

Case studies – transformational benefits of using connecting hearing aids

BY ELIZABETH HOUGH

While hearing aids can provide great benefits there remain some challenging situations for people with hearing loss. These include listening in background noise, groups, using the telephone and listening to TV / music. Hearing aids with integrated wireless functionality allow hearing aids to connect seamlessly with wireless equipment such as phones, music players and computers. A few systems work directly with hearing aids but more commonly a streamer interfaces between the hearing aids and devices. Connecting aids have the potential to help at work, home and in social situations; are portable, discreet and easy to operate. These case studies are designed to highlight some of the ways that connected hearing aids can transform people’s lives.

Case A

New office job

Mrs A with a moderate to severe mixed hearing loss was having difficulty fulfilling her role as a receptionist due to the following problems:

- The noise in the open plan office caused Mrs A to have difficulty hearing on the phone.
- The design of reception meant that she was seated behind a high counter which degraded the sound and limited the use of visual cues from her seated position.
- Working for an international company made it hard to pick up unfamiliar names accurately.

We recommended a streamer compatible with her hearing aids and a letter of support was given to assist in seeking funding.

About streamers

Streamers are devices made by hearing aid manufacturers which connect wirelessly to their hearing aids. The streamer can then be paired with Bluetooth devices essentially turning the hearing aid into a hands-free kit for mobile phones (with the streamer microphone picking up the user’s voice in most cases). It can also connect to other devices with

inbuilt Bluetooth such as computers, Bluetooth landline phones and music players (Figure 1). Devices without Bluetooth, such as TVs and music systems can be connected using an adapter or wired connector. Most streamers also have optional remote microphones, built-in telecoil receiver, compatibility with FM systems and may also act as a hearing aid remote control.

About access to work

Access to Work is a United Kingdom (UK) government scheme which can provide grants to help with practical

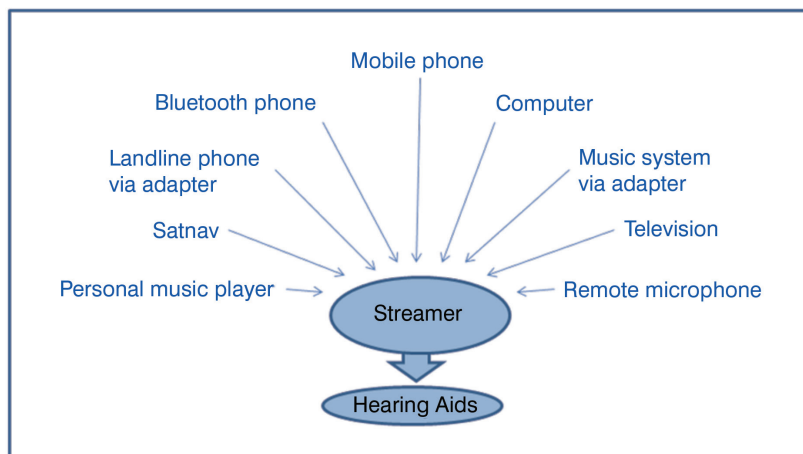


Figure 1: Connectivity of hearing aids to wireless equipment.

“You can’t believe how much difference this system has made to my life.”



support for people with disabilities that affect their ability to do a job or causes them to incur additional costs. The grants are designed to help people with disabilities start working, stay in work or start their own business. The application is made directly to the scheme which leads to a needs assessment in the work place. Depending on the circumstances the employer and the individual may be asked to contribute financially. It is important to get in touch within six weeks of starting a new job for maximum benefit. Further information can be found on their website: www.gov.uk/access-to-work

The equipment was provided through Access to Work and was paired with the hearing aids in the audiology department. The follow-up appointment showed that the streamer has been used effectively in a range of situations at home and work:

- Using her mobile phone via the streamer
- Streaming audio from the computer at work enabling her to listen to the phone using her hearing aids and talk through her headset while reducing background noise.

Learning points

- Involve Access to Work or equivalent sources of funding support early to ensure individuals get the help they need quickly and qualify for the most support
- Connecting to company telephone exchanges requires knowledge of the system (analogue, digital, VoIP, hybrid or a hosted) and can be more complicated than connecting a home phone. Access to Work can visit the site and find an appropriate solution. Companies supplying assistive listening device equipment to the hearing impaired often have gained great experience in these systems and are an alternative source of expertise
- Streamer remote microphones can be a cost effective solution for hearing one person but don't suit everyone. Bluetooth transmission delays can lead to hearing a doublesound or echo. For more complex listening environment such as meetings and lectures personal listeners or FM systems (standard or digital) would be a more effective solution
- Alternative solutions to the problem hearing at reception would be installing an induction loop system or by redesigning the reception desk to ensure clear lines of sight and sound transmission.

- The remote microphone mounted on the reception desk helped her to hear more clearly and she became more confident in picking up names.
- At home she enjoyed watching TV on her computer while streaming the sound to her hearing aids.

Case B

Single-sided deafness

Mr B had no hearing in the right ear following removal of a sided vestibular schwannoma and subsequently developed a mild high frequency hearing loss in the left ear. Since retirement his main difficulties were hearing in meetings and social situations. He could manage when it was fairly quiet or when the speaker was close but had difficulty in background noise. A personal listener or FM system was suggested.

The loss of binaural hearing leads to particular difficulty with localisation, listening in background noise and following / switching audio streams. Contralateral routing of signal (CROS) hearing aids can be very effective in reasonably quiet environments by overcoming the head shadow effect but they can be more limited in noise. A personal listener system can help isolate the wanted speech but Bluetooth microphones are not usually suitable as the transmission delay usually leads to hearing a double sound in the good ear.

About personal listeners and FM systems

Personal listeners are a way of placing a microphone exactly where it is needed to pick up the wanted speech signal. The microphone uses a radio frequency signal to communicate with a receiver which can either be attached to the bottom of the hearing aid(s) using a special shoe, a neckloop receiver or a compatible streamer. Features to look out for are directional microphones, multiple microphone system, digital transmission, additional connectivity and battery life.

“I would recommend trying in your environment before purchase. Personally, having got used to it, I would not be without it.”



Mr B borrowed a FM system on a two week trial.

- Conversation in a restaurant, in the supermarket or in the car became much easier
- Some difficulty hearing people immediately to the right when microphone placed at a distance for large meetings.

A digital multi-microphone system was recommended as this allowed the use of a second microphone to pick up sounds on the right as well as giving the advantage of less interference, better sound quality and improved connectivity.

Learning points

Personal listener systems can be beneficial for people with single-sided deafness even when one ear has good hearing.

- The ability to trial equipment before buying can give patients the confidence that the equipment is going to be of benefit
- Remote microphones are becoming increasingly discreet which reduces the barriers to using the equipment which can be especially important at work.

Conclusion

These case studies show how connectivity can be of benefit for people with very different types and degrees of hearing loss. Connectivity can be of benefit at many different stages of life: during working life, retirement and additionally there are many applications in an educational setting. Connecting hearing aids can also address a range of personal listening needs through easier access to clear sound and reduced background noise when listening on the telephone, to music and TV. Remote microphones add an additional dimension by easing communication in difficult listening situations such as listening at a distance, in poor acoustic environments, in groups or in the presence background noise. Hearing aid connectivity should be considered as part of a rehabilitation package as it really can transform people's lives.



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Declaration of Competing Interests

None declared