

SoundingBoard

AUGUST 2022

TELEAUDIOLOGY GUIDELINES

*So what and how
do I use them?*

*Observations from
a Musician with
Hearing Loss*

DIGITAL HEALTH TECHNOLOGIES

*Helping Aboriginal Young
People With Ear Disease*

**The role of sleep in
tinnitus identified
for the first time**

THE OFFICIAL MAGAZINE OF THE HEARING
AID AUDIOLOGY SOCIETY OF AUSTRALIA LTD
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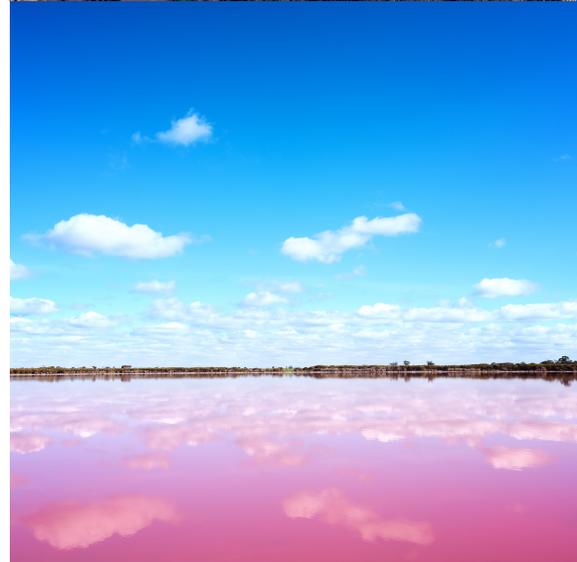
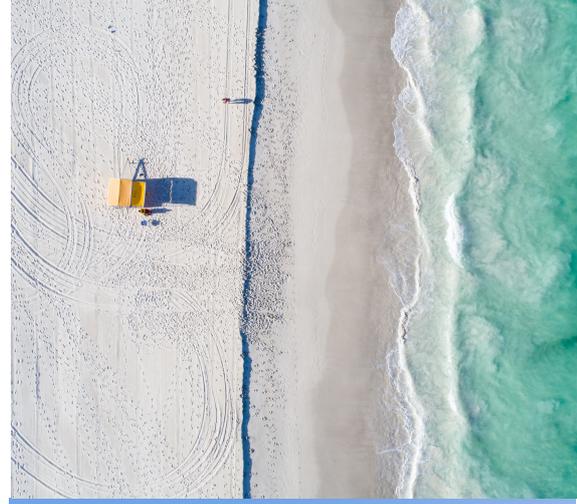
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Board Report

Thank you to everyone who attended our CPED day in Sydney, it was so good to catch up with friends some that we haven't seen for years.

We really enjoyed all of our speakers and felt we had a good variety of information.

Thank you to our most recent CPED day sponsors Oticon Medical, Starkey and Phonak for your willingness to always support HAASA. We really appreciate your kindness.

We encourage you all to offer suggestions for what you would like to learn about in Sounding Board and at CPED days and conferences, it saves us guessing as to what might be interesting to our members. Just email Jacqui anytime with your thoughts.

We now look forward to our conference in March next year in Darling Harbour Sydney, once again if there are any suggestions for speakers or topics please let us know soon.

Also a big thank you to Josephine and Tony Khairy who attended a workshop with TAFE NSW in June on behalf of HAASA for Aboriginal Diploma of Audiometry students.

Last but not least we warmly welcome Tim Manski and Matthew Virgen to the Board, we look forward to working with you.

Regards,

Gary, Glenn, Helen, Kerrie and Lyndon.

HAASA Directors



Directors Report – HAASA AGM 2022

Your directors have had a busy couple of years, not only juggling their own work, businesses and families through the pandemic and long lockdowns but also keeping on top of committees and meetings to ensure HAASA members have a voice.

Thank you to:-

- Helen for representing us with the Hearing Health Sector Alliance
- Glen and Lyndon for their work with the Business Review Reference Group
- Helen and Lyndon on the Practitioner Professional Body Group – overseeing our Memorandum of Understanding with the Hearing Services Program.
- Kerrie working with the Ethics Review Committee to have HAASA included.
- Glen, Helen, Lyndon and Daniel Fechner with Examination/Education Committee.
- Jacqui for her work on Sounding Board and organising this AGM and CPED day, on top of her other duties.

We will also begin meeting with TAFE and other relevant bodies this month to look at the current Audiometry Diploma and hopefully have some input into a revised course.

We are pleased to report that HAASA Membership numbers and finances have remained steady, giving us confidence to move forward.

With regard to our Associates we have found it necessary due to Covid to change the way our examinations occur. We are currently providing examinations on demand with online supervision for the written and a Teams meeting style case study examination with a panel of three examiners. This seems to work well for our Associates and saves them time and expense when compared with the pre-covid model.

We have had a quite a few enquiries from members about a potential HAASA conference in 2023. We have decided to hold a two day conference in March 2023 and we are in the planning stages at present.

Directors Report - HAASA AGM 2022

HAASA's current CPED cycle finishes 30th June 2023 so the conference will still fall in the current CPED cycle just at the end instead of at the start as in previous cycles. It is a big commitment financially to hold a conference, so I hope you understand why we have been slow and cautious with our decision. We hope you will all be able to join us in Sydney in March 2023.

We currently have a MOU with the Hearing Services Program, and an important part of keeping in line with other Professional Bodies is membership of the Ethics Review Committee. HAASA is in now in the process of joining this group. One of the benefits for members who may have an ethical dilemma is that they can seek expert advice from this group. Take a look at their website <https://auderc.org.au> .

We are pleased to say we have had some nominations for new directors. We would also welcome more new directors should anyone else like to help out. This will ensure the future of HAASA is in good hands. It is such a great opportunity to protect your future, be involved in change and make suggestions to improve HAASA itself. We have two directors that have been on and off (mostly on) filling this role – one for 12 years and one for over 20 years. Whilst this has been satisfying, and an honour, they would really like to pass the baton in the near future.

We would like to strongly encourage members to suggest some topics that we can pursue for future Sounding Board magazines, for CPED days and for the upcoming conference. It really helps if we know what you want to learn about or where your interests are.

We would also like to formally welcome our Executive Administration Officer, Jacqui Peters who has been with us 5 months now and is doing a great job for the Board and Members alike.

In conclusion, we would like to thank all members for their loyalty and patience during the past two years.

Regards,

Gary, Glen, Helen, Kerrie and Lyndon.

HAASA Directors

HEARING SERVICES PROGRAM NEWS

Schedule of Service Items and Fees 2022-23

The Hearing Services Program (program) released an updated Schedule of Service Items and Fees 2022-23 (Services Schedule), effective 1 July 2022. The updated Services Schedule outlines changes from the previous version and introduces a new program Standard 'Documenting Consent and Agreement' which details the program's consent and agreement requirements.

