

SoundingBoard

APRIL 2024

Review: Coping with the social challenges and emotional distress associated with hearing loss

HEARING LOSS IS TWICE AS COMMON IN AUSTRALIA'S LOWEST INCOME GROUPS, OUR RESEARCH SHOWS

USING AI TO WRITE CLINICAL NOTES AND REPORTS

COMPENSIBLE TINNITUS AND INDUSTRIAL DEAFNESS

Experimental Gene Therapy Enables Hearing in Five Children Born Deaf

The Experiences of a Young Practitioner

THE OFFICIAL MAGAZINE OF THE HEARING AID
AUDIOLOGY SOCIETY OF AUSTRALIA LTD
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GENESIS^{AI}

**The sound barrier
has been broken.**



Inside this issue

04

BOARD REPORT

05

STARKEY UNVEILS ALL-NEW, COMPLETELY REDESIGNED, HEARING TECHNOLOGY REDEFINING THE FUTURE OF HEARING HEALTH

10

HEARING SERVICES PROGRAM NEWS

12

REVIEW: COPING WITH THE SOCIAL CHALLENGES AND EMOTIONAL DISTRESS ASSOCIATED WITH HEARING LOSS

14

THE EXPERIENCES OF A YOUNG PRACTITIONER

18

HEARING LOSS IS TWICE AS COMMON IN AUSTRALIA'S LOWEST INCOME GROUPS, OUR RESEARCH SHOWS

24

COMPENSIBLE TINNITUS AND INDUSTRIAL DEAFNESS

27

HAASA CPED DAY SYDNEY 2024 RECAP

28

HBA REPORT

31

USING AI TO WRITE CLINICAL NOTES AND REPORTS

34

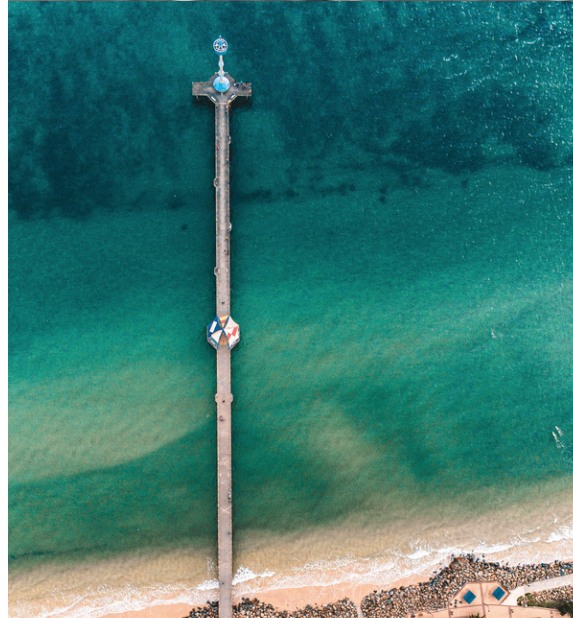
EXPERIMENTAL GENE THERAPY ENABLES HEARING IN FIVE CHILDREN BORN DEAF

37

SUDOKU

38

MAGAZINE INFORMATION



Board Report

Dear Members,

Welcome to the April edition of Sounding Board – our first issue of 2024! We hope you've all had a fantastic first quarter of the year.

Thank you to everyone who attended our CPED day in Sydney last month! We had a record number of you for a great day of education, networking, and reconnecting with old friends within the hearing healthcare community. Thank you to our wonderful speakers and sponsors – Starkey, Phonak, Cochlear, Unitron Australia & Sonic Equipment – for making these days possible. We are currently planning our next continuing education day for Melbourne in November so if there are any speakers or topics you'd like on the program, please reach out to us at haasa@haasa.org.au.

March also saw the announcement of our amalgamation with ACAud, a significant move for us. Whilst we had initially struggled with this decision, wanting to protect the history and community of HAASA that many have worked hard to create and preserve, we realised that our main priority has always been the HAASA membership. The best way to then advocate for our members and the profession we so proudly undertake is to unite with ACAud and create a stronger body.

