



The Heuser Hearing Institute

Home of the Louisville Deaf Oral School

Hearing Loss and the workplace

Hearing loss has been shown to negatively impact nearly every dimension of the human experience including: physical health, emotional and mental health, perceptions of the mental acuity, social skills, family relationships, self-esteem and school and work performance.

Hearing is critical to effective communication in the work force. Most employment situations require verbal communication in order to effectively engage in commerce and in dealing with the public and for safety

Without aided hearing, data suggests that the hearing impaired individual, including those with mild losses, can be expected to suffer losses in compensation due to underemployment, mistakes on the job and unemployment

For those who did collect an income, [individuals with hearing loss made about 25% less](#); their mean wage was \$23,481, compared with \$31,272 for typical-hearing peers.

Hearing aids were shown to reduce the risk of income loss by 90 to 100% for those with milder hearing loss, and from 65 to 77% for those with moderate to severe hearing loss.

Implications of Hearing Loss

- ▶ Unilateral Hearing Loss
 - ▶ One normal hearing ear and one ear with at least a mild permanent hearing loss:
- ▶ May have difficulty:
 - ▶ hearing faint or distant speech
 - ▶ difficulty localizing sounds and voices
 - ▶ Greater difficulty understanding speech when environment is noisy or reverberant
 - ▶ Difficulty detecting or understanding soft speech from side of bad ear, especially in a group discussion.



Implications of Binaural Hearing Loss

- ▶ Minimal (Borderline): 16-25 dB
 - ▶ Can have difficulty hearing faint or distant speech
 - ▶ may miss up to 10% of speech more than 3 feet away when in noisy

Implications of Binaural Hearing Loss

- ▶ Mild: 26-40 dB
 - ▶ Can experience some difficulty hearing faint or distant speech
 - ▶ at 30dB can miss 25-40% of the speech signal;
 - ▶ usually will miss consonants, especially if loss is focused in higher frequencies

Implications of Hearing Loss

- ▶ Moderate: 41-55 dB
 - ▶ Can understand some speech at a distance of 3-5 feet
 - ▶ Amount of speech missed can vary from:
 - ▶ 50% - 75% with 40 dB loss (without aids)
 - ▶ 80% - 100% with 50 dB loss (without aids); high probability of speech and language delay.

Implications of Hearing Loss

- ▶ Moderate to severe: 56-70 dB
 - ▶ Conversation must be very loud to be understood without amplification
 - ▶ Difficulty with verbal communication in both 1 on 1 and group situations
 - ▶ Begin to have reduction in understanding (auditory deprivation)

Implications of Hearing Loss

- ▶ Severe: 71-90 dB
 - ▶ May hear loud voices about one foot from the ear without amplification
 - ▶ Can achieve some improvement in hearing and some ability to identify environmental sounds if aided optimally
 - ▶ Oral language and speech may not develop spontaneously (if loss is prelingual) or will be severely delayed.
 - ▶ If loss is acquired, speech is likely to deteriorate with voice quality becoming atonal.

http://www.facstaff.uww.edu/bradley/radio/hlsimulation/normal_speech_9.mov

Implications of Binaural Hearing Loss

- ▶ Profound: 91 dB or greater
 - ▶ More aware of vibrations than tones or patterns of speech
 - ▶ May rely on vision rather than hearing as primary avenue for communication and learning
 - ▶ Ability to detect speech sounds with amplification depends on configuration of loss
 - ▶ Speech and language will not develop spontaneously and is likely to deteriorate rapidly if loss is of recent onset.

http://www.facstaff.uww.edu/bradley/radio/hlsimulation/normal_speech_9.mov

Changes in hearing aid technology...