The updated Services Schedule also includes:

- a new section on private services, the type of services covered, and the documentation required
- details for submitting a non-scheduled device request or a request to fit a device without sufficient reserve gain
- allowing an Item 6 (Miscellaneous Claim) only when pre-approved by the program
- that Fittings must be based on hearing thresholds and client's goals that are no more than 12 months old
- refining the optional Client Review service requirements
- that Replacement devices must (rather than should) be the same device if still available on a Schedule of Approved Devices
- addition of significant deterioration in speech discrimination as a new criterion in Eligibility Criteria for Refitting (ECR2), and requirement for a letter from a medical practitioner for ECR 2&3 Revalidation Requests.

All providers and practitioners are advised to view the updated Services Schedule, which is available on the program website at www.hearingservices.gov.au, and become familiar with the new requirements. Service templates should be immediately updated to reflect the changes.

Qualified Practitioners

Providers must ensure that services to Hearing Services Program (program) clients are delivered by Qualified Practitioners (QPs). QPs must maintain the required PPB membership as outlined in the Approved Membership Categories for Practitioners on the program website. The program routinely checks QP membership and claims will be recovered if the QP was not in an approved PPB membership category at the date of service.

You can find out more about the program's QP requirements by searching 'hearing practitioners' on the program website - www.hearingservices.gov.au.

HEARING SERVICES PROGRAM NEWS

COVID-19 & Telehealth

Providers are reminded to stay up-to-date with government COVID-19 health and safety requirements. The Hearing Services Program supports many services being delivered by telehealth where appropriate. Providers should ensure a client understands if they are receiving a telehealth appointment and document the service on the client record. Please refer to the Schedule of Service Items and Fees 2022-23 for telehealth requirements and view the Telehealth in the Program factsheet for further information.

Compliance

Providers are reminded to ensure their policies and processes remain compliant with Hearing Services Program (program) requirements. To avoid common compliance issues, ensure:

- the client has a current voucher before providing a service. All services, including maintenance services, must be provided on or between the start and end dates of a voucher
- 3FAHL results are accurately updated in the portal when an assessment, fitting or client review service claim is submitted, or by updating the client's details in the Service History section in the portal
- fitting services are based on the client's current goals and recent hearing thresholds that are not more than 12 months old
- a Fitting Follow-up service is at least seven calendar days after the Fitting service
- any devices fitted to a client are available on an Approved Device Schedule on the fitting date
- Statutory Declarations for lost devices include information regarding which device was lost, and when, where and how the device was lost (if known)
- to review the client's clinical and audiometric history and review the client's hearing goals for each Reassessment and Client Review service and record these with each service (file notes indicating there has been no change is not sufficient evidence of a full review).

The program provides several supports to assist providers meet program requirements. These include:

- helpdesk via 1800 500 726 and hearing@health.gov.au
- provider factsheets through the program website
- webinars, if requested.



Digital health technologies to help Aboriginal young people with ear disease

Thanks to funding from the Western Australian Future Health Research and Innovation Fund, Ear Science Institute Australia, in collaboration with Curtin University, will address child and youth mental health in Western Australia.

The partnership will leverage existing digital health technologies to target Aboriginal young people with ear disease and hearing loss to support their mental health and wellbeing.

Lead investigator, Professor Christopher Lawrence, Dean of Indigenous Engagement, Faculty of Science and Engineering at Curtin University, and proud Nyungar (Whadjuk and Ballardong) person, developed the mobile app *#thismymob* in 2016 when he was based at the University of Technology Sydney. This social and emotional digital health platform allows local communities to discuss and share information relevant to their mob. It is a local resource for important health information and advice.

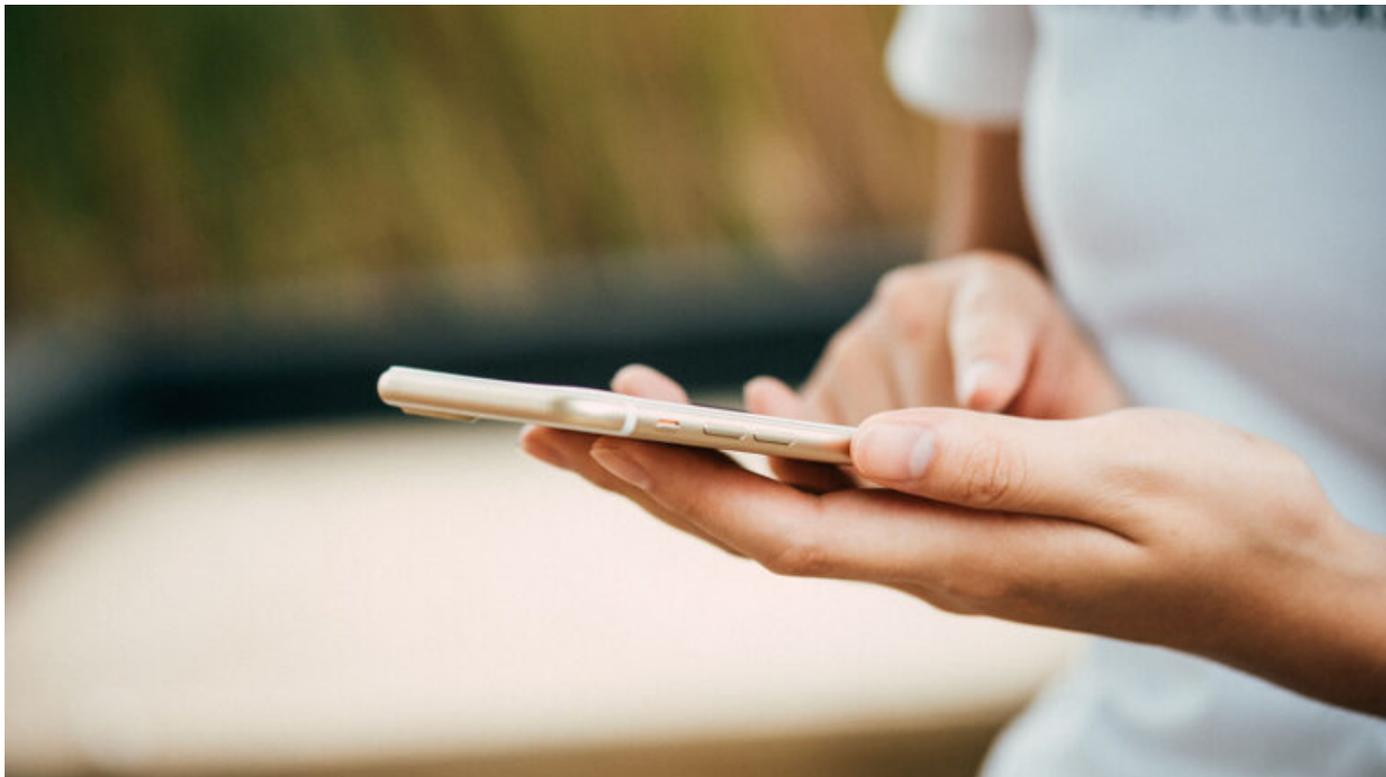
"This is where people can keep in touch with their extended family and extended mob. Professor Lawrence explained, "they can share information, connect with new people and notify others of events in their community".