By doing so, we're able to utilise resources more efficiently to provide greater support to our members, create better educational pathways for both current clinicians and our next generation of audiometrists, and grow our workforce to increase accessibility to quality healthcare across the country. We move forward in this exciting new chapter, still honouring the history and community of HAASA but looking forward to the opportunities the union will bring for our members.

We'll share further details as the amalgamation progresses, and we appreciate your support in making this transition as smooth as possible.

Your Directors,

*Kerrie, Helen, Glen, Lyndon,
Tim, Matthew & Chris*



Starkey Unveils All-New, Completely Redesigned, Hearing Technology Redefining the Future of Hearing Health

Innovations in hearing technology are revolutionising the way we perceive and address auditory challenges and driving a fundamental change in mindsets towards hearing impairment.

The latest technological advancements are not only enhancing the quality of life for millions with hearing loss but also challenging outdated stigmas and perceptions surrounding hearing loss. By embracing technological breakthroughs, we can start to reshape attitudes and pave the way for a more equitable and accessible future where hearing impairment is not a limitation but a facet of diversity to be celebrated.

Starkey's Genesis AI, a new hearing technology is one such innovation that is redefining the future of hearing health and the role of the hearing aid. The hearing technology has been completely redesigned from the inside out, with the Genesis AI featuring an **all-new** processor, all-new sound, all-new design, all-new fitting software and an all-new patient experience.



By tapping into advanced technology, sensors, machine learning and artificial intelligence, Starkey has reinvented the hearing aid to provide optimal hearing for any listening situation. The technology now enables wearers to hear soft sounds, distinguish words and speech more naturally, while significantly reducing their listening effort.

Achin Bhowmik, Chief Technology Officer and Executive Vice President of Engineering at Starkey, explained, "By spending countless hours with hearing professionals and patients, researching and analysing every element of the hearing journey, we relentlessly pursued how to develop and bring the most advanced hearing technology to hearing healthcare professionals and patients in a simple and intuitive way. Our all-new, powerful processor was designed to work like the human brain, leveraging the neuroscience of the ear-brain connection and information processing to create better sound quality, pushing energy-efficient artificial intelligence to its limits, analysing and automatically optimising sound over 80 million times an hour. Genesis AI's improved performance levels are unlike anything else in the industry, while doubling the battery life."



The latest research shows that ageing is a negative experience for 2 out of 3 Australians aged over 50 and even more so for those suffering hearing loss. Although it doesn't have to be ... for most (74 per cent) the number one priority is adopting strategies, including technology to enable them to live independently for longer.

Feeling empowered to live independently as we age is the most important factor to those over 50. They plan to age slowly with 58% saying they will take advantage

of technology to help them do so. 61% of respondents are excited and optimistic about the role AI and other new technology can play in supporting them living a fulfilling life as they age.

Dr Judy Grobstein, Regional Education and Training Director Starkey APAC, adds, "At a time when we are advancing with incredible innovations in hearing technology, it is interesting to see that 3 out of 4 Australians over 50 years of age are unaware of the link between hearing loss and cognitive decline. Encouragingly though of those aware of the link, 25 per cent are more likely to wear hearing aids. Today the fitting experience of hearing aids is even more efficient, easier and seamless than before for both wearers and audiologists due to the new Genesis AI fitting software. The latest hearing technology truly is a game changer for hearing health and ultimately improved health, wellness and a better quality of life."

The Genesis AI hearing technology system is also the most sophisticated multi-purpose device, no longer a single-purpose device like many other hearing aids on the market. Genesis AI incorporates health and wellness features, including being the first to integrate sensors; the first to track and encourage not only social engagement, but also physical activity by counting steps and exercise. Starkey was also the first hearing aid manufacturer — and still the only — to make hearing aids that can detect falls and send alerts. This is made possible via the My Starkey App interface.

Starkey President and CEO Brandon Sawalich said, "Starkey is leading the hearing industry in redefining the future of hearing health, not just with incremental improvements, but with breakthrough benefits. The result is Genesis AI, a new, unprecedented experience for both patient and hearing aid wearers and hearing healthcare professionals. Our significant breakthroughs in hearing health innovation offer infinite benefits to patients and hearing healthcare professionals alike but most importantly empower all those experiencing hearing loss."