- ▶ More power with less feedback
- ▶ More accurate match of hearing gain to hearing loss
- ▶ Improved ear mold materials
- ▶ Improved assistive listening devices (FM)
- ▶ Smaller hearing aid cases
- ▶ More options for daily living assistive devices
- ▶ Increased moisture and dust resistancy
- ▶ More variety of manufacturer accessories

Selecting a Solution

- ▶ Hearing Aid Evaluation
 - ▶ Subjective measure
 - ▶ Objective measure
 - ▶ Questionnaire



Choosing Style

Extended Wear



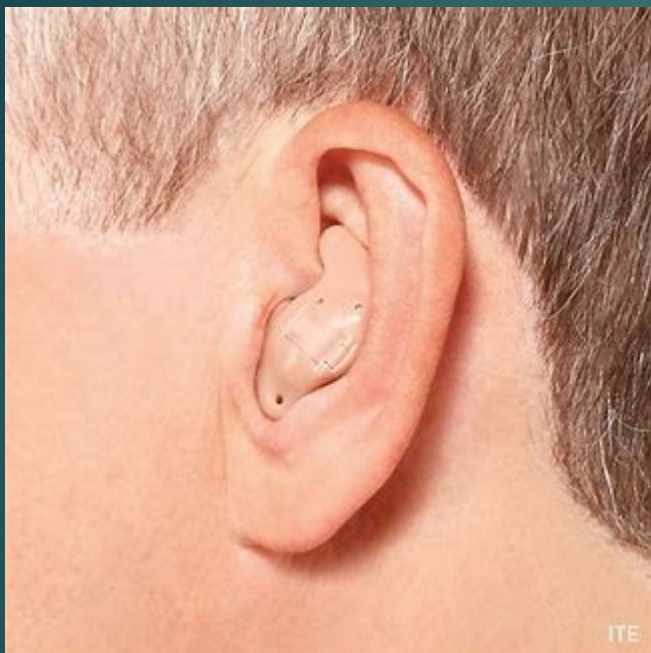
Daily Wear- Completely in the Canal (CIC)



Daily Wear- In the Canal (ITC)



Daily Wear-In the Ear (ITE)



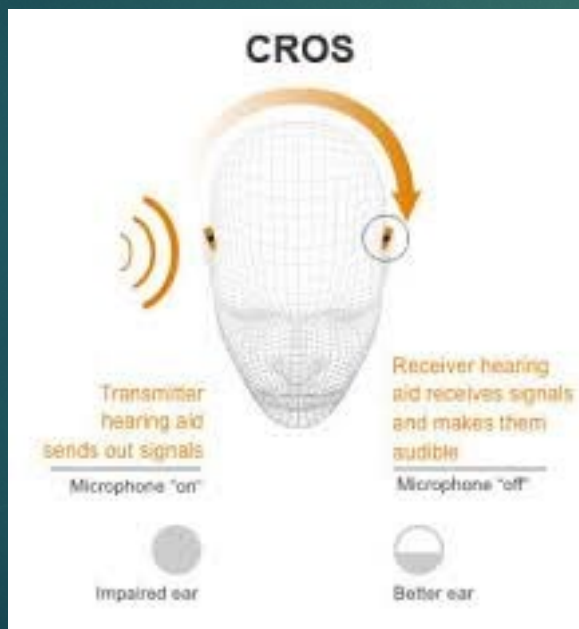
Daily Wear- Behind the Ear (BTE)



