Adult Candidacy for Cochlear Implantation: Clinical Guidance
Details and Sources

Background and Epidemiology
Hearing loss is one of the most common and undertreated disabilities among adults. An estimated 15% of U.S. adults over age 18 (37.5 million people) report some difficulty hearing (Blackwell) and 0.03% have hearing loss that is so severe that hearing aids provide limited benefit (iData). Hearing loss is often progressive. Typical reasons for a decline in hearing acuity over time include noise exposure, genetic conditions, disease, trauma, and ototoxic medications (Agrawal). Prevalence of hearing loss in US adolescents has increased over time due to noise exposure (Shargorodsky) and as they age, these young people often experience further declines in their hearing.

Moderate to profound hearing loss that is undertreated limits an individual's communication at work, in social settings, and with family members. It interferes with medical treatment and in carrying out activities of daily living. Individuals whose hearing loss has not been appropriately addressed may become socially isolated and depressed. Recent studies have found an association between all-cause dementia and hearing loss in adults (Lin). Cochlear implantation in older adults has been shown to positively impact memory and mental flexibility (Mosnier).

Cochlear Implantation in Adults
Cochlear implantation (CI) involves the surgical placement of an electrode array into the cochlea of the inner ear to provide direct electrical stimulation of the auditory nerve. A cochlear implant is different from a hearing aid. While hearing aids amplify sounds to facilitate detection by impaired ear structures, cochlear implants bypass damaged portions of the ear and directly stimulate the auditory nerve.

CI surgery is performed by an otolaryngologist with special training in hearing implants. Evaluation and follow-up is carried out by multidisciplinary teams that typically include an ENT surgeon, audiologist, and speech pathologist. In the thirty years since cochlear
implants were first approved by the FDA for use in adults, the intervention has evolved from a somewhat crude single channel device to a sophisticated intervention that provides appropriate candidates with the ability to understand speech in a range of settings including on the telephone and in noise. Some recipients report that they enjoy music (Limb). Access to environmental sounds provides important safety benefits as cochlear implants allow recipients to distinctly hear a car horn, a doorbell, and a fire alarm.

Adults often indicate that the cochlear implant has dramatically improved quality of life, even beyond that of many typically performed medical procedures such as knee or hip replacement. Studies confirm that cochlear implantation not only improves an adult’s quality of life, it also translates into significant economic benefit for patients and for the national economy (Klop). Median income increases significantly post cochlear implantation among working age adults (Clinkard, Harris).

As of 2012, approximately 58,000 adults and 38,000 children had received cochlear implants in the United States, an estimated utilization rate among those who may benefit of 5 percent (NIH). Low utilization is due primarily to a lack of awareness about candidacy and outcomes (Sorkin 2013, 2016). An individual need not be totally deaf to benefit; in fact studies have found that adults who derive greatest benefit are those who have more residual hearing (while still meeting candidacy criteria) and shorter periods of deafness (Blamey, Holden).

**Insurance Coverage**

Unlike hearing aids, which are typically not covered by health insurance, cochlear implantation is a covered service for appropriate candidates by most private health insurance plans. Cochlear implantation is a covered service by Medicare and by Medicaid for children (and sometimes for adults). Health insurance typically covers the evaluation, surgery, follow-up audiology, therapy, and device maintenance (Sorkin 2013).

*When to Refer a Patient for a Cochlear Implant Evaluation*

Based upon a practice size of 2,000 patients for a primary care provider (http://www.aafp.org/fpm/2007/0400/p44.html), it is estimated that there are 9-12 adult patients in your practice who could benefit from a cochlear implant. These individuals may not learn of their candidacy from their hearing aid dispenser. A patient may be a CI candidate and appropriate for an evaluation if they are using hearing aids but still struggle to understand speech in many situations:

- The patient has difficulty understanding you or members of your staff on the telephone;

- A family member routinely makes calls to your practice for the person;
• When you turn your back or are not facing your patient, (s)he is unable to understand you or doesn’t hear you at all;

• Your patient asks that you face them while speaking or (s)he positions herself so that she can see your face clearly;

• If there is noise in the room that dramatically affects their understanding of speech;

• Family members note that your patient has difficulty hearing at home, at work, or in other situations.

Where to Refer for Evaluation
Referrals for evaluation should be made to a cochlear implant center or clinic that specializes in cochlear implantation. Such a center may be found on the website of the American Cochlear Implant Alliance (www.acialliance.org) under “Find ACI Alliance Organizations” or on the websites of the three manufacturers of FDA approved cochlear implant devices (www.advancedbionics.com, www.cochlear.com, www.medel.com).

More Information
Additional information on cochlear implantation is available from American Cochlear Implant Alliance, a not-for-profit organization of cochlear implant clinicians, scientists, educators, and consumer advocates.
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References


A summary version of this document is available: http://www.acialliance.org/page/AdultCandidacy