Through co-design consultations with key community leaders, medical professionals, and youth representatives, the project team aims to build on the existing capabilities of *#thismymob* to reduce the mental health burden on Aboriginal children and young people with ear disease and hearing loss.

Each community will have its own needs. Initially, the project team will work with the South West Aboriginal Service in Bunbury, Narrogin and Katanning and the Puntukurnu Aboriginal Medical Service in the Pilbara.

"We are going to the local communities in the South West and in the Pilbara and speaking with people about their concerns with ear health and mental wellbeing. We want to know what features will help them and how we can connect people to share their journeys to enhance their health and social outcomes," said Professor Lawrence.

The platform is expected to enhance connectivity, consistency and continued access to hearing and mental health services to reduce isolation and distress among Aboriginal children and young people.



Members of the project team alongside Professor Lawrence will be Ms Tania Naake, Audiologist at Ear Science, Adjunct Professor Robert Eikelboom, Research Manager-Corporate at Ear Science, Professor Bronwyn Myers, Clinical Psychologist and Director of Curtin's enAble Institute and Associate Professor Aneesh Krishna from Curtin's School of Electrical Engineering, Computing and Mathematical Sciences.

The research is based on Professor Lawrence's 2016 ARC Indigenous Discovery Award and is being done with a team of researchers from UTS and University of Melbourne. Professor Lawrence is now leading this part of the research with Curtin colleagues.

The Future Health Research and Innovation Fund is an initiative of the WA State Government, providing a secure source of funding to drive health and medical research, innovation and commercialisation. These activities improve the health and prosperity of all Western Australians. It also provides an opportunity to diversify the economy, create jobs, improve the health system's sustainability, and position Western Australia as a leader in research and innovation.

For the full list for award recipients | <https://fhrifund.health.wa.gov.au/News-and-Events/2022/06/20/Investment-in-innovation-projects-to-improve-mental-health-in-children-and-young-people>

Other Curtin projects were announced as receiving funding through the Western Australian Future Health Research and Innovation Fund, Innovation Challenge 2021: Child and Youth Mental Health program including:

- **An artificial therapist to support youth mental health – Innovation lead: Professor Warren Mansell, from Curtin's School of Population Health.**

This project involves a smartphone app called Manage Your Life, which will deliver self-

help for teenagers through real-time conversations. The project aims to support young people and guide them through issues by sharing coping techniques, and encourage users to express, explore and resolve their problems.

- **My Vital Cycles app – Innovation lead: Mrs Felicity Roux, from the Curtin Medical School.**

Currently there are no apps for young people to track their menstrual cycle and their mental health in one place. My Vital Cycles app will link mental health and menstruation. Previous research by the team has indicated a demand for a mental and menstrual health app which is supported by teachers and school health teams. Following an established and effective protocol, this team will actively engage girls, schools, and specialists in mental and menstrual health to inform the development of the My Vital Cycles app.

- **Identify and Act – Innovation lead: Dr Amy Finlay-Jones, from the Telethon Kids Institute and Curtin’s School of Population Health in collaboration with The University of Western Australia.**

Identify and Act is a universal electronic screening and support system that aims to provide a critical starting point for the prevention and early intervention of emerging mental health difficulties in infants and young children. This novel solution aims to provide care not currently available to families, such as the capacity to remotely assess early childhood mental health advice, provide real-time feedback and guidance, and link families to more specialised care if needed.

This text has been adapted with permission from Curtin University. The media release can be found at news.curtin.edu.au/media-releases/digital-health-technologies-to-help-aboriginal-young-people-with-ear-disease/

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Hearing Business Alliance: Representing Small Business in the Hearing Health Sector Alliance

I represented member businesses of the Hearing Business Alliance at the Hearing Health Sector Alliance meetings in Canberra in early August. This prompted me to reflect on the work of the HHSA, the expansion in the number of member organisations and how much I value representing the views of small business providers within this space.

HBA was a member of the Committee for the Roadmap for Hearing Health, convened by Minister Ken Wyatt. In 2019, the Council of Australian Governments endorsed this 'Roadmap' to improve the lives of the millions of Australians living with hearing loss and ear health conditions. The 'Roadmap' contains more than 140 recommendations. Government can't work with 140 recommendations- it needs these prioritised and it's crucial the hearing health sector is part of the decision-making and is there to lobby for allocation of adequate resources and funding.

Mindful of this, in May 2019 representatives of 8 national organisations met in Canberra to discuss the formation of a Hearing Health Sector Alliance, to drive the Roadmap for Hearing Health, and to be a unified body Government could approach and converse with. It was decided that the HHSA would include membership across the four constituencies of Consumers, Professionals, Research, and Industry. HBA is proud to be the representative for small-medium independent businesses within the HHSA.

Our initial photo, taken with the Parliament House backdrop represents where we saw the Alliance's potential- dark storm

clouds behind, and a bright future ahead- hence all the squinting!

Today, the HHSA is comprised of 17 national organisations within the 4 constituencies. This expansion is reflected in the photo taken at the most recent HHSA meeting in Canberra in early August. Member organisations now include:

Industry: Hearing Business Alliance*, Hearing Care Industry Australia*, Hearing Aid Manufacturer and Distributor Association of Australia

Researchers: Ear Science Institute Australia*, National Acoustic Laboratory*, Macquarie University, University of Melbourne, University of Queensland

Consumers: Deafness Forum*, First Voice*, Soundfair

Professionals: Audiology Australia*, Australian College of Audiology*, Australasian Society of Otolaryngology Head and Neck Surgeons, Hearing Aid Audiology Society of Australia, Indigenous Allied Health Australia, Speech Pathology Australia

* Denotes Executive Members

The HHSA has been successful in prioritising certain recommendations of the Roadmap for Hearing Health, which has resulted in securing Government funding for those initiatives, and at the most recent meeting,



we worked together towards condensing the 140+ Roadmap recommendations into a 1-page table that Government could use as a blueprint of priorities.

The Department of Health has recognised the value of working with the HHSA, and in the 2020 Regulation Impact Study, 'Ensuring a Sustainable Hearing Services Program', pg 30, said "It is important to note that the Hearing Services Program has an extensive interaction with many of the key bodies in the hearing sector. The Hearing Health Sector Alliance (HHSA) is the main peak body for the sector. Regular engagement occurs between the Hearing Health Sector Alliance and the Department of Health. There has also been extensive engagement with the Hearing Health Sector Alliance on work to progress key priorities from the Hearing Health Roadmap which are being funded by Government as part of the renewal of hearing services."

It is beneficial that the Industry Constituency includes small business and big business providers, as well as manufacturers and that we work cooperatively. I'm very happy that HBA was

re-appointed as an Executive member for the next 12 months. The 8 members of the Executive attend additional meetings to facilitate the running of the HHSA.