¹ The Genesis AI Hearing Health Research was commissioned by Starkey Australia and conducted online by Antenna Strategic Insights between 13 and 28 November 2023. Sample comprised 1,030 Australians over the age of 50 years.



Hear better. Live better.

Genesis AI Notable Features Include:

GENESIS^{AI}

All-New Processor

The Starkey Neuro Processor, integral to the Genesis AI, was designed to work like the human brain, leveraging the neuroscience of the ear-brain connection and information processing to create better sound quality. In addition, it is the industry's smallest and most powerful processor that operates up to 4X faster than its predecessors with 6X more transistors. to create better sound quality.

All-New Sound

Starkey Neuro Sound Technology: Automatically adjusts the hearing aid over 80 million times per hour (more than 22,000 times per second) to provide optimal hearing for any listening situation. It also includes a new compression system that is motivated by the human auditory system to significantly reduce listening effort.

All-New Design

Genesis AI features a discreet, ergonomic and stylish product design that's durable and comfortable for all-day wear, and which helps reduce the stigma of what is hearing care technology today.

Battery Life/Charging Capabilities: The industry's longest-lasting rechargeable RIC hearing aid on the market (RIC RT) (receiver-in-the-canal, reverberation time), with up to 51 hours in a single charge. Additionally, the industry's smallest rechargeable RIC (receiver-in-the-canal) (mRIC R – mini-receiver-in-the-canal) – with sensors – is the *second* longest lasting rechargeable battery in the industry, with up to 42 hours from a single charge.

Pro8 HydraShield™ features eight protective layers specifically targeting ingress and corrosion – ensuring Genesis AI can survive sweat, dirt, dust, drops, and dunks in water up to 1 metre.

Edge Mode+: An enhancement to Starkey's popular, proprietary feature that uses DNN (deep neural network) to provide an added boost to help in any listening situation. Edge Mode+ gives users the ability to prioritise clearer speech or listening comfort.

All-New Patient-Centered Experience

The new My Starkey App gives patients full control over their hearing aids, plus the ability to get helpful tips, track their health, and access intelligent features designed to simplify their lives.

All-New Fitting Software

Starkey's all-new fitting software, Pro Fit, was architected from the ground up based on input from hearing professionals around the globe. Designed for efficiency, ease of use and a seamless fitting experience – from first fit to fine tuning.

For more information about Genesis AI hearing aids call 1800 number (1800 024 985) or visit <https://www.starkey.com.au>



The Latest by Sennheiser

ConC 400

“Enjoy clearer conversations & streaming”



Highlights:

- 3 Sound Modes
- Scene detection for automatic speech enhancement
- Hear surroundings with ambient awareness feature
- Active noise cancellation
- Bluetooth for streaming & handsfree calls
- 5 hours battery life

Benefits:



Enhances conversations with scene detection speech enhancement, active noise cancellation and 3 sound modes



Personalised sound with the Conversation Clear App



Connects to a wide range of audio inputs with Bluetooth while offering exception streaming sound quality

TVS 200

“Experience TV like never before”



Highlights:

- 5 Hearing Profiles
- Speech intelligibility mode
- Hear surroundings with ambient awareness feature
- Bluetooth for streaming & handsfree calls
- 15 hours of battery life

Benefits:



Lightweight wireless earbuds designed to provide high-definition sound in comfort



Easy TV connection & extended streaming battery life with the TV Clear Transmitter 2



Dedicated TV Clear App

Set 860

“Enjoy personalised TV sound”



Highlights:

- 3 Hearing Profiles
- Speech intelligibility mode
- L/R balance control
- Easy to set-up & user controls

Benefits:



Easy to use TV solution device for those who need support with TV listening without disturbing others



Noise reduction features to improve listening performance for the TV



Sennheiser Legacy Range

RS 195



“Rediscover the pleasure of listening”



Highlights:

- 7 Hearing Profiles
- L/R balance control
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- Music mode

Benefits:

-  High-quality headphones which produce rich, detailed sound to please the most demanding music lovers
-  Designed for hours of listening in comfort while reducing ambient distractions

