



# LOOPING AMERICA

## One Way to Improve Accessibility for People with Hearing Loss

BY PATRICIA KRICOS

The inclusion of telecoils in hearing aids can unlock access to desired sounds for many people who have hearing aids or cochlear implants. The audiologist can play a number of roles in helping the consumer obtain maximum use of their hearing assistive technology.

# IF YOU ATTENDED THE GENERAL ASSEMBLY DURING

AudiologyNOW!® 2010 in San Diego, you are aware that the American Academy of Audiology is working with the Hearing Loss Association of America (HLAA) to advocate for improved accessibility for the 36 million Americans who have hearing loss. The goal is to increase consumer and audiologist awareness of hearing aid- and cochlear implant-compatible assistive listening systems, including telecoils and hearing loops, as well as other technology that will enhance the listening abilities of those with hearing loss. There have been exciting advances in hearing technology in the past few decades, including cochlear implants and sophisticated digital hearing aids that may be extremely helpful for people who are deaf or hard of hearing, yet many who avail themselves of this technology still have difficulties hearing public address systems in airports, or when sitting toward the back of an auditorium or playhouse, or when attending services in a large, reverberant house of worship. A versatile, functional, and relatively inexpensive fix in these situations is the use of telecoils and hearing loops by people who use hearing aids and/or cochlear implants.

Telecoils enable hearing aid and/or cochlear implant users easy access to sounds from telephones, or when used in conjunction with an audio induction loop, from electronic audio sources such as public address systems, concerts, tour buses, and churches, to name a few. A simple wire loop around an enclosed area, such as a theater or auditorium, enables hearing aid and cochlear implant users within the loop to hear clearly what is being delivered through the sound system as long as they have the necessary connector in their hearing aids or cochlear implant—a telecoil. The telecoil lets the consumer connect to sound through the hearing loop without having to deal with annoying background noise and without the need to check out headsets or receivers.

## History of Telecoils and Hearing Loops

Several authors have credited Samuel Lybarger for designing a telecoil in 1947 that could be used with a “body” type hearing aid (Marshall, 2002; Yanz and Preves, 2003). Lybarger’s idea over 60 years ago was that the telecoil could pick up stray electromagnetic energy from a telephone and then convert it to amplified sound, thus making it considerably easier for the person with hearing loss to participate in a phone conversation (Ross, 2006). Since then, the telecoil, as well as hearing aids, have become considerably smaller and substantially more versatile. Telecoils now fit into head-worn hearing aids, even very small ones, with few exceptions. Based on an Internet survey of hearing aid fitting practices by audiologists and hearing professionals, Johnson (2008) reported a significant increase in the percentage of hearing aids

with telecoils, from 37 percent in 2001 to greater than 65 percent in 2007.

Although the inclusion of telecoils in hearing aids has significantly increased in the United States, there continues to be relatively sparse application of telecoils for anything except telephone and television use. There is a striking difference between the United States and Europe in the applications of telecoils for better listening. Rather than focusing primarily on infrared or frequency-modulated technology, Europeans rely on a variety of applications for telecoils, such as looping household rooms (most frequently for television), banks, train stations, and so forth. In September 2009, the first international conference on hearing loops was held in Switzerland, with attendees from throughout the world. Indeed, the “Get in the Hearing Loop” initiative was born as a result of Brenda Battat’s (executive director, HLAA) inspiration after attending this conference. During the international meeting, a resolution was passed with the recommendations that stakeholders involved in helping people with hearing loss (e.g., hearing aid and cochlear implant manufacturers, physicians, audiologists, etc.) should communicate the benefits of telecoil receivers, such as increasing accessibility in service centers (physician’s offices, hospitals, post offices, etc.) and public areas (auditoriums, museums, playhouses, etc.). At the same time, participants at the conference acknowledged that research to develop new technologies may some day result in superior technology that would replace the need for telecoils and hearing loops. Until then, however, the participants strongly support the promotion of a wide variety of telecoil and loop applications.