Kate Carnell, the inaugural Small Business Ombudsman, has written "Small Business is the Engine Room of the Economy & the Heart of Our Community." I think this is particularly true, as small businesses, especially those in rural areas, often deliver additional clinical services not offered by their larger counterparts. These include important services like paediatric & neonatal diagnostics, vestibular assessments, electrophysiological assessments, tinnitus counselling, wax management, and services within local hospitals, local Aboriginal and Torres Strait Islander organisations and local Residential Aged Care Facilities. It is important small business has a voice and I look forward to continuing to provide that voice for HBA members.

Jane MacDonald

Chief Executive Officer



CPED Day 2022

Highlights

Thank you to everyone who attended our CPED Day in Sydney this month. We had a great lineup of speakers and one of our best turnouts yet.

Thaysa Lourenço at Oticon Medical kicked off the day with bone anchored hearing systems with National Acoustics Laboratories following, covering new technologies and trends in hearing rehabilitation. After Judy Grobstein and the team at Starkey joined us for their next generation of hearing, Robyn Hodgkin from the Hearing Services Branch answered some great questions and introduced the new HSP portal. Sandra South was up next from the Ethics Review Committee, covering ethics in allied health and their complaints management and resolution procedure.

After enjoying a delicious lunch and a long overdue catch up, Dr June Huang started us back up with a fantastic talk on middle ear pathologies. Our dear friend, Dr Phillip Chang followed with cochlear implant care and our critical role as audiometrists. Phonak's Louise Rimmer covered their innovations both past and present whilst Camilla Martin from Beyond Blue finished the day with her incredible story of recovery, resilience and hope.

A huge thank you to all of our speakers and to our sponsors for the day - Oticon Medical, Starkey and Phonak for your support. It was such a pleasure working with you all. We're already looking forward to the next CPED Day.



Reclaiming life with a Cochlear Implant: A recipient's perspective



In 2017, Peter was diagnosed with Meniere's disease and in next 12 months his hearing deteriorated significantly. Peter was a tourist coach driver with the responsibility of running full commentary and touring around the country. He reached a point where he could not hear people on his left side, struggled to go out in groups with people and struggled to hear his wife in a restaurant.

Hearing about cochlear implants

"I was recommended by a friend who has a cochlear implant, to find out about getting a hearing aid. I struggled with the hearing aid for awhile and it started to amplify the noise that was in my head along with the Meniere's and the tinnitus.

My audiologist recommended that I see a surgeon who then advised that I needed a cochlear implant. It was very, very scary to think about having an operation inside your head. You have these thoughts of drills, but my friend said, 'look, it's well worth doing.' I wanted to be able to hear my wife's voice again. I couldn't hear her nagging at me, so I needed to be able to hear her nagging again."

Learning to hear again

"I went to my audiologist every week and week by week it just got better and better. You are provided with exercises to try and train your brain to the cochlear implant.

I was withdrawn when I couldn't hear and couldn't join in conversations but now with family and friends, you feel part of it all again."

Experience of surgery and switch on

"I went into the hospital. The surgery only took about two to three hours. I woke up out of the anaesthetic and had to stay overnight. I came home slightly bandaged up but felt good overall.

I was impatient to get switched on and it was emotional to be able to hear again. It brought tears to my eyes because I couldn't hear anything before. It was like a little kid getting a lollipop.

I was very lucky because at switch on, I could recognise not only words, but I could recognise voice. It did sound very robotic."

"With family and friends, you feel part of it all again".

Scan the QR code to listen to Peter's story



Is your client experiencing the following with their hearing aids?

- Struggling to hear on the phone
- Having difficulty understanding unfamiliar speakers
- Withdrawing from social events
- Often needing others to repeat themselves

For more information on how to help your clients, contact:

- ✉ hearinghelp@cochlear.com
- ☎ 1800 872 212

The role of sleep in *tinnitus* identified for the first time



Phantom percepts, such as subjective tinnitus, are driven by fundamental changes in spontaneous brain activity. Sleep is a natural example of major shifts in spontaneous brain activity and perceptual state, suggesting an interaction between sleep and tinnitus that has so far been little considered. In a new collaborative review article from DPAG's auditory and sleep neuroscientists, tinnitus and sleep research is brought together for the first time, and, in conclusion, they propose a fundamental relationship between natural brain dynamics and the expression and pathogenesis of tinnitus.

Subjective tinnitus – or tinnitus for short - is a very common phenomenon defined by a constant phantom sound generated by the brain, usually in the form of a persistent ringing or hissing. Many people experience temporary tinnitus after, for example, a music concert or a bad case of the common cold. However, permanent tinnitus affects more than 250 million people worldwide, which severely impacts their quality of life causing many to experience depression or anxiety. There is currently no cure for tinnitus, so treatments presently focus on helping people to cope with the condition. Common triggers of tinnitus include intense exposure to noise and any form of hearing loss or damage to the ear. It is widely understood that multiple parts of the brain, including, but not limited to, the auditory system, become

hyperexcited and hyperactive in the event of ear damage, leading to the sensation of tinnitus. However, precisely what happens in the brain as tinnitus develops and progresses is currently unclear.

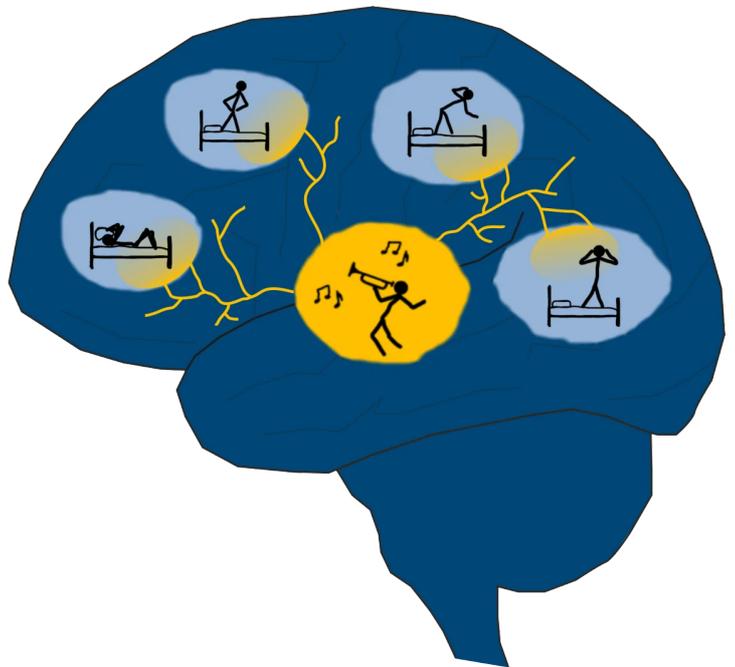
The brain also undergoes a widespread alteration of spontaneous activity when we sleep, and sleep disruption is a common symptom experienced by people with tinnitus. Yet, we know very little about this apparent link between tinnitus and sleep. We also do not know how brain activity caused by tinnitus is affected by the state of being awake or asleep, nor how the effects of sleep on brain plasticity may contribute to the consolidation of tinnitus in affected people. A new review led by Linus Milinski and Associate Professor Victoria Bajo Lorenzana addresses the relationship between tinnitus and sleep for the first time. In bringing together recent developments in the fields of tinnitus and sleep research, they have identified a clear relationship between phantom sounds, sleep and sensory disconnection. They have thus proposed a fundamental interaction between the phantom percepts caused by tinnitus-aberrant brain activity and natural brain state dynamics. These findings have important implications for tinnitus research, diagnostics and potential therapeutic interventions.