RS 5200



“Enjoy TV sound, your way”



Highlights:

- 3 Hearing Profiles
- Ambient awareness
- L/R balance control
- Speech intelligibility mode (check)

Benefits:

-  Range of ear pads to ensure comfort
-  Easy to use TV solution

Flex 5000




“Intensify your listening”



Highlights:

- 3 Hearing Profiles
- Speech intelligibility mode
- L/R balance control
- Pair to your wired headphones

Benefits:

-  Tailor your TV listening needs using the headphones you already love to wear
-  Improve TV listening with speech intelligibility function
-  Optional accessory to allow functionality with any telecoil enabled hearing aid

HEARING SERVICES PROGRAM NEWS

Australian Government Hearing Services Program 2024 consultations

Throughout 2024, the Department of Health and Aged Care will be consulting with the hearing sector and clients on a range of suggested improvements to the Australian Government Hearing Services Program. The first targeted consultation opened in February, with a second planned for later in 2024.

The suggested improvements are based on stakeholder feedback and recommendations from previous reviews, reports and parliamentary inquiries, and aim to:

- Prioritise and improve client outcomes
- Simplify program requirements
- Reduce provider and government administrative burden
- Improve program transparency and accountability, and
- Improve program data to support evidence-based decision-making

These consultations are just the first steps of a comprehensive journey. All changes supported by the consultations will require government approval in 2025. This will be followed by legislative and IT system changes and a transition period to plan and assist businesses with implementing changes to administrative business processes.

Further detail on the consultation phases and topics for feedback are outlined below. Please note that there will be provider and customer notification closer to the opening of the consultation survey.

February 2024

This first opportunity to provide feedback was through completion of an online survey on the programs website which closed 1 April 2024. We sought your feedback on possible changes to the:

1. Schedule of Service Items and Fees
2. Program standards:
 - Minimum Hearing Level Threshold, and
 - Eligibility Criteria for Refitting, and
3. Arrangements for maintenance and repairs.

June 2024

The department will host online webinars and use existing current stakeholder forums and meetings to provide opportunities for discussing and addressing stakeholder questions.

Second half of 2024

Further information about this second consultation phase will be provided mid-2024, where the department will seek input on possible changes to:

- available technologies and device categories
- device minimum specifications; and
- device supply arrangements.

The National Acoustic Laboratories (NAL) is currently undertaking a review of contemporary hearing technologies and devices available to program clients. The second round of consultation will be informed by the findings of the NAL review. Hearing device minimum specifications have not been reviewed for 10 years and with advances in technology, it is important to consider what may improve client outcomes.

Correspondence

If you have any enquiries, please email: hearing@health.gov.au.



Review: Coping with the social challenges and emotional distress associated with hearing loss

By Bec Bennett, PhD
National Acoustic Laboratories, Sydney, Australia

Hearing loss extends beyond auditory impairment, affecting communication, relationships, and emotional well-being. Employing Leventhal's Self-Regulation Model, we explored how individuals manage these impacts.

Our study involved 21 adults with hearing loss and 9 significant others, using semi-structured interviews and focus groups.

We found emotional distress, including overwhelm and exclusion, alongside coping strategies like avoidance and seeking support.

Participants described a notable absence of coping strategies to manage these emotional burdens, indicating potential gaps in current audiological practices. While some coping mechanisms, such as seeking support and employing humour, were identified, there was a distinct lack of purposeful strategies to mitigate distress.

Among the coping strategies identified, avoidance emerged as both helpful and unhelpful, influencing individuals' social participation and emotional well-being. The reluctance to engage in certain situations due to emotional difficulties underscored the need for tailored interventions to equip individuals with effective coping mechanisms.

Moreover, the study highlighted the significant role of significant others in the coping process. While some described positive contributions from their support networks, others expressed challenges in communication and understanding, emphasizing the importance of family-centered care in audiological rehabilitation.