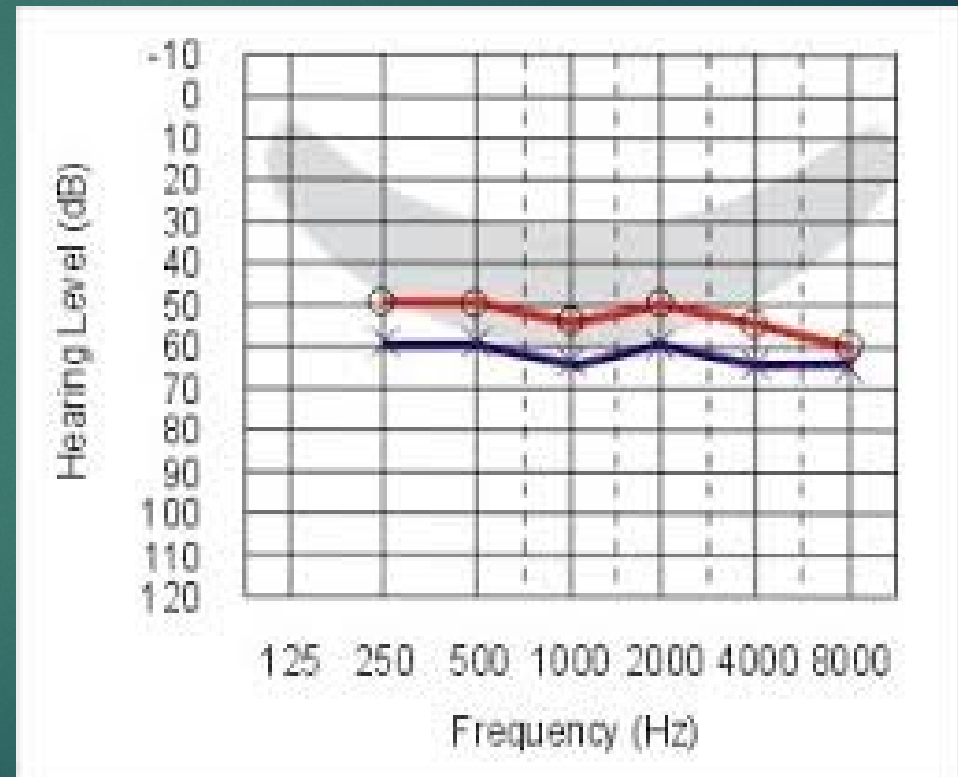
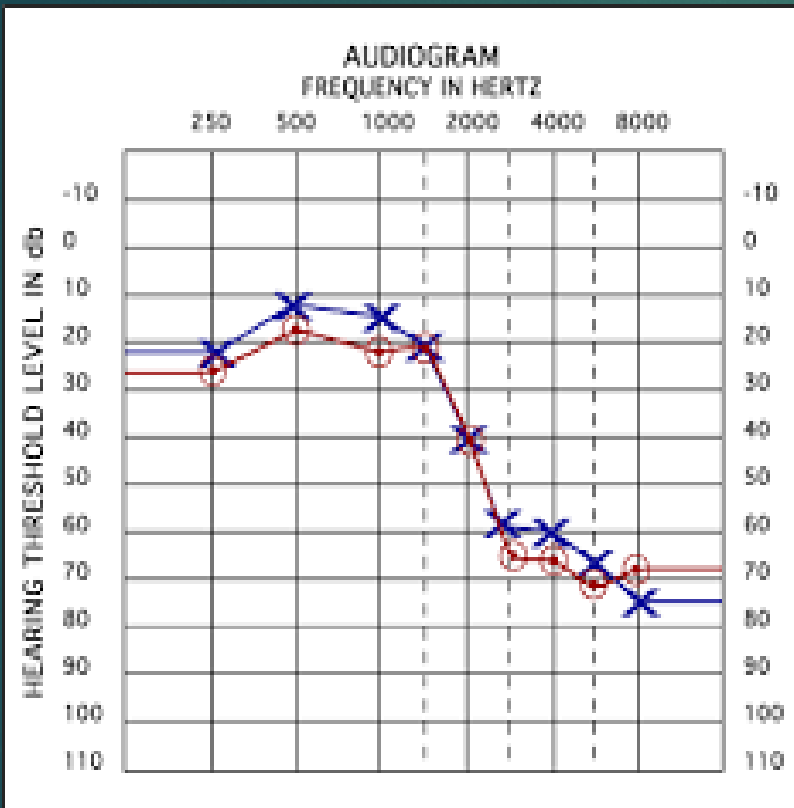
Daily Wear- Receiver in the Canal (RIC)



Specialty Aids



What style?