About 75% of our total sleep time is spent in non-rapid eye movement (NREM) sleep, during

which the brain produces a stereotypical slow oscillatory activity that spreads across the cortex. Research has identified regions impacted by tinnitus that are known to prominently express slow-wave activity during NREM sleep. This spatial overlap between brain regions suggests a dynamic interaction between the two seemingly separate activities. First author Linus Milinski said: "It could explain why interrupted sleep is such a common symptom in tinnitus patients. Tinnitus activity might be reduced during intense NREM sleep. But as sleep pressure decreases, and with it the drive of the brain to express slow-wave activity, aberrant brain activity could regain its potential to affect the brain on a wide scale as observed during wakefulness in tinnitus patients."

The researchers not only describe the mechanism underlying the interference of tinnitus with sleep; they also issue a framework for future research that could ultimately lead to the development of new clinical guidelines for treating tinnitus. Linus Milinski said: "While research towards understanding tinnitus has progressed in recent years, a breakthrough for treatment development is still not in sight. The role of natural brain state dynamics has - surprisingly - been ignored in this endeavour. We make the case that widening the scope in tinnitus research towards the brain's natural dynamics will provide fruitful ground for understanding those of pathological nature."

Associate Professor Bajo Lorenzana concluded: "Our proposed mechanism could explain comorbidities so prominently seen in tinnitus patients and lead to a new angle in clinical and basic research. Furthermore, we describe how the brain's natural dynamics during sleep may be harnessed for tinnitus treatment and how sleep is ultimately linked to how tinnitus develops over time. These findings will help researchers to identify a time window where delivering a treatment for tinnitus will be most



A graphical depiction of tinnitus as 'local wakefulness' in the sleeping brain. Tinnitus related activity in the brain during sleep may cause local wakefulness and hinder the brain from entering global, restorative sleep.

effective before it develops into a permanent condition. The findings may also provide information about how tinnitus affects sleep quality. This could lead to a new line of research looking at whether sleep could help to correct the abnormal brain activity that is linked to tinnitus."

This article was adapted from <https://www.dpag.ox.ac.uk/news/a-role-of-sleep-in-tinnitus-identified-for-the-first-time>

The full review, "[Tinnitus: at a crossroad between phantom perception and sleep](#)", is a collaboration between Linus Milinski, Dr Fernando Nodal, Professor Vladyslav Vyazovskiy, and Associate Professor Victoria Bajo Lorenzana.

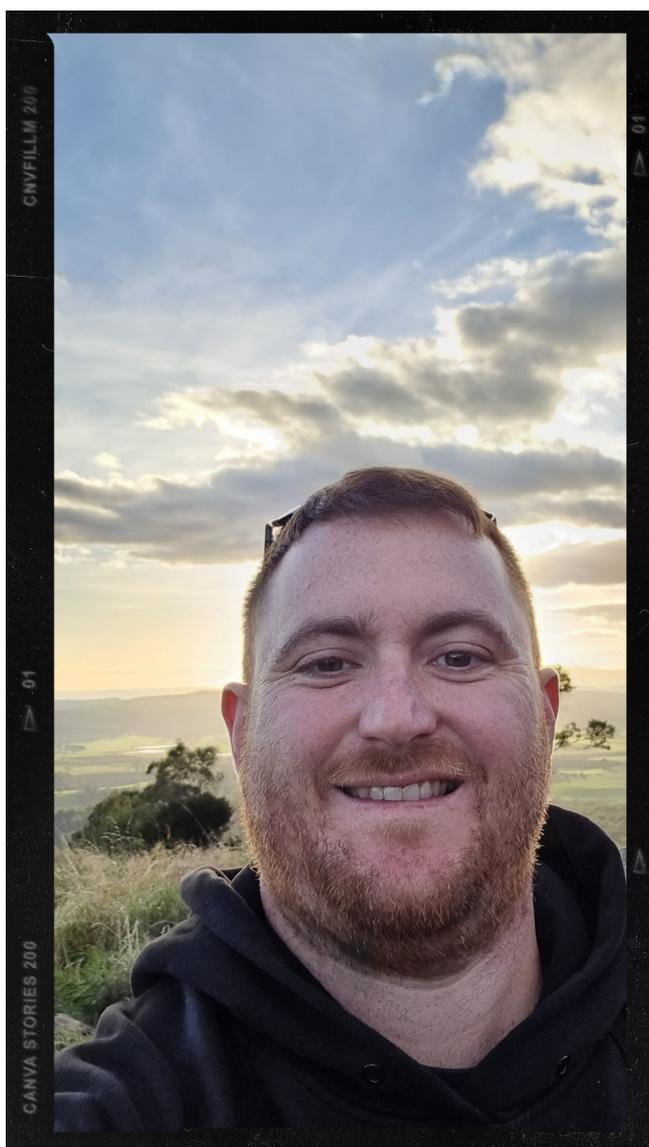
For more information, the researchers have authored a piece on [The Conversation](#).

new
Get to know your Director

Tim Manski

A little about me.

I began my audiometry journey almost 7 years ago as an administrative officer for a small independent clinic in Hervey Bay and then progressed through my diploma and onto my internship initially with another PPB.



I joined Bay Audio in December 2019 and at the recommendation of my clinical leadership team joined HAASA to complete my QP.

This change was the best decision I could've made. The support and the fact that HAASA is a voice solely for audiometrists allowed me to complete my QP in early 2021.

I currently am still working for Bay Audio in my home town of Maryborough which has its pleasures and challenges.

Outside of work I keep myself busy with my 3 kids (all girls, only male in the house is also challenging), cycling, basketball and finding new and intriguing craft brew establishments.

I love that HAASA is a voice solely for audiometrists and advocates for the respect and longevity of our profession.

I look forward to being able to contribute to the long history HAASA has in the hearing industry in this time of challenge and change.

Cheers

Tim

Teleaudiology Guidelines

"So what" and "how do I use them?"

