Fact Sheet

Hearing Loss & Bone Conduction Solutions

Cochlear®

While sensorineural hearing loss is the most common type of hearing loss, there are other types of hearing loss that need to be addressed and properly treated when identified as well. These include conductive hearing loss, mixed hearing loss and single-sided deafness (SSD).

Conductive hearing loss

- Conductive hearing loss is characterized by the inability of sound to travel through the outer or middle ear due to damage, blockage or a malformation.
- Conductive hearing loss can be caused by a variety of factors, including:
  - Chronic ear infections (chronic otitis media)
  - Chronic mastoiditis or middle ear infections
  - Draining ears
  - Microtia and/or atresia
  - Malformations at birth
  - Previous ear surgeries
  - Skin growth or cyst (cholesteatoma)
  - Syndromes such as Down syndrome, Goldenhar syndrome and Treacher Collins syndrome
- Chronic otitis media, also known as chronic middle ear infections, is one of the most common causes of conductive hearing loss in both adults and children. There are 700 million people worldwide who have chronic otitis media, and half of those people have some degree of hearing loss because of the condition.[1]
- People who have conductive hearing loss may feel like their ears are plugged, and speech may sound muffled because sound vibrations cannot reach the cochlea (inner ear).

Mixed hearing loss

- Mixed hearing loss is a combination of conductive and sensorineural hearing loss, meaning there may be damage in both the outer or middle ear as well as in the inner ear.
- Mixed hearing loss can be caused by a variety of factors, including:
  - Aging
  - Exposure to loud noise
  - Genetics
  - Head trauma
  - Otosclerosis (abnormal bone growth in the middle ear)
  - Ménière's disease
- Otosclerosis affects more than 3 million Americans.[2]
- People who suffer from mixed hearing loss describe sounds as being both softer and more difficult to understand.

Single-sided deafness (SSD)

- SSD occurs when you have little to no hearing in one ear, and normal hearing in the other. It can happen at birth, suddenly or gradually over time.
- Some of the most common causes of SSD are:
  - Surgical removal of an acoustic neuroma (a benign tumor(s) developing on the hearing nerve)
  - Sudden hearing loss, potentially due to viral infections, Ménière's disease, adverse reaction to medications, head or ear injuries, and many other unknown reasons
  - Malformation at birth or missing the inner ear (cochlea) on one side
- Every year, about 60,000 people in the United States acquire single-sided deafness.[3]
- Hearing out of only one ear causes people to form creative coping mechanisms so they can hear in everyday situations. These usually focus on directing themselves and others to sit on a certain side of a room or table, as well as directing people to speak into their "good ear."
- Hearing with both ears is important. Hearing with two ears allows you to identify sounds both near and far, as well as those that occur 360 degrees around your head.[4] With two ears, you can better understand speech and hear more clearly. You can also better determine where a sound is coming from and hear better in noise.[3]

Hearing loss is treatable – know your options

- There are a variety of solutions available to treat different types of hearing loss.
- For those with SSD, bone conduction solutions and CROS hearing aids are available.
- For those with conductive or mixed hearing loss, options include bone conduction solutions, hearing aids, medications and middle ear surgery.
- The world's first bone conduction implant was developed over 40 years ago.
- Bone conduction solutions include surgically-implanted and non-implanted medical devices that treat hearing loss by using the body's natural ability to conduct sound to bypass the damaged part of the ear, sending sound directly to the inner ear (cochlea).
- Cochlear's bone conduction portfolio provides a variety of solutions to fit your hearing needs:
  - The Osia® Implant System, world's first active osseointegrated stead-state implant, using piezoelectric stimulation.*
  - The Baha® Implant System, uses direct bone conduction via a small titanium implant surgically inserted into the bone behind your ear.*
  - The Baha SoundArc™ or Baha Softband, nonsurgical solutions for those not ready to move forward with surgery or for those who do not meet the age requirements for the above solutions.