## Current Status of Looping in the United States

In the United States, many consumers with hearing aids, as well as audiologists and other hearing health-care professionals, perceive that the function of telecoils is to enable better use of telephones. There is far less awareness and use of telecoils in rooms and buildings that have been looped, and there is a lack of cognizance that hearing aids and cochlear implants with telecoils can connect with an array of assistive listening devices such as FM technology. Why would hearing aid and/or cochlear implant users benefit from having telecoils? Simply ask them how well they do with their devices as far as understanding public address systems in airports, or hearing the speakers when sitting toward the back of auditoriums, or understanding what their religious leaders are saying in large, reverberant places of worship. Despite phenomenal changes and improvements in hearing aid and cochlear implant function in the past few years,

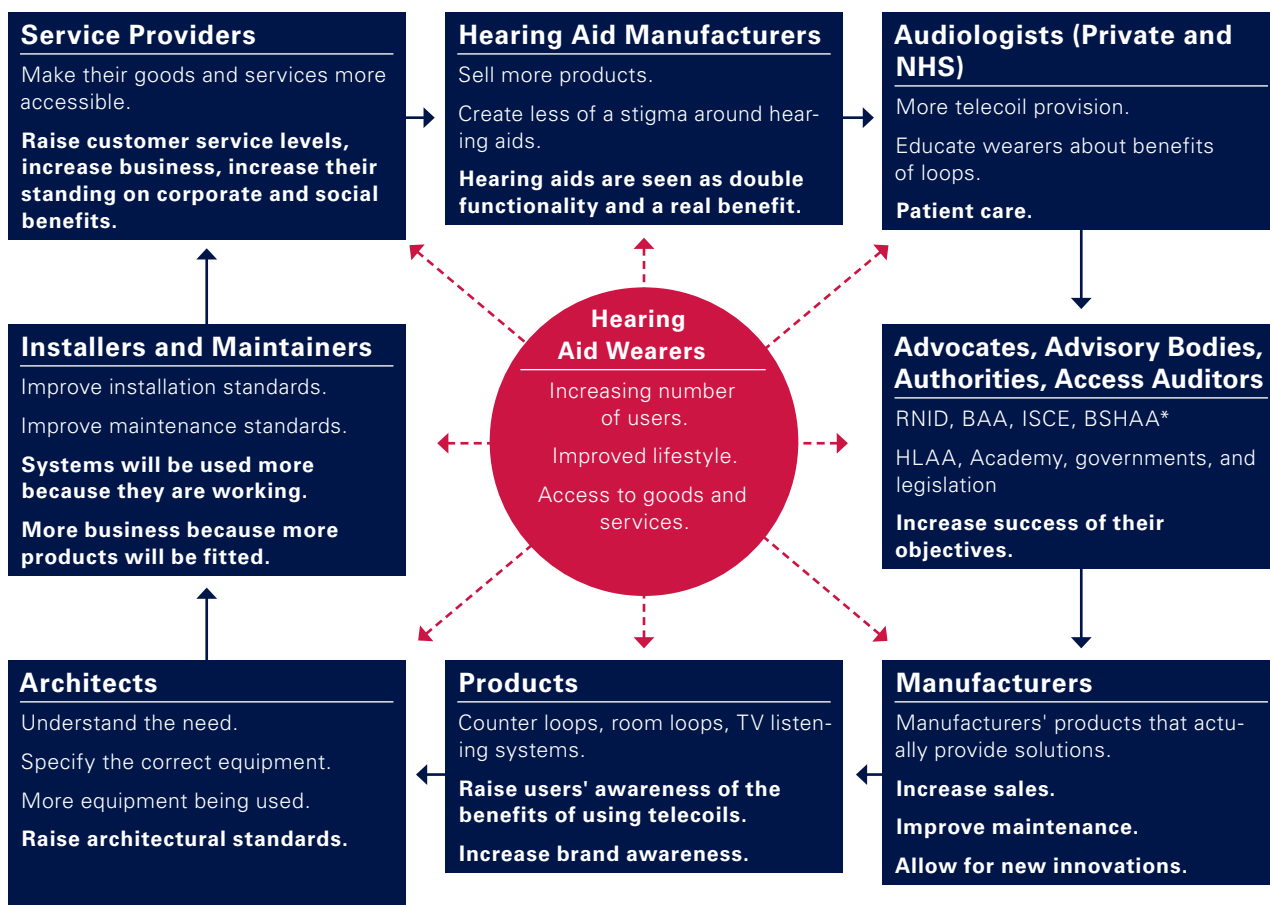
these types of difficulties continue due to interference from background noise and/or because of talker/listener distance in many “typical” listening environments.