By Frances Lockhart & Bec Bennett



Funded by the Australian Department of Health, Audiology Australia has developed guidelines for hearing health care practitioners and hearing services providers to support the safe and effective delivery of hearing services through teleaudiology. The guidelines provide practice operations and clinical guidance on the use of teleaudiology practices. Accompanying the guidelines are a series of consumer resources (written and video) and a clinician resource listing organisations and websites to assist clinicians with skill development and implementation planning:

<https://teleaudiologyguidelines.org.au/teleaudiology-guidelines/>

Guidelines

The process of developing these guidelines were a wonderful opportunity to reinvent professional practice guidelines to ensure that they were, in addition to being a theoretical resource and vision, a practical and useful tool. Our vision was to build an evolving and living document accessible to all professionals involved in the delivery of hearing health care and rehabilitation services, including business owners, service providers and referral partners. Our goal was to

ensure that teleaudiology, as a service delivery model, maintained a focus on high quality clinical care and equitable service to patients and clients whilst also remaining practically and financially feasible.

The Guidelines, which consist of 28 pages are divided into 3 practical sections:

Section 1: General considerations - This section talks about guiding principles and the overarching considerations as well as implementation factors that are that

are required to incorporate teleaudiology into a day to day part of patient and family centred audiological care.

Section 2: Practice operations guidance - This is the practice operations guidance which goes through the business and overarching practice management considerations when implementing this service delivery model into an audiological service. It also includes clear guiding principles that a practice or service should consider.

Section 3: Clinical Guidance - The part of the guidelines that will be of most interest to audiologists and audiometrists in practice however is Section 3.

This section assists hearing care professionals with ideas around “how” to provide teleaudiology services in a day to day clinical context, and with identifying what they need to know or investigate or learn or invest in to ensure they can provide a high-quality service to clients AND great outcomes. The 5 pages of this section break down the audiological journey into clinical activities such as hearing assessment, hearing aid fitting and adjustments, tinnitus, neonatal screening. Clicking on any of the headings in the index at the front of the guidelines takes you directly to the relevant section.

Additionally, clicking on any of the

“Resources site names” (example below) which are located in the icons through the guidelines that have a picture of a book in a blue box, you will be taken directly to that website to investigate further.



Resources

- ACAud Competency Standards
- AudA National Competency Standards
- Office of the Information Commissioner
- Department of Health Checklist for telehealth services
- Australian Digital Health Agency - cyber security

This means that you can jump to those sections that are most relevant for you and your situation in your clinic.

If you are not sure what any of the terms is referring to or are unsure about the terminology, there is also a glossary of terms at the end of the document.

These guidelines will be reviewed and updated regularly and feedback and improvements to these guidelines for future editions are always very much welcome. As you start your teleaudiology journey, we wish you all the best. Read on to discover what each of the resources sections entails.

Clinician Resource

This section includes a series of ideas for implementation based around aspects of audiological care, as well as links to further resources. It was decided after a great deal of audiology profession consultation to ensure the practical element was embedded within the guide along with an accompanying clinician resources guide that will be reviewed and updated regularly (AudA-Teleaudiology-Suggested-Resources-2022.pdf (teleaudiologyguidelines.org.au)).

These include resources and links for support staff and consumers to demystify Telehealth and assist them in knowing what questions to ask and what to look out for in a service to be confident if this “new” way of working is for them. For those that are already on the teleaudiology journey. This resource will hopefully give ideas and resources for expanding and refining your service. We took this approach so that audiology professionals can design and build a teleaudiology program that suit their individual context, budget and clinical needs. This structure and resources ensured that it wouldn't balloon out to a very large library or a “how to” guide for only very specific scenarios. This also means that many of the more crucial resources in the final version are now embedded links and incorporate ideas and suggestions as to how you might

utilise these. .

Client Resources

During stakeholder consultation it became apparent that audiology professionals required consumer resources to help them raise awareness about teleaudiology services, educate their clients on the basics of how teleaudiology works and how it can benefit them, and almost destigmatise or demystify the whole concept of teleaudiology. To achieve these goals, we developed a consumer resource document which is designed to be available and accessible to all levels of consumers and distributed by audiology professionals or hearing health care services.

We also developed a series of four educational animated videos depicting and describing how teleaudiology can occur, who might benefit from it and for which clinical needs. These videos were launched with the guidelines in mid-2022. Audiology Australia initially disseminated these videos through social and mainstream media channels, and sent the videos to all of their members so that clinics across Australia could use the videos to promote their own businesses and service options. For a copy of the videos please contact Audiology Australia.

How do I get started?

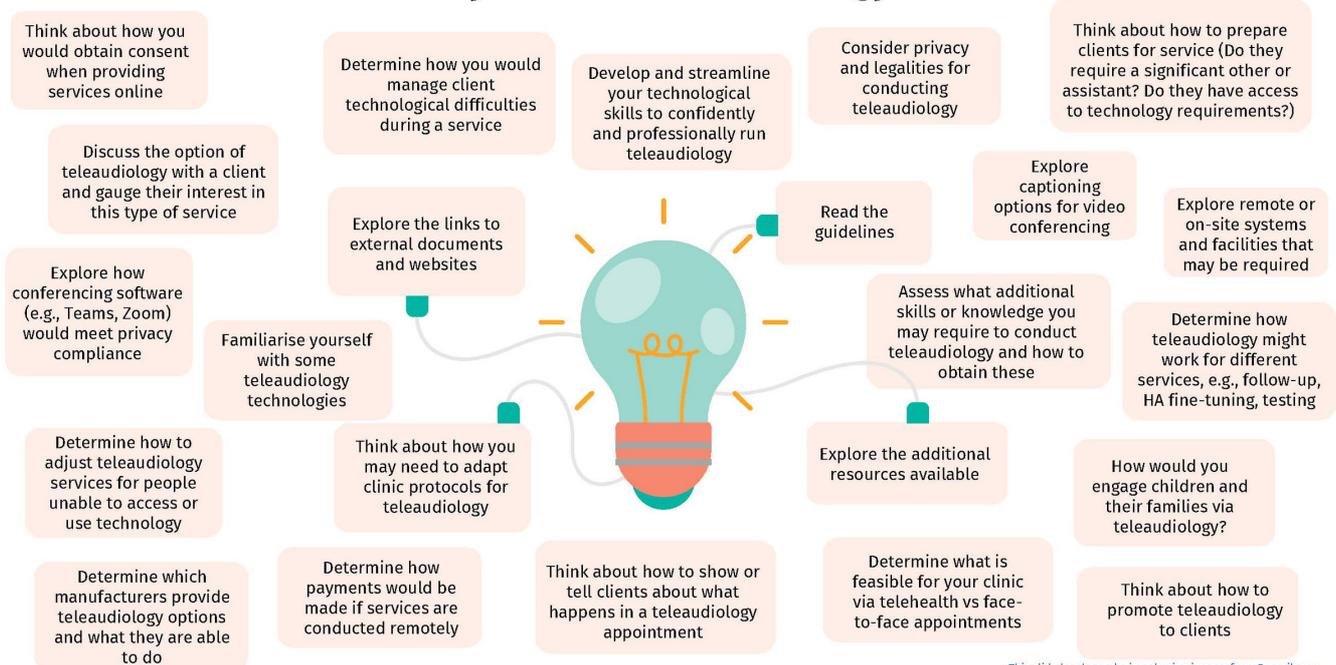
To incorporate Teleaudiology service delivery modes into an established clinical practice, some discovery and preparation is required. It is essential to investigate and plan for what your clients want and what you have to do to prepare in order to incorporate most elements of teleaudiology into your practice. The teleaudiology guidelines provide a high-level vision as well as ideas and suggestions of things you can incorporate and even give you some inspiration to do this. Your investigation will almost certainly lead to further questions you have

which can then direct you to the clinical resources in the guidelines. Examples of an investigation and questions to be asked could be encompassed as a start in image 1 (below). Once you have some of these ideas generated from the examples in the guidelines, some further resources and links can be found in the guidelines and clinical resource document to help you get started. Examples such as the Ida institute [Recipe for online success \(idainstitute.com\)](http://idainstitute.com) and the online assistance starter pack [Online appointment V3 \(idainstitute.com\)](http://idainstitute.com).



