

Cochlear Implants and Auditory Brainstem Implants

Date of Origin: 12/2002

Last Review Date: 01/27/2021

Effective Date: 2/1/2021

Dates Reviewed: 5/03, 4/04, 2/05, 11/05, 11/06, 9/07, 9/08, 7/10, 7/11, 5/12, 3/13, 04/14, 08/15, 08/16, 8/17, 05/18, 11/18, 1/20, 1/21

Developed By: Medical Necessity Criteria Committee

I. Description

A cochlear implant is an electronic prosthesis that stimulates cells of the auditory spiral ganglion to provide a sense of sound to persons with hearing impairment. The device is made up of external and internal components. The external components include a microphone that picks up sounds from the environment, an external speech processor that arranges the sound transmitted by the microphone and an external transmitter. The internal components are surgically implanted. They include an internal receiver that is implanted in the temporal bone and receives signals from the external transmitter. The receiver converts the signals into electrical impulses. The impulses are collected by an electrode array that extends from the receiver into the cochlea. Cochlear implant devices are available in single-channel and multi-channel models. The cochlea is the part of the internal ear that is responsible for hearing. Audiologic criteria for children follow guidelines similar to those for adults. For adult and children able to respond reliably, standard pure-tone and speech audiometry tests are used to screen potential candidates.

Auditory brainstem implants (ABI) are another electronic prosthesis used in patients who have had surgical removal of auditory nerve tumors and as a result have total hearing loss. Like a cochlear implant, ABI's have several components including a microphone, a speech processor, a transmitter coil worn behind the ear, and an implant which is embedded in the skull. The implant relays signals to an electrode placed on the brainstem near the severed auditory nerve. After implantation, the ABI is programmed and tested and the individual must undergo training to recognize sounds and facilitate communication with the device.

Hearing loss is rated on a scale based on the threshold of hearing. Severe hearing loss is defined as a bilateral hearing threshold of 70-90 decibels (dB) and profound hearing loss is defined as a hearing threshold of 90 dB and above.

II. Criteria: CWQI HCS-0018B

- **Note:** Medically necessary cochlear implants are covered under the medical benefit.

Moda Health considers bone-anchored hearing aids (BAHA) and temporal conduction implants covered under the hearing aid benefit. *(Please see Member Handbook for benefits and refer to MCG A-0564)*

(*****For Auditory Brainstem Implants: Please refer to MCG A-0410*****)

- a. Moda Health will provide coverage for unilateral or bilateral cochlear implantation for children when **All** of the following criteria are met:
 - i. Child is 12 months to 17 years of age;
 - ii. Bilateral sensorineural hearing loss with unaided pure tone average thresholds of 70 dB at 500 Hz, and 90 dB or greater at 1000 Hz and 2000 Hz
 - iii. Child has family support and motivation to participate in post implant rehabilitation;
 - iv. Arrangements have been made for long-term speech therapy* (note – some plans may place limits on speech therapy services. Check the specific plan for details)
 - v. Minimal speech perception 30% or less or child has a lack of developmentally appropriate auditory milestones measured using parent report scales
 - vi. Three-month to six-month trial of binaural hearing aids documents lack of or minimal improvement in auditory development
 - vii. The child must have no medical contraindications to cochlear implantation (e.g. dysfunctional acoustic nerve or cochlear aplasia [lack of development], active middle ear infection). Child has had an assessment by an audiologist and otolaryngologist experienced with cochlear implants
 - viii. The child must be enrolled in an educational program supportive of listening and speaking with aided hearing
 - ix. Child is current on age appropriate pneumococcal vaccination (2 or more weeks before surgery when possible) in accordance with Centers for Disease Control (CDC): Advisory Committee on Immunization Practices (ACIP)
- b. Moda Health will provide coverage for unilateral cochlear implantation for individuals 5 years old and older when 1 of the following are met
 - i. Member has single sided deafness (SSD)** and **all** of the following;
 - 1. Profound sensorineural hearing loss in one ear and normal or mild sensorineural hearing loss in the other ear
 - 2. Have had limited benefit from a 1 month or longer trial of an appropriately fitted unilateral hearing aid in the ear to be implanted
 - ii. Member has asymmetric hearing loss (AHL)** and **all** of the following;
 - 1. Profound sensorineural hearing loss in one ear and mild to moderately severe sensorineural hearing loss in the other ear with a difference of at least 15dB in pure tone averages (PTA) between ears
 - 2. Have had limited benefit from a 1 month or longer trial of an appropriately fitted unilateral hearing aid in the ear to be implanted