There is a relatively easy, cost-effective solution. A simple wire loop around an enclosed area, such as a theater, auditorium, or place of worship, enables people within the loop to hear clearly what is being delivered through the sound system as long as they have the necessary connector in their hearing aids or cochlear implant, namely a telecoil. The telecoil allows the person to connect to sound through the hearing loop without having to deal with annoying background noise. Many public places such as houses of worship and playhouses offer headsets or receivers. However, many consumers report that often these devices do not provide sufficient assistance and frequently malfunction.

### Hearing Loops and Newer Technology

The intent of the Academy and the HLAA in naming the initiative “Get in the Hearing Loop” is not to focus solely on telecoils and hearing loops but, rather, to encourage consumers and professionals to “get in the loop” as far as any type of helpful technology to improve accessibility for people with hearing loss. With so many advances in technology in recent years, and more on the horizon, people with hearing loss have an abundance of choices in order to achieve accessibility. Dr. David Myers (personal communication, May 14, 2010), founder of the Let’s Loop America campaign, points out that the new technology that is desirable to both consumers and hearing professionals alike needs to

- Be affordable,



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FIGURE 1. How telecoils and hearing loops can offer potential benefits.

\*Royal National Institute for the Deaf, British Academy of Audiology, International Symposium on Consumer Electronics, British Society of Hearing Aid Audiologists

- Cover both large and small areas,
- Project universally received signals,
- Be able to fit into most hearing aids, including in-the-ear hearing aids,
- Be used without the use of extra equipment,
- Demand little in the way of power, if any, and, finally,
- Be inconspicuous and user friendly.

### Who Benefits from Hearing Loops and Telecoils?

At first glance, it would appear that the main beneficiary of hearing loops and telecoils would be the consumer who uses hearing aids and/or cochlear implants. However, there are other parties who are likely to benefit from looping. Audiologists who dispense hearing aids, for

example, want the best fitting outcomes and highest level of satisfaction for their patients. It is logical to expect that the more functional and versatile the hearing technology, the greater the benefit, use, and satisfaction will be among consumers. FIGURE 1 illustrates how telecoils and hearing loops can offer potential benefits not only to the consumer but also to a variety of other individuals.

### Applications of Hearing Loops and Telecoils

In recent years, thanks to the efforts of dedicated looping advocates, there have been substantial increases in the number of public venues that have been looped, such as airports (see FIGURE 2), train stations, places of worship, and government buildings (even the U.S. House of Representatives' main chambers are looped). Early this year, the New York City Transit Commission announced that information booths in 488 subways would be looped to make travel assistance more accessible to people with hearing loss (Myers, 2010). By far the most common application



FIGURE 2. Hearing loop sign at the Gerald R. Ford International Airport in Grand Rapids, MI, the first airport in the United States to offer assistive listening in concourses and all gate areas. Courtesy of David Myers.

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of hearing loops is in houses of worship. However, the types of venues that are looped are numerous, including community, senior, recreation, and social centers; libraries; performing arts halls and cultural art centers; state government and municipal buildings, as well as courtrooms; schools and colleges; Veterans Affairs hospitals; as well as places you might not expect, such as the Bronx New York Yankees ticket booth and facilities at Ellis Island in New York City. You may want to look around your community and ponder how you could increase accessibility for people with hearing loss in your community by becoming involved with looping initiatives. Partnering with your local and state HLAA organizations is an excellent way to gain momentum in the looping campaign.

