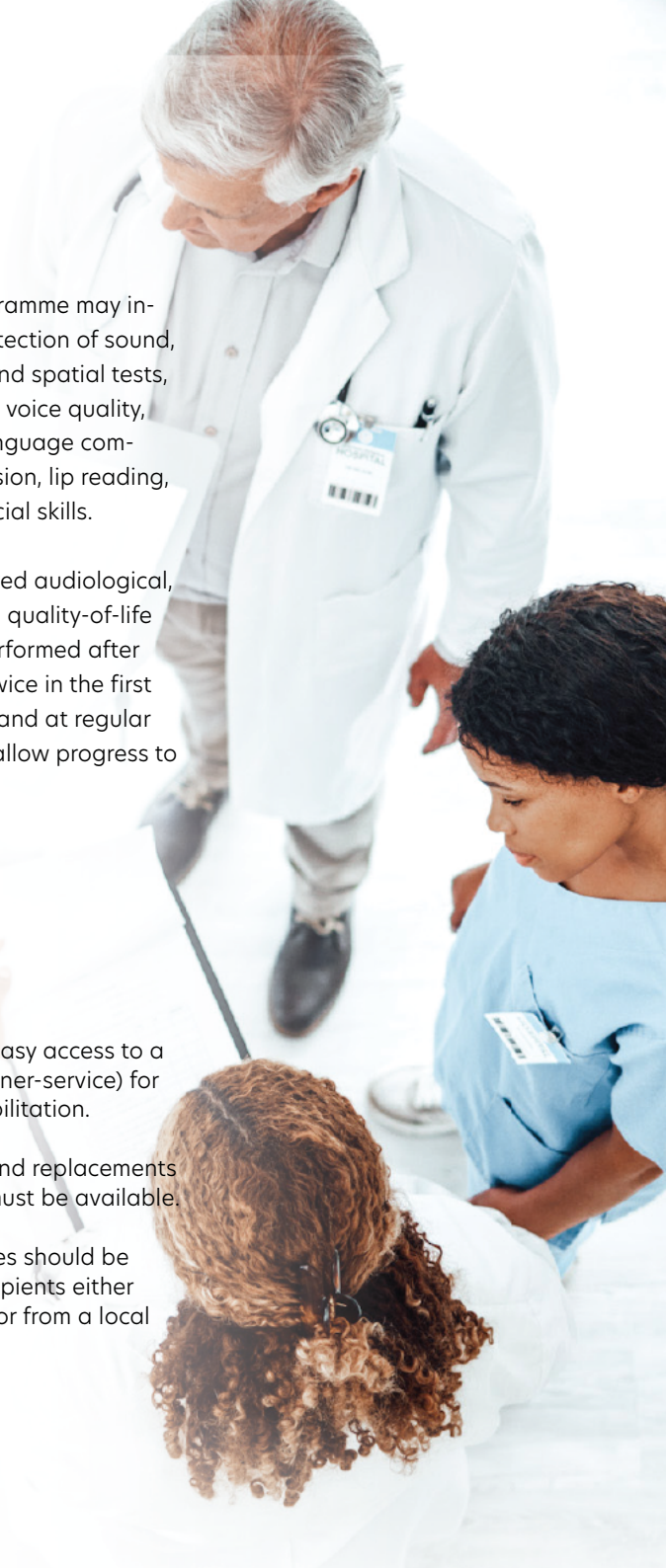
## Treatment

- The surgeon is responsible for the overall medical care of the patient throughout the patient's stay in hospital. After surgery, the surgeon will continue to monitor the patient's progress during the postoperative period.
- An intra- or postoperative radiological examination to check the position of the device and the electrode array should be considered.
- The audio processor should be fitted and programmed by experienced clinical personnel once the patient's wound has healed satisfactorily.
- Before the initial programming, the personnel need to check the external components, explain the programming procedures and the use of the audio processor.
- Postoperative rehabilitation tailored to the recipient's individual needs should begin after initial fitting to facilitate acclimatization to the new sensation of sound and to outline the rehabilitation programme.

- The rehabilitation programme may include training in the detection of sound, including localization and spatial tests, auditory discrimination, voice quality, speech intelligibility, language comprehension and expression, lip reading, hearing tactics, and social skills.
- Appropriate standardized audiological, speech perception, and quality-of-life measures should be performed after initial tuning, at least twice in the first year following surgery, and at regular intervals thereafter, to allow progress to be monitored.

## Follow-up

- The patient must have easy access to a CI centre (or a local partner-service) for programming and rehabilitation.
- Adequate spare parts and replacements of external equipment must be available.
- Audio processor batteries should be available to implant recipients either from the CI programme or from a local audiology department.



## References

- <sup>1</sup> Carlson ML. Cochlear implantation in adults. *Engl J Med*. 2020 Apr 16;382(16):1531-1542.
- <sup>2</sup> Van de Heyning P, Atlas M, Baumgartner WD, et al. The reliability of hearing implants: report on the type and incidence of cochlear implant failures. *Cochlear Implants Int*. 2020 Jul;21(4):228-237.
- <sup>3</sup> Ehrmann-Müller D, Shehata-Dieler W, Kurz A, et al. Bilateral Cochlear Implantation in Children: Long-Term Outcome in the Adult Population With Special Emphasis on the Bilateral Benefit. *Otol Neurotol*. 2021 Jul 1;42(6):824-831.
- <sup>4</sup> Mertens G, Andries E, Claes AJ, et al. Cognitive Improvement After Cochlear Implantation in Older Adults With Severe or Profound Hearing Impairment: A Prospective, Longitudinal, Controlled, Multicenter Study. *Ear Hear*. 2021 May/Jun;42(3):606-614.
- <sup>5</sup> Lassaletta L, Calvino M, Sanchez-Cuadrado I, et al. Using Generic and Disease-Specific Measures to Assess Quality of Life before and after 12 Months of Hearing Implant Use: A Prospective, Longitudinal, Multicenter, Observational Clinical Study. *Int J Environ Res Public Health*. 2022 Feb 22;19(5):2503.
- <sup>6</sup> Nasresfahani A, Dasdar S, Kianfar N, et al. Music Appreciation of Cochlear Implant Users versus Normal Hearing Individuals. *Iran J Otorhinolaryngol*. 2022 May;34(122):171-179.

Based on: [HEARING Group. 2017. Quality standards for cochlear implantation in adults and older adults. Based on: Mueller J, Raine CH. 2013. Quality standards for adult cochlear implantation. Cochlear Implants Int. 14 Suppl 2:S6-12.](#)

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