**For SSD and AHL indications, profound hearing loss is defined as having a PTA of 90 dB HL or greater at 500 Hz, 1000 Hz, 2000 Hz and 4000 Hz. Normal hearing is defined as having a PTA of up to 15 dB HL at 500 Hz, 1000 Hz, 2000 Hz and 4000 Hz. Mild hearing loss is defined as having a PTA of up to 30 dB HL at 500 Hz, 1000 Hz, 2000 Hz and 4000 Hz. Mild to moderately severe hearing loss is defined as having a PTA ranging from 31 to up to 55 dB HL at 500 Hz, 1000 Hz, 2000 Hz and 4000 Hz.

**For adults 18 years of age or older with SSD or AHL, limited benefit from unilateral amplification is defined by test scores of 5% correct or less on monosyllabic consonant-nucleus-consonant (CNC) words in quiet when

tested in the ear to be implanted alone. For children and adolescents with SSD or AHL, insufficient functional access to sound in the ear to be implanted must be determined by aided speech perception test scores of 5% or less on developmentally appropriate monosyllabic word lists when tested in the ear to be implanted alone.

****Before implantation with a cochlear implant, individuals with SSD or AHL must have at least one month of experience wearing a hearing aid, a CROS (Contra Lateral Routing of Signal) hearing aid or other relevant device and not show any subjective benefit.**

- c. Moda Health will provide coverage for unilateral or bilateral cochlear implantation for adults when ALL of the following criteria are met:
 - i. Member is *18 years old or older*
 - ii. **Need for implant**, as indicated by **1 or more** of the following:
 - 1. Bilateral sensorineural hearing loss of greater than 70 dB
 - 2. Less than 50% score on standardized open-set sentence recognition test in ear to be implanted and less than 60% in contralateral ear when using appropriately fitted hearing aids
 - iii. The member must have no medical contraindications to cochlear implantation (e.g., dysfunctional acoustic nerve or cochlear aplasia [lack of development], active middle ear infection)
 - iv. Patient has had an assessment by an audiologist and otolaryngologist experienced with cochlear implants
 - v. Member and support system have realistic expectations and are willing and motivated to participate in extensive post-operative rehabilitation*
 - vi. Arrangements have been made for long-term speech therapy (note – some plans may place limits on speech therapy services. Check the specific plan for details)
 - vii. The member must be enrolled in an educational program supportive of listening and speaking with aided hearing;
 - viii. Member is current on age appropriate pneumococcal vaccination (2 or more weeks before surgery when possible) in accordance with Centers for Disease Control (CDC): Advisory Committee on Immunization Practices (ACIP)

- d. **Sequential (second) cochlear implant**, as indicated by **ALL** of the following:
 - i. Functioning unilateral cochlear implant
 - ii. Intact cochlear nerve in non-implant ear confirmed by CT or MRI
 - iii. Zero or marginal speech perception benefit from hearing aid in non-implant ear

*Note: For adults and children, a post-cochlear implant rehabilitation program is necessary to achieve benefits from the cochlear implant. The rehabilitation program consists of six to ten sessions that last approximately two and a half hours each, and may include long term speech therapy. (Note: Moda Health does not provide coverage for therapy that exceeds the limits of the plan benefit)

- e. **Upgrades for the cochlear implant** are **NOT** covered for **1 or more** of the following:
 - i. If an original implant is working a replacement or upgrade to another device would not be a covered benefit.
 - ii. Upgrades of an existing, functioning external system to achieve aesthetic improvement, such as smaller profile components, or a switch from a body-worn,

external sound processor to a behind the ear model are considered not medically necessary.