2022

How could you use the Teleaudiology Guidelines?



Thanks again to the teleaudiology working group, Audiology Australia staff and you, for all of the input and guidance as we crafted these guidelines and resources. We look forward to hearing your experiences when implementing these guidelines, both the wins and the challenges, so that we can continually improve on the documents and facilitate improved outcomes for people with ear and hearing disorders across the country.

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By
RICHARD EINHORN

observations from a musician with hearing loss

Extensive personal experience with professional recording and audio signal processing technology has enabled the author to continue his music career after experiencing sudden sensorineural hearing loss. The iPhone™ is one such device that has been found useful for many music and general listening situations that would otherwise be intractable. Additional techniques and technologies are described that the author has found useful for specific situations, including music composition, rehearsal, and enjoyment.

My Hearing Loss

For the past 40 years, I've been active as a



professional composer, classical record producer, and recording engineer. In June of 2010, I suddenly lost much of my hearing due to idiopathic Sudden Sensorineural Hearing Loss (SSNHL) and dropped just as suddenly into a world I barely knew existed, the world of hearing aids and hearing assistance.

Over the past 2 years, I've met many exceptional audiologists and otologists, corresponded with engineers working on hearing instrument design, and read numerous scientific articles on hearing, hearing loss, and assistive listening technologies. I've been very impressed by the level of knowledge, intelligence, and compassion in the field as well as the intense desire to help people with hearing loss manage a genuinely devastating disability.

I've also learned, through an enormous amount of trial and error, how to cope as best I can with the numerous day-to-day problems that hearing loss

creates. Specifically, I've learned how to use the technologies currently available to continue to compose and enjoy music.

On June 15, 2010, my right ear was rendered permanently useless by idiopathic Sudden Sensorineural Hearing Loss. I had little warning that anything so awful was about to happen. The day before I lost my right ear, I drove up from Manhattan to the Berkshires for a composing retreat, a week to work on some new music. During the drive to Massachusetts, I felt very dizzy and my ears were stuffed up—allergies, I assumed. When I got to the motel and set up my computer, keyboards, and listening monitors, it didn't sound right—nothing unusual, audio equipment can be finicky—but because I was tired, I called it a day, went out to dinner, and went to bed.

The next morning I woke with my ears buzzing furiously from tinnitus. I noticed immediately that I had gone deaf in one ear and I jumped out of bed. I was so dizzy I fell immediately to the floor. Somehow, I managed to get to an emergency room where I was given steroids. The doctor said that if I was lucky, my right ear would regain at least some hearing over the next 2 weeks.

I wasn't lucky; although the roaring tinnitus in both my ears finally receded to a (barely) tolerable level, no usable hearing ever came back.

Today, I have zero speech comprehension in my right ear, but that does not mean that ear is silent. I hear any sound above a soft voice as excruciatingly loud and highly distorted, a bizarre problem that has been alternately labeled severe "recruitment" or "hyperacusis." Speech sounds as if it's been processed by a ring modulator, that is, much like a robot in a bad 1960s science fiction film. Because all sound is so loud, so horribly distorted, and so disturbing, I wear a powerful

earplug in my right ear whenever I leave the house, to attenuate as much of the noise as possible.

After my sudden hearing loss, I became entirely dependent on my left ear for all my hearing. Unfortunately, I'd been having serious problems with that ear for a long time. My left ear has been diagnosed with a mixed loss, mostly conductive and due to otosclerosis. My audiogram shows my hearing down about 70 dB HL overall with some high frequency loss. While surgery was an option when I still had a working right ear, today, no American surgeon would dare operate on my remaining ear; the risk is far too great.

Nevertheless, while my hearing is far from perfect, I can hear all the notes on the piano in my left ear, my frequency resolution remains good, and my speech comprehension is excellent.

Needless to say, my hearing loss has profoundly affected every area of my life. Without hearing assistance, I cannot hear well enough to understand moderate-level voices in a quiet room. Because I hear in only one ear (and poorly), sound localization is nearly impossible and speech-in-noise is a very serious problem. I cannot, without customized equipment, follow conversations at even a quiet restaurant or small party. Even with hearing aids, I can't understand the sound from a television set whose speakers are more than 3 ft away.

Composing With Hearing Loss

Perhaps surprisingly, because of my use of high-quality audio devices to help me hear better, many important aspects of my music career have been little affected by my hearing problems. Although my hearing is damaged, my ability to analyze what I hear is unaffected. I can still make many careful judgments about music and sound quality.



Therefore, I've been able to continue the most important part of my professional career—composition—with no serious compromises.

Since professional music-writing software first became available in the mid-1980s, I've composed the vast majority of my music on computer, which I then copy out (on computer), print out, and give to musicians to play.

Before my hearing loss, I never used earphones while composing; I was hoping not to do so afterwards. I tried to listen to my high-quality studio monitors while wearing my hearing aid, but it simply didn't have the sound quality necessary for music listening with the clarity and detail I had been used to. If I took my hearing aid out, and I turned my studio monitors loud enough to hear what I was doing, not only did I run the risk of seriously disturbing my neighbors, but the volume was so loud that it overpowered the earplug in my right ear and triggered recruitment distortions.

Therefore, I would simply have to use an earphone for composing. So, for my left ear, I ordered a top of the line custom-fitted single in-ear monitor that featured four proprietary speakers and sums a stereo signal to mono. It sounded fantastic—my only regret was that I didn't order a stereo pair when I had two working ears!

Using this extraordinary technology, my composing workflow is roughly the same as it was before my hearing loss. The main problem I've encountered is that I no longer hear in stereo.

Therefore, I can no longer directly perceive all the antiphonal effects I like to put into my music, where a musical motif bounces from instrument to instrument and around the performing space. However, I have a pretty good musical imagination, so I simply write what I think will sound like an interesting spatial movement and am reasonably confident that people with normal binaural hearing will enjoy it.

Music Production and Engineering

When it comes to record production and engineering, I do not feel that my hearing is good enough today to meet my standards. I know what it takes to produce a symphony orchestra recording. I don't hear well enough to do that anymore.

Nevertheless, I still retain a lifetime of experience working in audio and have found that, with talented musical assistance, I can still be helpful during recording sessions and even in postproduction.