In light of these findings, practical considerations for hearing care professionals include recognizing hearing loss beyond its physiological aspects and adopting a chronic disease model of care. Integrating coping strategies into interventions, providing tailored emotional support, and fostering family-centered approaches are essential steps in addressing the holistic needs of individuals with hearing loss. By embracing a comprehensive approach that acknowledges the social and emotional dimensions of hearing loss, hearing care professionals can enhance client outcomes and promote overall life satisfaction.

Bennett, R. J., Saulsman, L., Eikelboom, R. H., & Olaithe, M. (2022). Coping with the social challenges and emotional distress associated with hearing loss: a qualitative investigation using Leventhal's self-regulation theory. *International Journal of Audiology*, 61(5), 353-364.

You can read the full article [here](#).

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THE EXPERIENCES OF A YOUNG PRACTITIONER

by Michael Khairy,
Hearing Rehabilitation
Specialist



Young and Resolute.

A career in the hearing health sector was not initially at the forefront of my mind, but I must say it's one that I now deeply cherish. Being a young practitioner is both daunting and rewarding. Even before embarking on the course, one understands the profound impact they'll have on vulnerable individuals, influencing something intrinsic to their nature, culture, and life experience—their hearing.

The decision to pursue this path, much like others, was influenced by my own family. Our independent family clinic provided my first glimpse into how the hearing sector could transform lives. For most young professionals like myself, the aspiration was seeded by being involved, at some level, in a clinic setting, experiencing first-hand the power of technology, sound, and communication.

My return to study was both challenging and rewarding. OTEN pushed me to work diligently and strive for professional competence. I connected with lecturers, created media relating to hearing, grew comfortable completing paperwork, and worked alongside a certified hearing professional for extended hours. It was within this clinical environment that my knowledge was tested, and skills sharpened. Success demanded comfort in the deep, not always knowing, but always willing to learn. For example, during my training, I found ipsilateral and contralateral stapedius responses challenging to wrap my head around. I watched my mentor test these responses and interpret the results seamlessly. I wanted to strive for excellence and not merely brush aside areas of weakness, so I spent time over the next week pouring over textbooks and watching YouTube videos about the entire process. Wanting to put what I had learned into practice, I then performed stapedius response testing and interpreted the results under the guidance of my mentor, and found I had become proficient at the entire process. My effort had yielded fruit.

After completing the diploma and successfully navigating HAASA's (Hearing Aid Audiology Society of Australia) rigorous final competency examinations, I was granted the title of Qualified Practitioner, finally able to practice under my QP number. It was then that the

fragments of my future began to coalesce.

The clinic environment proved increasingly challenging post-qualification. While I had earned my title, utilizing it effectively was another matter entirely. Understanding the intricacies of the hearing services program item numbers proved more challenging than anticipated. However, with perseverance and consistency, I grew to be proficient with the HSP system.

As a young professional, you quickly realise the trust you are instilled with. Patients trust us. They trust us to keep them aware, to keep them laughing in those conversations with friends, and to help them hear in those intimate family moments.

I have vivid memories of my first solo patient encounter. As I picked up their file and walked to call them out, nerves flooded my body and my mind filled with doubts: "What if they doubt my abilities?", "What if I make a mistake?", "Will they think I'm too young and inexperienced?". At that moment, I reminded myself to take a deep breath and trust my training. Being personable, empathetic, and understanding the patient's concerns, were paramount. As I listened and recorded their audiological and medical history, the nerves began to fade away. I was doing what I loved. When their audiogram demonstrated a hearing loss, the nerves picked up again. Now, I had to prescribe a hearing aid. The hearing aid would need to be selected carefully to fit within their category of hearing loss and I would need to consider the gain, the venting, the style and so much more. I took my time with the process and double-checked my order. I was thorough and that paid off - the patient was ecstatic with the make and fit of their hearing aid.

Not long after my first patient, I encountered one of the most challenging cases of my career. A young girl arrived with her parents, neither of whom had hearing difficulties. They had assumed their daughter's slow learning pace was due to a minor illness, but the reality was much more concerning. After conducting an audiological examination, I delivered the unexpected news: their daughter had a bilateral low to high tone, mild to moderately severe sensorineural hearing loss, possibly congenital.