- f. **Moda Health will cover replacement parts**, such as batteries and microphones, for Cochlear Implants for **1 or more** of the following:
- i. The part is no longer functional and not repairable and **ALL** of the following:
 - 1. The requested part is no longer under warranty.
 - 2. The member has a benefit for a cochlear implant
 - 3. Member is no longer able to adequately and /or safely perform his or her age-appropriate activities of daily living with the component currently in use.
 - ii. Usual medically necessary frequency of replacement of cochlear implant parts as indicated in chart below for **1 or more** of the following:

Replacement Parts	Life Expectancy
Battery charger kit	1 per 3 years
Cochlear auxiliary cable adapter	1 per 3 years
Cochlear belt clip	1 per 3 years
Cochlear harness extension adapter	1 per 3 years
Cochlear signal checker	1 per 3 years
Disposable batteries for ear-level processors	72 per 6 months
Headset (3-piece component)	1 per 3 years
Headset cochlear coil (individual component)	1 per year
Headset cochlear magnet (individual component)	1 per year
Headset microphone (individual component)	1 per year
Headset cable or cord	4 per 6 months

Microphone cover	1 per year
Pouch	1 per year
Rechargeable batteries (per set of 2)	1 per year
Transmitter cable or cord	4 per 6 months

*Adapted from Wisconsin Department of Health and Family Services, 2005

III. Information Submitted with the Prior Authorization Request:

1. Medical records from the requesting specialist
2. Assessment by an audiologist or otolaryngologist
3. Appropriate hearing and speech test results

IV. CPT or HCPC codes covered:

Codes	Description
69714	Implantation, osseointegrated implant, temporal bone, with percutaneous attachment to external speech processor/cochlear stimulator; without mastoidectomy
69715	Implantation, osseointegrated implant, temporal bone, with percutaneous attachment to external speech processor/cochlear stimulator; with mastoidectomy
69717	Replacement (including removal of existing device), osseointegrated implant, temporal bone, with percutaneous attachment to external speech processor/cochlear stimulator; without mastoidectomy
69718	Replacement (including removal of existing device), osseointegrated implant, temporal bone, with percutaneous attachment to external speech processor/cochlear stimulator; with mastoidectomy
69930	Cochlear device implantation, with or without mastoidectomy
92507	Treatment of speech, language, voice, communication, and/or auditory processing disorder; individual
92508	Treatment of speech, language, voice, communication, and/or auditory processing disorder; group, 2 or more individuals
92601	Diagnostic analysis of cochlear implant, patient younger than 7 years of age; with programming
92602	Diagnostic analysis of cochlear implant, patient younger than 7 years of age; subsequent reprogramming
92603	Diagnostic analysis of cochlear implant, age 7 years or older; with programming
92604	Diagnostic analysis of cochlear implant, age 7 years or older; subsequent reprogramming
92640	Diagnostic analysis with programming of auditory brainstem implant, per hour
L8614	Cochlear device, includes all internal and external components

L8615	Headset/headpiece for use with cochlear implant device, replacement
L8616	Microphone for use with cochlear implant device, replacement
L8617	Transmitting coil for use with cochlear implant device, replacement
L8618	Transmitter cable for use with cochlear implant device, replacement
L8619	Cochlear implant, external speech processor and controller, integrated system, replacement
L8623	Lithium Ion battery for use with cochlear implant device speech processor, other than ear level, replacement, each
L8624	Lithium Ion battery for use with cochlear implant device speech processor, ear level, replacement, each
L8627	Cochlear implant, external speech processor, component, replacement
L8628	Cochlear implant, external controller component, replacement
L8629	Transmitting coil and cable, integrated, for use with cochlear implant device, replacement
L8694	Auditory osseointegrated device, transducer/actuator, replacement only, each

V. CPT or HCPC codes NOT covered:

Codes	Description

VI. Annual Review History

Review Date	Revisions	Effective Date
03/2013	Annual Review: Added table with review date, revisions, and effective date.	04/03/2013
04/2014	Annual Review: Changed ODS to Moda Health, added listening to criterion III. E.	04/30/2014
08/2015	Annual Review- added CMS reference, added ICD-0 and ICD-10 codes	08/26/2015
08/2016	Annual Review: removed ICD9 diagnosis codes, identified code related to BAHA as not included in this policy	08/31/2016
08/2017	Annual Review- align Cochlear Implant criteria with CWQI- archive Brainstem Implant- refer to MCG: A-0410	8/23/17
05/2018	Annual Review: Minor wording changes	5/23/2018
11/2018	Annual Review: include CT in acceptable evidence	11/28/2018
01/2020	Annual Review: Updated codes list, revised criteria requirements for coverage for unilateral and bilateral cochlear implantation for children and adults	02/01/2020
01/2021	Annual Review: No content changes	02/01/2021

