

Why Patients Need Hearing Loops

By Juliëtte Sterkens, AuD

Hearing technology has improved significantly in the past decade. However, even the very best hearing aids do not restore hearing. Although hearing aids can restore about half of the lost hearing sensitivity (i.e., loudness), they are unable to correct distortions from within the ear or poor auditory processing ability. That is, hearing aids make sounds louder, and some hearing aids are better than others at reproducing all the natural sounds required to make sense of speech in noise. We counsel clients to use the best possible hearing aids, use different hearing aid programs, activate closed TV captions, use directional microphones, and use TV assistive listening.

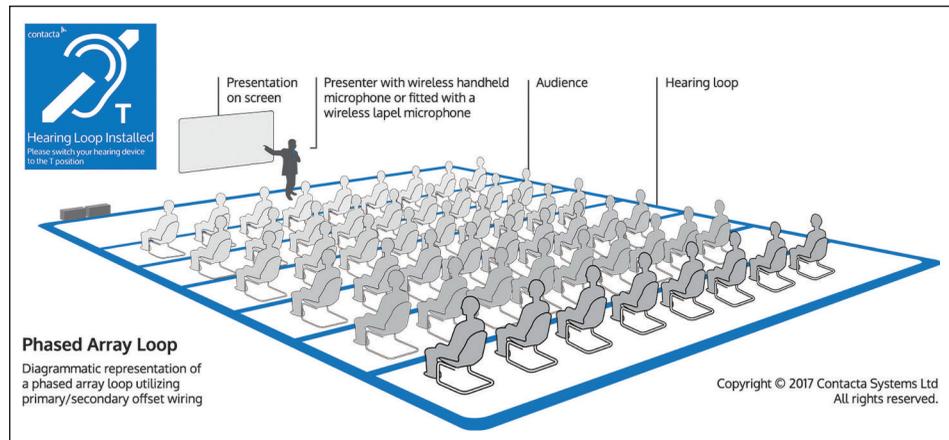
Video recording illustrates a problem with microphone placement. Just about everyone has experience recording videos of a child, only to be disappointed with the hard-to-decipher quality of the child's voice on playback. When a person with normal hearing records the event, he or she can use his or her brain to provide natural binaural squelch and binaural summation, and focus on the child (or any video subject) while ignoring other background sounds. However, the video recording device simply records all audible sounds; it does not have a human brain to selectively process different sounds. All the coughing, foot shuffling, whispering, humming of the HVAC system, and other background sounds are treated as equivalent sounds to record and amplify. Normal hearing allows us to unconsciously separate wanted from unwanted sounds. The microphone in the video recorder, however, cannot do this. It simply receives and amplifies sounds.

UNDERSTANDING LIMITATIONS

Hearing aids and cochlear implants (CI) share similar limitations (i.e., they do not process sounds as well as the human brain does). A survey among 308 hearing aid and CI users asked at what distance they can effectively overhear and understand conversation. Answers ranged from three to 15 feet, averaging just over 6'2"; some 134 communication



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partners were asked the same question, and their average estimated range was 4'7" (unpublished data).

Although hearing aids can pick up sounds from greater distances and increase user awareness of sounds, the speech intelligibility (achieved by making sounds louder) may actually be degraded, resulting in the typical "I can hear but not understand" complaint. Matthew H. Bakke, PhD, said it well: "...hearing aid users are already holding on to speech comprehension by their fingertips; when a bit more noise, distance and reverberation is added into the mix, their understanding of speech may go from barely adequate to complete incomprehension" (Final Report, 1999). Yet, hearing aid users want, need, and deserve to hear, especially in places critical to their quality of life, such as hearing wedding vows in a reverberant house of worship, a lecture, a play at a local theater, a consultation at the pharmacy, a city council meeting, or the announcements at the airport gate. These and similar situations would benefit from telecoils and hearing loops.

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Hearing aid users should be informed that a telecoil along with a hearing loop is one of the most effective ways to improve their ability to understand speech over distance or in noise. It is estimated that seven in 10 hearing aids sold today either comes with a built-in telecoil or a wireless accessory that has a telecoil (a.k.a. a streamer). While there are other one-on-one workarounds such as wireless Bluetooth microphones and FM systems, none of these offer the telecoil's easy and direct-to-hearing-aid-compatible solution for hearing in looped public venues.

HEARING LOOPS

HEARING LOOP BENEFITS

The dramatic benefits of hearing loops have been documented in two studies. A survey in 2014 asked 866 people to rate the performance of their hearing aids or cochlear implants using a 10-point scale (*Hear Rev*, 2014). The average response was 4.9 in a non-looped setting and 8.7 in a looped environment. A 2016 study by Faivre found that hearing loops greatly improved speech understanding and sound quality, and reduced listening effort (*Hear Rev*, 2016).

How can a hearing loop deliver such dramatic improvements? Simple. In a hearing loop, the microphone of the PA system is the microphone to the hearing aid. The distance and reverberation limitations of hearing aid microphones are overcome in a loop. Instead of acoustically transmitting sound, this setup transfers sound via a magnetic field. Those in a loop hear the cleanest and purest sound possible, often at signal-to-noise ratios that enable even those with severe and profound hearing loss to understand speech.

The hearing loop movement is spreading across the United States, with new equipment vendors and dozens of trained installers. There are thousands of installed hearing loops across the country, from small areas (i.e., all new New York City taxis), to medium-sized worship places and auditoriums, and to sizable airports and stadiums (including the Michigan State University's basketball arena). This increased hearing aid functionality bodes well both for hearing care providers and those we serve. 



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