The Future of Hearing Loss Technology: What's New? What's Next?

We asked some of our HLAA Hear for Life partners about their newest accessible hearing technologies and what may be coming up next. Here's what they had to say:

The Power of Technology

By Achin Bhowmik, Ph.D., Chief Technology Officer and Executive Vice President of Engineering, Starkey

"The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it." — Mark Weiser, original Internet of Things visionary

This quote perfectly captures Starkey's driving force for innovation—to develop multifunctional hearing aids that are so intertwined with our lives that we don't notice them.

What's New: Our Genesis AI hearing aids utilize artificial intelligence (AI) so advanced that it can mimic the sound processing capabilities of the brain while also streaming audio, monitoring health, detecting falls, translating languages, answering questions and more. The combination of deep neural network (DNN) models with AI enables us to solve problems more quickly through machine learning techniques, which train the network to recognize patterns within vast amounts of data. Its accelerated development in multifunctional devices provides an opportunity to advance society in unprecedented ways.

What's Next: Our prediction for the future of our industry is the development of hearing technology that becomes such an integral part of our everyday routine that we can't imagine life without it. We've already seen how multifunctional devices can be woven into our everyday lives with the internet, computers and smartphones. Our goal is to accomplish this within hearing health care to advance how we communicate and utilize information through hearing devices. For example, creating in-ear technology that acts as a two-way audio communication device to access the world of information. The hearing aid could be listening to the user and the outside world, understanding voice commands and translating them into actions—all while enhancing sound.

For more information, visit **Starkey.com**

Starkey

Hear better. Live better.

Hearing Life Matters

By Natasha McDougald, Director Product Marketing, Cochlear Americas

"My son received his first cochlear implant at 10 months of age, and the pace of innovation and access to hearing has been astonishing. In my role at Cochlear Americas, I have the pleasure of seeing innovation from the seat of both a parent and a professional." –Natasha McDougald

What's New: Cochlear implant systems are designed to mimic the functions of the human ear using an external sound processor portion and a surgically placed implant. A life-changing innovation, they work by translating sound into digital signals to the hearing nerve. Over time, they have evolved dramatically, from a bulky body-worn processor to Cochlear's latest tiny sound processor, which is almost the same size as a high-powered hearing aid. Our Cochlear™ Nucleus® 8 Sound Processor is the first to support the newest connectivity standard, Bluetooth Auracast™ and Bluetooth® LE Audio—allowing recipients to connect with airports, conference centers and theaters in ways never imagined 20 years ago.

What's Next: Innovation to make it easier and more accessible for all patients to get the care they need to hear their best is emerging. One of the biggest challenges for our patients has been getting access to critical hearing care where and when they need it. Many of today's Cochlear hearing implant recipients can have their audiology appointment from the comfort of their couch or in a meeting room at work with their smartphone and Cochlear Remote Assist. This connected care ecosystem will only grow; allowing patients to benefit from home or work-based care, empowered self-device tuning and driving their best hearing in every listening situation.

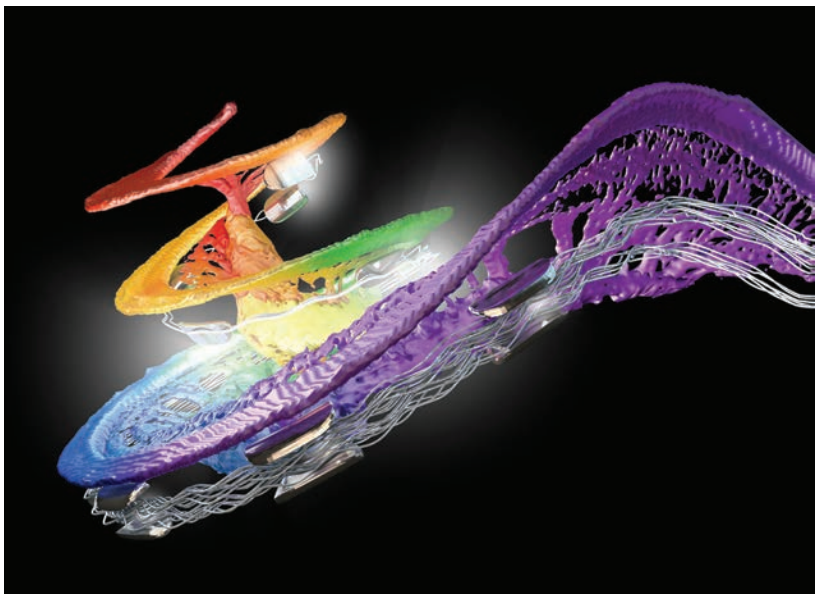
For more information, visit **Cochlear.com**

Making Hearing Solutions Even More Effective

MED EL

By Rebekah Jolly, Content Marketing Copywriter, MED-EL Corporation, USA

What's New: Just as one would not settle for a one-size-fits-all shoe, individuals should not settle for a one-size-fits-all cochlear implant. At MED-EL, we are committed to individualized cochlear implants so that each patient experiences optimal hearing. With our advanced surgical planning software, OTOPLAN, hearing implant professionals can visualize their patients' unique cochleae for preoperative MED-EL electrode selection and postoperative electrode status (e.g., angular insertion depth and tonotopic electrode contact location). MED-EL also offers the widest electrode array portfolio of gentle, flexible options to adapt to the cochlea's unique contours. When it comes to patient outcomes, speech understanding scores are only part of the picture. As architects in personalized hearing implants and electrode design, we strive for closest to natural hearing and improving patient outcomes.



What's Next: The future of cochlear implants holds groundbreaking advancements that may transform the auditory technology landscape. We envision totally implantable cochlear implants, making external components obsolete and creating an invisible, yet functional system. We foresee robotic cochlear implant surgery potentially revolutionizing procedures with precision and minimal invasion. Telemedicine gains prominence by extending rehabilitation and audiological services remotely, which will be especially beneficial in the post-COVID-19 climate and for rural populations. To further improve hearing experiences, audio processors continue to advance and seamlessly connect to devices. Finally, OTOPLAN, a surgical planning software, allows for personalized cochlear implant solutions that aim for closest to natural hearing. Despite these exciting prospects, experts advise against delaying cochlear implantation, because early intervention results in better outcomes. The push to develop cochlear implant technology is not over, and MED-EL's research and development teams strive to make hearing solutions even more effective.

For more information, visit **MedEl.com**

Audio Improvements and Cognitive Health

By Laurel Christensen, Ph.D., Chief Audiology Officer, GN Hearing

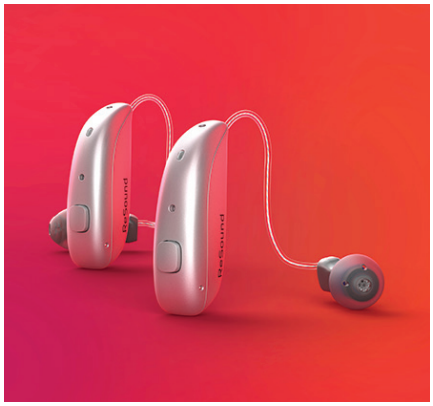
What's New: The industry is buzzing about the introduction of Bluetooth Low Energy Audio (BTLEA) and Auracast broadcast audio. Over time, BTLEA will replace the classic Bluetooth that many of us use now in our daily lives—it provides better sound quality, uses less battery power and has lower transmission latency, making it ideal for use in hearing aids that connect to devices, like smartphones and computers.

This will benefit people with hearing loss on videoconference calls. Using Auracast-ready hearing aids like ReSound Nexia, people will be able to connect to public audio transmitters to hear broadcast audio in schools, theaters, airports, museums or stadiums using a smartphone app or by scanning a QR code. It is projected that 2.5 million places will be using Auracast by 2030. In addition, through a collaboration between GN and Microsoft, ReSound Nexia is on track to become the first hearing aid compatible with new Windows PCs that support BTLEA.

What's Next: The **ACHIEVE Study** from Johns Hopkins inspired BrainWorks, a GN initiative promoting the role of hearing care as one preventative strategy against cognitive decline. We're exploring this fascinating relationship between hearing health and brain health and conducting clinical trials in conjunction with hearing care professionals, scientific experts and leaders in the health care, academic and advocacy spheres. We're also working with leading partners to develop new technologies that can be incorporated into hearing aids, like digital voice biomarkers, which may help detect subtle changes in speech that can indicate early stages of cognitive decline. While these efforts are still in their early stages, the potential they hold for the field of hearing and cognitive health is immense.

For more information, visit **ReSound.com** HL

Auracast at airport gate



ReSound Nexia