### **Not All Hearing Loop Installations Are the Same**

At the recent HLAA Convention in Milwaukee, Conny Andersson, convener of inductance loop standards for the International Electrotechnical Commission (IEC), described the importance of conforming to IEC standards for installing loop systems. In 2006, IEC members from around the world approved a new standard for looping (IEC 60118-4), requiring that after a loop installation, the loop system should be tested to determine that it meets the standard. Following testing, the standard should be certified and made publicly available through a written report that provides the name of the tester, the date, and the use of a calibrated test instrument.

The looping installers' conformity to IEC standard 60118:4-2006 will ensure the highest quality of performance for looping systems. Failure to follow the rigorous IEC standard for looping may seriously compromise the outcomes that may be expected from the looping installation. Additionally, nonconformity to IEC standards resulting in poor outcomes may impugn efforts to promote telecoil use and looping for improved accessibility for people with hearing loss.

### **The Need for Evidence-Based Research**

Although there is substantial testimony about the benefits of telecoils and hearing loops from people with hearing loss, there is little in the way of evidence-based research to validate the effectiveness of looping for improving speech perception. There is a huge need for both subjective and objective evaluation of looping outcomes. Through the use of well-designed questionnaires, interviews, and so on regarding perceived improvement in communication, it may be possible to identify how looping affects activity limitation and participation restriction. Additionally,

objective measures might be used to evaluate looping outcomes. Perhaps an adult version of the *Functional Listening Evaluation* (Johnson et al, 1997) could be developed to objectively evaluate outcomes for adults who participate in looped events. For example, research participants could be tested in controlled, but relatively natural, listening conditions (e.g., places of worship, meeting rooms, and performance halls), to determine how their ability to understand is affected by use of a hearing loop. It would be interesting to assess not only how performance in various distance and background noise conditions differs when the listening area is looped but also to obtain subjective evaluations by research participants as to their perceived ease of listening and degree of effort when a loop is used. The availability of positive conclusions from this type of research may lead to greater interest among audiologists for advocating for looping, as well as for uniformly informing their patients about the benefits of looping.

### **Conclusion**

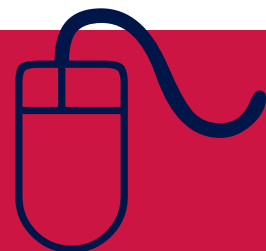
The inclusion of telecoils in hearing aids can unlock access to desired sounds for many people who have hearing aids or cochlear implants. The audiologist can play a number of roles in helping the consumer obtain maximum use of his or her hearing assistive technology. Patients with hearing aids and/or cochlear implants should be informed of the potential benefits of telecoils and hearing loops. Some states, such as New York, Florida, and Arizona, have state licensure that mandates state-licensed audiologists and hearing aid dispensers to educate their consumers about telecoil technology. It is important not just to advise consumers about the function of telecoils for telephone use but also to educate them about potential uses of their telecoils for venues that are looped.


Further, to seek the best outcomes for their patients, audiologists need to advise their patients about the

### **Also of Interest**

*Practice Guidelines for Remote Microphone Hearing Assistance Technology for Children and Youth from Birth to 21 Years* (2008).

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functionality and versatility of telecoils and hearing loops, as well as other forms of technology such as infrared systems and FM assistive technology. Best practices regarding advising patients of hearing loops, telecoils, and other forms of assistive technology include having the dispensing office equipped to demonstrate induction loop and other forms of assistive technology beyond hearing aids, as well as to have written materials on the benefits of telecoils, how and where to use them, and how and why to advocate for looping in their communities. In conclusion, take advantage of this simple, inexpensive technology to help patients be blissfully happy hearing aid and/or cochlear implant users. It's time to get in the loop! 

Patricia Kricos, PhD, is the president of the American Academy of Audiology and the cochair of the HLAA/Academy Joint Task Force on Looping. Currently, the joint task force is developing an awareness plan that will be detailed in a report to the Academy Board of Directors.

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