VII. References

1. 74th Oregon Legislative Assembly – 2007. Enrolled Senate Bill 491.
2. Ali, W. O'Connell, R. The effectiveness of early cochlear implantation for infants and young children with hearing loss. NZHTA Technical Brief 2007; 6(5). Accessed May 21, 2012. Available at URL address: <http://www.otago.ac.nz/christchurch/otago014007.pdf>
3. American Academy of Audiology (AAA). Cochlear implants in children. 2011. Accessed May 21, 2012. Available at URL address: <http://www.audiology.org/resources/documentlibrary/Pages/CochlearChildren.aspx>
4. American Academy of Otolaryngology—Head and Neck Surgery (AAO-HNS). Policy statement: cochlear implants. Dec 27, 2007. Accessed May 21, 2012. Available at URL address: <http://www.entnet.org/Practice/policystatements.cfm>
5. Bond M, Mealing S, Anderson R, et al. The effectiveness and cost-effectiveness of cochlear implants for severe to profound deafness in children and adults: A systematic review and economic model. *Health Technol Assess*. 2009;13(44):1-330.
6. Center for Devices and Radiological Health (CDRH) Consumer Information, New Device Approval,
7. Centers for Medicare & Medicaid Services (CMS). Hearing aids and auditory implants. Medicare Benefit Policy Manual, Ch. 16 - General Exclusions from Coverage, Sec. 100 (Rev. 39; Issued: 11-10-05; Effective: 11-10-05; Implementation: 12-12-05). Baltimore, MD: CMS; 2005. Accessed May 21, 2012 at: <http://www.cms.hhs.gov/manuals/downloads/bp102c16.pdf>.
8. Ching TY, van Wanrooy E, Dillon H. Binaural-bimodal fitting or bilateral implantation for managing severe to profound deafness: a review. *Trends Amplif*. 2007 Sep;11(3):161-92.
9. Colletti V, Carner M, Miorelli V, et al. Auditory brainstem implant (ABI): new frontiers in adults and children. *Otolaryngol Head Neck Surg*. 2005 Jul;133(1):126-38.
10. Colletti V, Shannon R, Carner M, Veronese S, Colletti L. Outcomes in nontumor adults fitted with the auditory brainstem implant: 10 years' experience. *Otol Neurotol*. 2009 Aug;30(5):614-8.
11. Dunn CC, Noble W, Tyler RS, Kordus M, Gantz BJ, Ji H. Bilateral and unilateral cochlear implant users compared on speech perception in noise. *Ear Hear*. 2010 Apr;31(2):296-8.
12. Elvsåshagen T, Solyga V, Bakke SJ, et al. Neurofibromatosis type 2 and auditory brainstem implantation. *Tidsskr Nor Laegeforen*. 2009;129(15):1469-1473.
13. FDA Approval Letter, August 2001 Accessed on July 1, 2010 at: <http://www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/DeviceApprovalsandClearances/Recently-ApprovedDevices/ucm089750.htm> and <http://www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/DeviceApprovalsandClearances/Recently-ApprovedDevices/ucm085394.htm>
14. Laszig R, Aschendorff A, Stecker M, et al. Benefits of bilateral electrical stimulation with the nucleus cochlear implant in adults: 6-month postoperative results. *Otol Neurotol*. 2004 Nov;25(6):958-68.
15. Litovsky R, Parkinson A, Arcaroli J, Sammeth C. Simultaneous bilateral cochlear implantation in adults: a multicenter study. *Ear Hear*. 2006 Dec;27(6):714-31.
16. Moller AR. History of cochlear implants and auditory brainstem implants. *Adv Otorhinolaryngol*. 2006;64:1-10.
17. Moller AR. Physiological basis for cochlear and auditory brainstem implants. *Adv*