Advantages of hearing with bone conduction solutions

- Unlike hearing aids that amplify sound and push it through the damaged part of the ear, bone conduction solutions utilize the body's natural ability to conduct sound to skip over the damaged parts of the outer and middle ear, sending clear, crisp sound directly to the inner ear.[5]
- Bone conduction solutions help provide 360-degree sound awareness, improving speech understanding in noise.[6]
- Studies show bone conduction solutions provide better speech understanding in noise than CROS hearing aids.[7]
- The portfolio of bone conduction solutions offers discreet wearing options that only need to be worn on the impaired ear(s), while CROS hearing aids require users to wear the device on a normal and hearing-impaired ear.
- Some hearing aids require users to wear an earmold, which can aggravate existing conductions like draining ears. Bone conduction solutions have no earmolds.
- Clinical evidence shows that 30 percent of middle ear surgery cases result in continued hearing loss, and repeat surgeries are common.[8]
- Bone conduction solutions provide a greater hearing benefit at a lower cost than medical surgery.[9]
- Those with a bone conduction solution report a significantly higher quality of life compared to when they left their hearing loss untreated.[10,11]
- Unlike hearing aids, bone conduction implant systems are typically covered by Medicaid, Medicare and most insurance plans.**

For more information on available bone conduction solutions, visit **www.Cochlear.com/US**.

*In the United States and Canada, a Baha Implant System is contraindicated in children below the age of 5. In the United States, the Osia 2 System is cleared for children over the age of 12.

**Covered for Medicare beneficiaries who meet CMS criteria for coverage. Coverage for adult Medicaid recipients varies according to state specific guidelines. Contact your insurance provider or hearing implant specialist to determine your eligibility for coverage.

1. Monasta L, Ronfani L, Marchetti F , Montico M, Brumatti LV, Bavcar A, et al. Burden of Disease Caused by Otitis Media: Systematic Review and Global Estimates. PLos One. 2012;7(4):1–12.
2. Otosclerosis [Internet]. National Institute on Deafness and Other Communication Disorders; c2018 [cited 21 Feb 2020]. Available from: https://www.nidcd.nih.gov/health/otosclerosis.
3. Weaver, J. "Single-Sided Deafness: Causes, and Solutions, Take Many Forms." Hearing Journal 68.3 (2015): 20-24. Web. 28 Apr. 2017. http://journals.lww.com/thehearingjournal/Fulltext/2015/03000/Single_Sided_Deafness___Causes,_and_Solutions,.1.aspx
4. Wazen JJ, Spitzer JB, Ghossaini SN, Fayad JN, Niparko JK, Cox K, et al. Transcranial contralateral cochlear stimulation in unilateral deafness. Otolaryngology-Head & Neck Surgery 2003;129(3):248-54.
5. Gustafsson J. BCDrive performance vs. conventional bone conduction transducer. Cochlear Bone Anchored Solutions AB, 629908, 2015.
6. Dun CAJ, de Wolf MJF, Wigren S, Eeg Olofsson M, Granstrom G, Green K, Flynn MC, Stalfors J, Rothera M, Mylanus EAM, Cremers CWRJ (2010) Development and Multi centre Clinical Investigation of a Novel Baha Implant System. Technical and 6 Month Data. Paper presented at CI 2010, Stockholm, Sweden.
7. Niparko JK, Cox KM, Lustig LR. Comparison of the bone-anchored hearing aid implantable hearing device with contralateral routing of the offside signal amplification in the rehabilitation of unilateral deafness. Otology & Neurotology, 2003 Jan;24(1):73-78.
8. Lewis AT, Vanaelst B, et al. Clinical success rates in restoring hearing loss among adult and pediatric patients with chronic oritis media: a systematic review.
9. Compared to medical/surgical management of CSOM, bone-anchored hearing implants provide greater audiological benefit at a lower cost, based on fees and data from the UK (26).
10. Dutt SN, McDermott AL, Jelbert A, Reid AP, Proops DW. (2002). The Glasgow benefit inventory in the evaluation of patient satisfaction with the bone-anchored hearing aid: quality of life issues. Journal of Laryngology and Otology, (Supp/28). 7.
11. Kunst SJW, Hol MKS, Mylanus EAM, Leijendeckers JM, Snick AFM, Cremers CWRJ. (2008) Subjective benefit after BAHA system application in patients with congenital unilateral conductive hearing impairment. Otology and Neurotology, 29(3), 353-358.

Please seek advice from your health professional about treatments for hearing loss. Outcomes may vary, and your health professional will advise you about the factors which could affect your outcome. Always read the instructions for use. Not all products are available in all countries. Please contact your local Cochlear representative for product information.

CAM-MK-PR-476 ISS1 APR20

www.Cochlear.com/US

Follow us on

Cochlear®