Basic Technology



Standard technology



Advanced technology



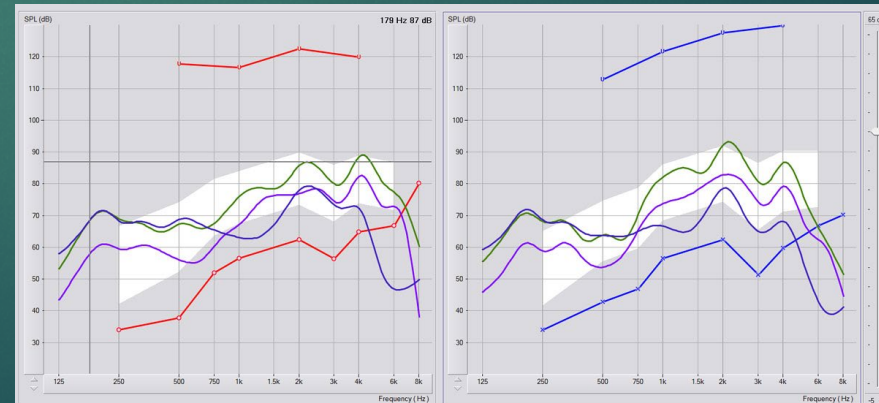
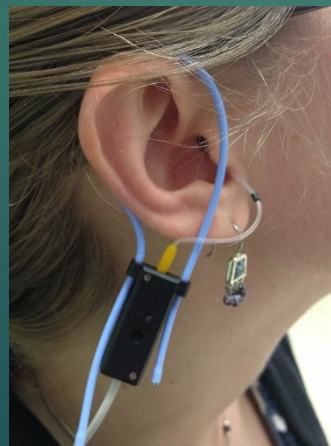
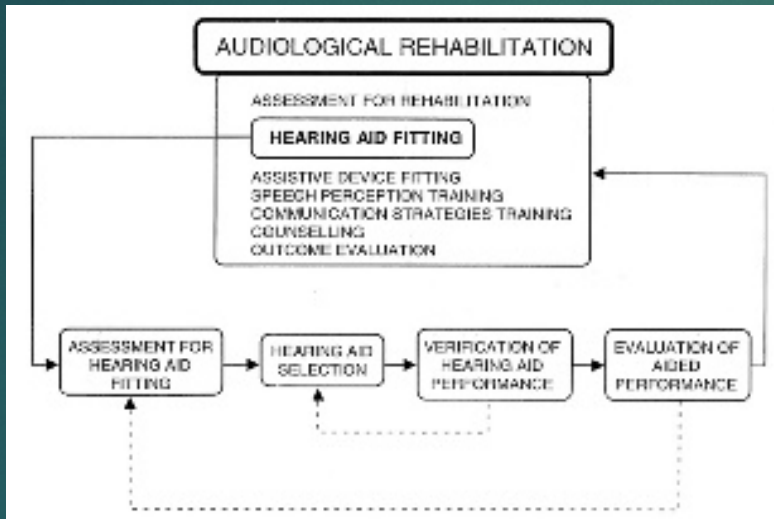
Premium Technology