18. National Institute for Health and Clinical Excellence (NICE). Cochlear implants for children and adults with severe to profound deafness. NICE Technology Appraisal Guidance 166. London, UK: NICE; January 2009.
19. Papsin BC, Gordon KA. Bilateral cochlear implants should be the standard for children with bilateral sensorineural deafness. *Curr Opin Otolaryngol Head Neck Surg.* 2008;16(1):69-74.
20. Rotteveel LJ, Snik AF, Cooper H, Mawman DJ, van Olphen AF, Mylanus EA. Speech perception after cochlear implantation in 53 patients with otosclerosis: multicentre results. *Audiol Neurootol.* 2010;15(2):128-36.
21. Schafer EC, Amlani AM, Seibold A, Shattuck PL. A meta-analytic comparison of binaural benefits between bilateral cochlear implants and bimodal stimulation. *Journal of the American Academy of Audiology* 2007;18(9):760-76. [Context Link [1](#), [2](#), [3](#)]
22. Schwartz MS, Otto SR, Shannon RV, et al. Auditory brainstem implants. *Neurotherapeutics.* 2008;5(1):128-136
23. Shepherd RK, McCreery DB. Basis of electrical stimulation of the cochlea and the cochlear nucleus. *Adv Otorhinolaryngol.* 2006;64:186-205.
24. Tait M, Nikolopoulos TP, De Raeve L, Johnson S, Datta G, Karltorp E, Ostlund E, Johansson U, van Knegsel E, Mylanus EA, Gulpen PM, Beers M, Frijns JH. Bilateral versus unilateral cochlear implantation in young children. *Int J Pediatr Otorhinolaryngol.* 2010 Feb;74(2):206-11.
25. Tyler RS, Dunn CC, Witt SA, Noble WG. Speech perception and localization with adults with bilateral sequential cochlear implants. *Ear Hear.* 2007 Apr;28(2 Suppl):86S-90S.
26. U.S. Food and Drug Administration (FDA). FDA public health notification: Importance of vaccination in cochlear implant recipients. Rockville, MD: FDA; October 10, 2007. Accessed on July 22, 2011 at: <http://www.fda.gov/cdrh/safety/101007-cochlear.html>. Updated August 2002.
27. Waltzman SB. Cochlear implants: current status. *Expert Review of Medical Devices* 2006;3(5):647-55. DOI: 10.1586/17434440.3.5.647.
28. Centers for Medicare & Medicaid Services national coverage Determination (NCA) for Cochlear Implantation (50.3); Effective date 4/4/2006; Implementation Date 7/25/2005
29. Kanowitz SJ, Shapiro WH, Golfinos JG, Cohen NL, Roland JT. Auditory brainstem implantation in patients with neurofibromatosis type 2. *Laryngoscope* 2004;114(12):2135-46. [Context Link 1,]
30. Toh EH, Luxford WM. Cochlear and brainstem implantation. *Otolaryngologic Clinics of North America* 2002;35(2):325-42
31. Colletti V, Carner M, Miorelli V, Colletti L, Guida M, Fiorino F. Auditory brainstem implant in posttraumatic cochlear nerve avulsion. *Audiology and Neuro-Otology* 2004;9(4):247-55. DOI: 10.1159/000078394
32. Cerini R, et al. Role of CT and MRI in the preoperative evaluation of auditory brainstem implantation in patients with congenital inner ear pathology. *Radiologia Medica* 2006;111(7):978-88. DOI: 10.1007/s11547-006-0096-2.
33. Physician Advisors

Appendix 1 – Centers for Medicare and Medicaid Services (CMS)

Medicare coverage for outpatient (Part B) drugs is outlined in the Medicare Benefit Policy Manual (Pub. 100-2), Chapter 15, §50 Drugs and Biologicals. In addition, National Coverage Determination (NCD) and Local Coverage Determinations (LCDs) may exist and compliance with these policies is required where applicable. They can be found at: <http://www.cms.gov/medicare-coverage-database/search/advanced-search.aspx>. Additional indications may be covered at the discretion of the health plan.

Medicare Part B Covered Diagnosis Codes (applicable to existing NCD/LCD):

Jurisdiction(s): 5, 8	NCD/LCD Document (s):
National Coverage Determinations (NCD) Cochlear Implantation (50.3)	
	https://www.cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDId=245&ncdver=2&DocID=50.3&kq=true&bc=gAAAABAAAA&

NCD/LCD Document (s):
National Coverage Analysis (NCA) Original consideration for Cochlear Implantation (CAG-00107N)
https://www.cms.gov/medicare-coverage-database/details/nca-details.aspx?NCAId=134&NCDId=245&ncdver=2&DocID=50.3&kq=true&IsPopup=y&

Medicare Part B Administrative Contractor (MAC) Jurisdictions		
Jurisdiction	Applicable State/US Territory	Contractor
F (2 & 3)	AK, WA, OR, ID, ND, SD, MT, WY, UT, AZ	Noridian Healthcare Solutions, LLC