For example, after years of editing recordings, I am extremely fast. Therefore, while I'm listening over my earphone, I run the editing software myself while a trained assistant listens to what I'm doing over my studio monitors, looking out for bad-sounding splices and other problems that I have trouble hearing these days. It's a little awkward and a bit slower than I'm used to, but it works. Several pieces of music that I've helped edit and record since my hearing loss have been released on CD or used in a film.

Rehearsals

Music rehearsals can be a challenge because I have such difficulty understanding sound in ambient spaces. Again, my hearing aid simply cannot deliver the sound quality I require to hear critically. I need much better sounding audio technology.

As I've spoken about elsewhere (Einhorn, 2012), I've developed a simple but high-quality portable assistive listening system based on an iPhone™. Briefly, my portable sound rig consists of an iPhone™, a sound app such as SoundAmp R™ or Fire 2™, in-ear-style earphones, and a stereo cardioid microphone called a "Mikey™" (from Blue Microphones™ that snaps onto the power jack of the iPhone™).

Using this portable listening rig—which provides far better sound quality than any FM assistive listening system or "pocketalker" that I've tried, I have been able to hear extremely well even in noisy restaurants or parties. At music rehearsals, I attach the Mikey™ and earphones to the iPhone™, launch one of the sound apps, remove my hearing aid, and insert the in-ear earphone into my left ear. I sit as close as possible to the musicians and position the iPhone™/mic system in such a fashion as to get the best balance I can.

Not only can I hear well enough at rehearsals with this setup, but both of the apps I've mentioned also have decent recording capability. Often (but only with permission), I've recorded music rehearsals while I'm listening so that I can study the performance later and suggest interpretations and improvements for the next rehearsal.

Listening to Music Recordings

While I listen to audiobooks all the time over my hearing aid—via an iPhone™ transmitting

wirelessly to a Bluetooth-enabled streamer compatible with my hearing aid—I rarely listen to music recordings this way. Again, the issue is sound quality.

For music, using Bluetooth coupling over my hearing aid sounds to me about as good as a small, inexpensive clock radio. There is very little bass, the high-midrange is harsh (probably deliberately harsh, an attempt to aid speech comprehension), and there is a grainy, hollow quality to the sound that is very unpleasant.

I can easily hear the difference between the quality of sound reproduction my aid provides via the Bluetooth streamer versus my in-ear earphones connected to a home stereo amp or even an iPhone™. Therefore, whenever I want to listen to music, I take my hearing aid out and use a good earphone.

I've found that any pair of 'phones costing about US\$75 will provide decent-enough sound while those in the US\$150 to US\$300 range can deliver extraordinary performance. I prefer the in-ear design (which seals the ear canal) with custom tips.

Live Performances

Hearing at concerts and plays is often difficult but, after a lot of experimentation, I have managed to find ways to hear well enough to enjoy them.

I only attend nonamplified musical events these days. While my background is in classical, I used to love rock and amplified jazz concerts. Today, I'm too afraid of losing any more of my hearing to risk going to any more. Even with classical concerts, I've cut back considerably on my concert attendance, which is a tremendous loss—there were periods in my life when I attended 5 concerts a week!—but my ear tires very easily since my sudden hearing loss.

I rarely bother to use the venue's infrared systems. The house mixes for assistive listening are often poorly balanced; the earphones are uncomfortable; and neck loops with my hearing aid don't sound good enough to me. Instead, I typically sit as close as possible to the performers and simply use my iPhone rig. This usually provides me with the best quality live sound.

As with other music-related situations, I find my hearing aid—while top of the line—unsuitable for serious music listening, except when the venue has installed a hearing loop for hearing assistance and the sound mix is good. In the United States, I have only been able to hear a t-coil/hearing loop twice at a live music event. I simply flipped the switch on my hearing aid to t-coil and heard a great sound mix piped directly into my ear. They were both extraordinary experiences. If the mix is good, inductive loops are the single best way I've found to enjoy music live since my hearing loss.

In addition to speech and telecoil programs, I have a so-called "music" program set up on my hearing aid. Apparently, this program provides a flatter frequency response and has less compression.

However, when I use this music program at live concerts, I still hear no bass to speak of and often very audible clipping of the signal, even at moderate levels. I've had my audiologist adjust the aid several times—it's also been sent back to the factory—but the problems persist. By contrast, when I use my iPhone™ rig, I hear plenty of bass and no clipping.

Conclusion

My sudden hearing loss has been a devastating experience, of a magnitude which even now, 2 years later, I can barely focus on without becoming overwhelmed by the consequences to my career and, more importantly, to my personal relationships with my family and friends.

Hearing loss has been called an invisible disability, and not only because its effects seem to be less obvious than other disabilities, such as blindness. Often, those suffering from serious hearing losses try—futilely—to hide their problems. As a result, they fail to understand conversations, fail to enjoy concerts or plays, and feel completely cutoff from family and friends.

In my experience, hiding a hearing loss is not only pointless but also counterproductive. Much of the time, I am using visible audio devices to help me hear—microphones and ear phones. This equipment works so well that often neither I nor other people pay attention to my hearing loss. My hearing problems can, to a great extent, become invisible.

True, a person coping with a bilateral sensorineural hearing loss hears very differently than I do with my unilateral hearing and mixed conductive loss. Yet my experience working with topnotch audio equipment leads me to believe that many people with mild to moderately severe hearing losses would benefit greatly by the proper use of high-quality assistive listening devices.





Unfortunately, I've met very few people in the hearing loss community who understand how to properly use this equipment or its full potential. In addition, true music-quality assistive listening equipment is rarely made available within the hearing loss community; it is certainly not available in the "music program" in the hearing aids I own. After being disappointed by the sound quality of both my aid and the devices I found in assistive catalogs, I simply adapted equipment from professional and high-end consumer audio companies.

Music-level sound quality makes an enormous difference in my ability to hear not only music but also speech, even at noisy restaurants and parties. I suspect it is possible that even those dealing with serious sensorineural hearing impairments may benefit from the level of sound quality that helps me hear well enough every day to compose and participate fully in my musical life.

The level of sophistication in contemporary professional audio is simply extraordinary. Inexpensive software packages, including a very sophisticated but affordable spectral sound editor, enable anyone with a personal computer to eliminate an extraordinary amount of background noise from a sound file, and do so in a way that leaves no audible artifacts. Recently, software with algorithms that can effectively remove all traces of room reverberation have been offered for sale. Even restaurant noise, a source of major complaints (and not only from people with hearing loss), can be effectively controlled via

sophisticated electronic sound systems with the power to transform any space from a quiet sitting room into a reverberant cathedral—or any acoustic environment in between—at the touch of a button. (Lucchesi, 2012).

The potential of this exceptional audio technology has, in my experience with assistive listening devices of all kinds, barely been tapped. So many people could benefit if these amazing advances were brought to bear on the problems those of us with serious hearing losses face every day.

Footnotes

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