Accessories/ALD's



Adaptation Process with hearing aids



Cochlear Implants

Cochlear Americas

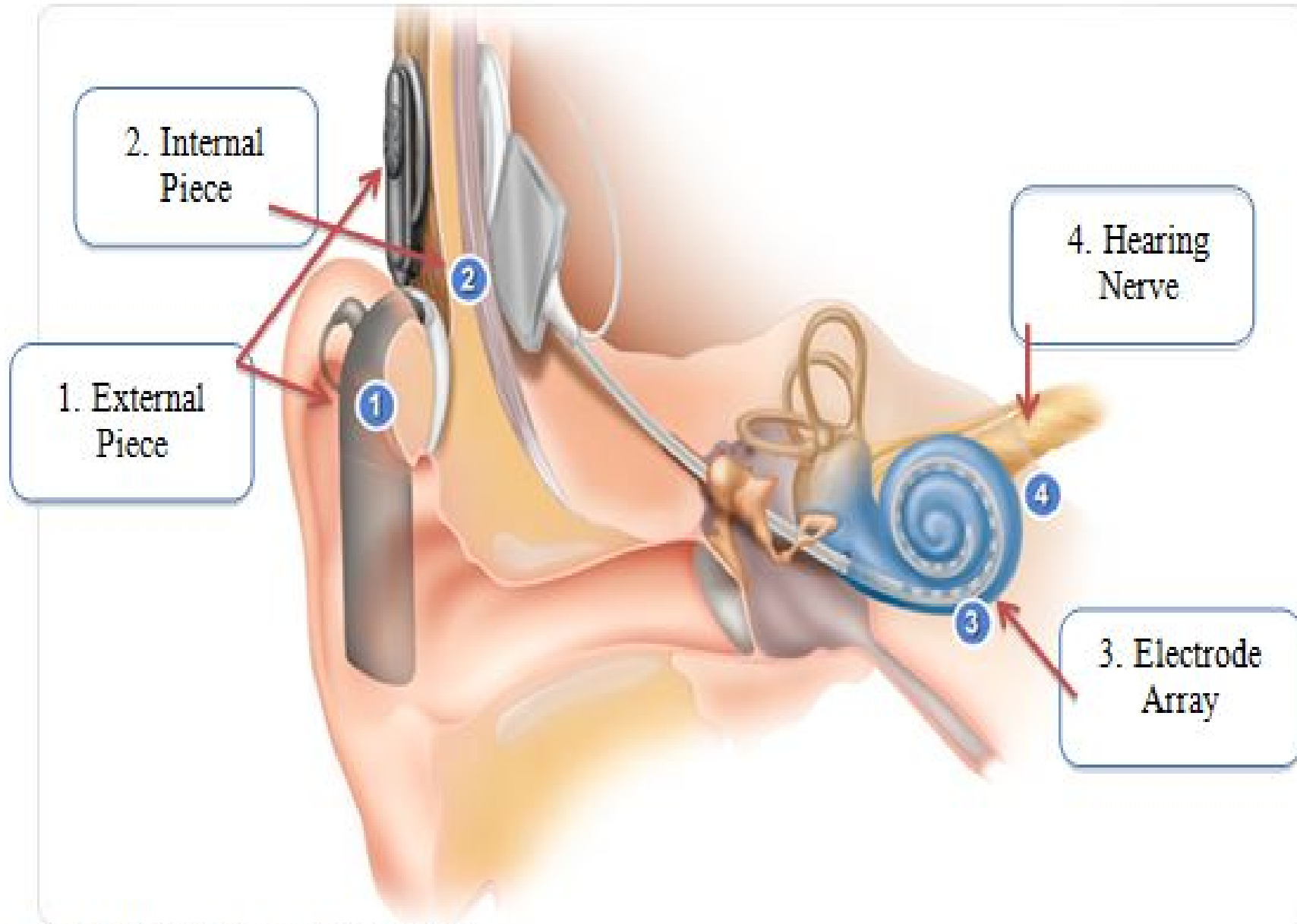


Med-El

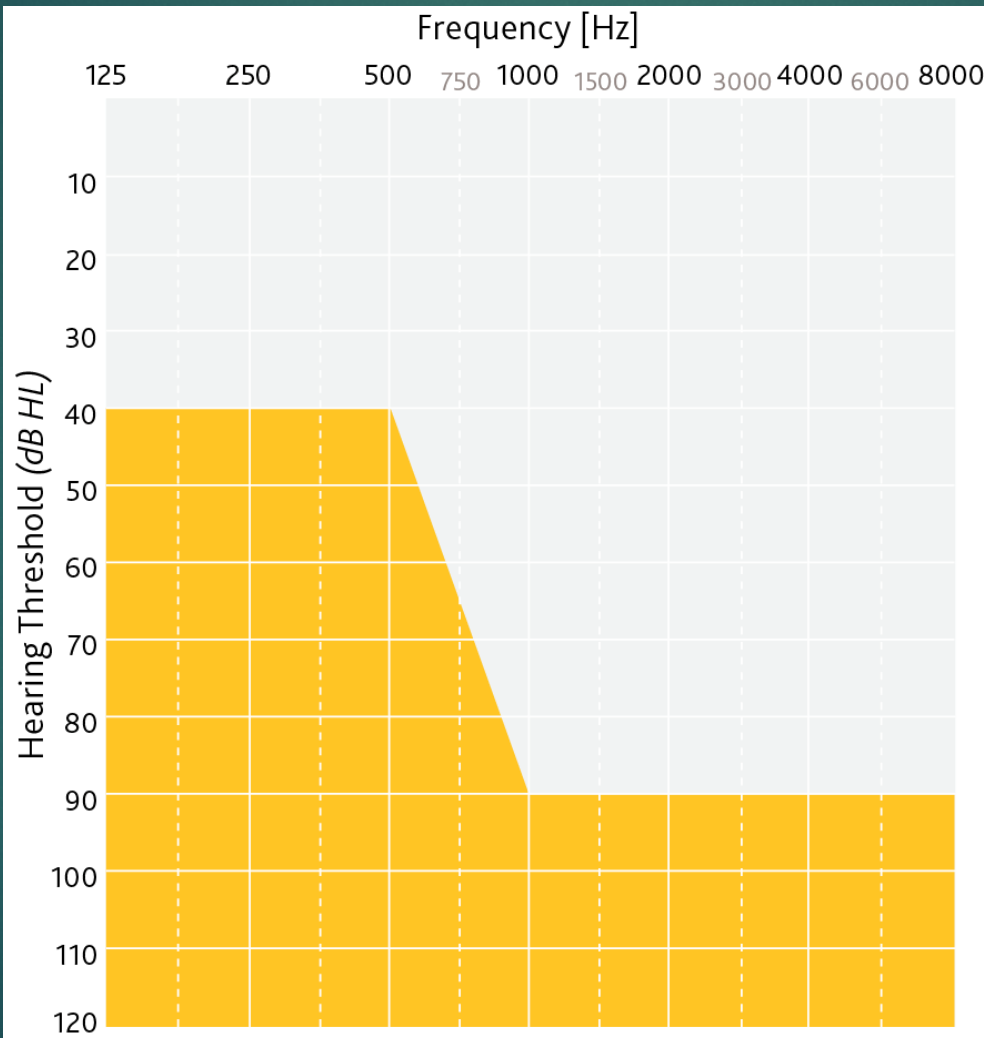


Advanced Bionics





Traditional candidacy



ADULTS (18+ Yrs)

- Moderate-to-profound SNHL in both ears
- Limited benefit from amplification defined by preoperative test scores of $\leq 50\%$ open-set sentence recognition in the ear to be implanted and $\leq 60\%$ in the opposite ear or binaurally

CHILDREN (2-17 yrs)

- Severe-to-profound SNHL in both ears
- Limited benefit from binaural amplification trial with MLNT/LNT scores $\leq 30\%$

CHILDREN (12-24 mos)

- Profound SNHL
- Limited benefit from binaural amplification trial based on MAIS/IT-MAIS

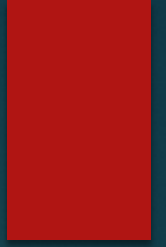
Insurance-hearing aid benefit?

- ▶ Monetary benefit
- ▶ Discount plan
- ▶ Combination

The logo for Nations Hearing, featuring the word "nationshearing" in a lowercase, sans-serif font. The "nations" part is in a light blue color, and "hearing" is in a darker blue. A small circular icon with a hearing aid symbol is positioned at the end of the word.The logo for TruHearing, featuring the word "TruHearing" in a bold, green, sans-serif font. The "Tru" is in a lighter shade of green, and "Hearing" is in a darker shade.



"I said, it's the only hearing-aid covered by your insurance."



References

- ▶ National Council on the Aging (NCOA): The Impact of Untreated Hearing Loss in Older Americans. Conducted by the Seniors Research Group. Supported through a grant from the Hearing Industries Association. Preliminary Report, 12/28/98.
- ▶ Kochkin S. Quantifying the Obvious: The Impact of Untreated Hearing Loss on Quality of Life, Knowles Electronics, Itasca, IL: May 1999.
- ▶ Kirkwood D: Major survey documents negative impact of untreated hearing loss on quality of life. Hearing Journal 1990: 52(7)L 32-40.
- ▶ Kochkin S: MarkeTrak V: Baby Boomers spur growth in potential market, but penetration rate declines. Hearing Journal, 1999; 52(1): 33-48.
- ▶ Powers T: MarkeTrak 10: Hearing Aids in an Era of Disruption and DTC/OTC Devices, 2019: