

InSound Medical – helping to remove the stigma associated with hearing loss by offering a better hearing aid

Not your grandmother's hearing aid – addressing the social stigma of hearing loss while providing real hearing benefits to the hearing impaired

Many young and elderly people alike are very self-conscious about wearing hearing aids. Most hearing aids rest on the outer ear opening. InSound Medical, which became part of Novo's venture portfolio in 2006, has developed Lyric®, the first hearing aid that is completely invisible and designed for extended wear. It can be worn for 24 hours, seven days a week, for up to 120 days at a time, allowing users to be active without having to remove the device. Other benefits to users result from the Lyric's deep placement in the ear canal (approximately 4mm from the tympanic

membrane). This placement provides a number of sound quality benefits including improved directionality and localisation, high frequency gain, minimised occlusion effect and reduced feedback.

Invisible to the eye – so how does it work?

The device is placed entirely inside the ear canal by hearing professionals without the need for surgery. It works with the ear's anatomy to produce better sound quality in noisy as well as quiet environments. It sits near the ear drum, requiring noises to be amplified less. It is also designed with a soft foam material to protect it from moisture and ear wax, which reduces the risk of infection. The device is water resistant, allowing for exercise and showering.

A complicated engineering process and challenges ahead

There were plenty of technical challenges along the way during the nine years of research and development required to develop Lyric®. The tiny device finally became available to customers in Northern California and three other markets in April, 2008. The Lyric® technology features biocompatible soft foam seals engineered to contour to the ear canal, proprietary mechanical and coating technology developed to protect the device from moisture and ear wax, a proprietary battery designed to last up to 120 days, and a programmable sound processing system designed to work millimetres from the ear drum to allow for both microphone and receiver placement in the ear canal.

Significant resources are being deployed on several fronts. Commercialisation of the first version is underway, while InSound's R&D staff is already focused on the development of a new version of Lyric® that will be designed to work for even a greater proportion of users. CEO David Thrower explains, "The Lyric® hearing device is truly a new class of hearing solution, just as extended-wear contact lenses and laser eye surgery impacted the world of vision, we are seeing significant user interest in a fresh approach to hearing. Our challenge will be to continue to be able to scale up as we launch in new markets and to push this technology to its ultimate potential."

Not for everyone

Approximately half of all people with hearing loss may be Lyric® candidates. Users need to be screened for suitability for Lyric® as approximately half of ears are too small or narrow to accommodate the device. In addition, like traditional hearing aids, Lyric® is primarily designed for people with mild to moderately severe hearing loss. A hearing professional must assess patients' hearing loss, ear size and shape, medical conditions, and lifestyle to determine if the device is right for them. A planned newer version of Lyric® is expected to work for additional patient segments.

A few facts about InSound Medical

- Based in Newark, California.
- The company was founded in 1998 by medical device entrepreneur Adnan Shennib in collaboration with ENT physicians, hearing specialists, and engineers from the University of California, San Francisco and Silicon Valley.
- Major investors include Johnson & Johnson, DeNovo Ventures, CMEA Ventures, Novo A/S and Psilos Group Managers, LLC.
- Lyric® is InSound Medical's first product launch.