The hardest part wasn't deciphering the results but rather breaking the news to the hopeful parents. Tears streamed down the mother's face as the father embraced his daughter and wife. It was a heart-wrenching moment. I gently explained the potential need for binaural amplification and reassured them that advancements in hearing device technology could greatly improve their daughter's quality of life.

Sincerity was crucial in guiding them through this daunting revelation, helping them gradually accept this new reality. I also ensured their general practitioner was informed and a referral to the ENT specialist was encouraged. It was a difficult experience, but one that underscored the importance of empathy and effective communication in providing care.

On a lighter note, I was always good with my hands, so taking impressions felt like second nature to me! There's something incredibly satisfying about getting that perfect, flawless



impression with hardly any faults, especially getting it past that tricky second bend and sliding it out of the patient's ear like a dream! There is not one patient I've had that was not impressed by their own impression!

Another skill I learned quite quickly was cerumen management or extraction. To me, becoming adept at wax removal was a simple way I could provide my patients with immediate relief of their hearing loss or sensation of aural fullness. I'm pleased and humbled to say that GPs and ENTs have begun referring their patients to me for cerumen management.

Overall, seeing a patient beam with joy for the first time after I test and fit them with a new device is a feeling I can't forget. Motivated by this, I am committed to continuously expanding my knowledge and honing my skills. HAASA has been instrumental in facilitating this growth through CPED days and conferences, where I have the opportunity to again transition momentarily into the role of a student. These events allow me to ask questions, engage with experts, and gain a deeper understanding of the current and future landscape of the hearing world.

The hearing sector offers vast opportunities for young professionals with daily advancements in hearing aid technology and ongoing research empowering us to make increasingly informed decisions with each passing moment. Now more than ever, patients require our assistance as hearing impairment is projected to double to 7.8 million by 2060 with Australia's ageing population (1). As young professionals, we infuse a youthful freshness into our work that brightens patient experience - especially when they are coming to terms with having a hearing loss and when they are learning new hearing aid technology. While young clinicians may not carry clinical experience, they readily grasp new technology and apply it effectively to their patient's care.

Throughout my career as a hearing healthcare professional, I've had the privilege of connecting with hundreds, if not thousands, of genuine people. They not only seek competent hearing care but also someone they can connect with and depend on. The profound joy of seeing a patient walk into the clinic unsettled and leave beaming is what makes the hearing sector more than just rewarding – it's a calling that I am honoured to pursue.

1. Australian Government Department of Health and Aged Care (2023) About ear health, Australian Government Department of Health and Aged Care. Available at: <https://www.health.gov.au/topics/ear-health/about> (Accessed: 14 March 2024)





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Conversations shine for everyone with Lumity



HEARING LOSS IS TWICE AS COMMON IN AUSTRALIA'S LOWEST INCOME GROUPS, OUR RESEARCH SHOWS

From The Conversation

By Mohammad Nure Alam

PhD Candidate in Economics, Macquarie University

Kompal Sinha

Associate Professor, Department of Economics, Macquarie University

Piers Dawes

Professor, School of Health and Rehabilitation Sciences, The University of Queensland

Around one in six Australians has some form of hearing loss, ranging from mild to complete hearing loss. That figure is expected to grow to one in four by 2050, due in a large part to the country's ageing population.

Hearing loss affects communication and social engagement and limits educational and employment opportunities. Effective treatment for hearing loss is available in the form of communication training (for example, lipreading and auditory training), hearing aids and other devices.

But the uptake of treatment is low. In Australia, publicly subsidised hearing care is available predominantly only to children, young people and retirement-age people on a pension. Adults of working age are mostly not eligible for hearing health care under the government's Hearing Services Program.

Our recent study published in the journal Ear and Hearing showed, for the first time, that working-age Australians from lower socioeconomic backgrounds are at much greater risk of hearing loss than those from higher socioeconomic backgrounds.

We believe the lack of socially subsidised hearing care for adults of working age results in poor detection and care for hearing loss among people from disadvantaged backgrounds. This in turn exacerbates social inequalities.

Population data shows hearing inequality

We analysed a large data set called the Household, Income and Labour Dynamics in Australia (HILDA) survey that collects information on various aspects of people's lives, including health and hearing loss.

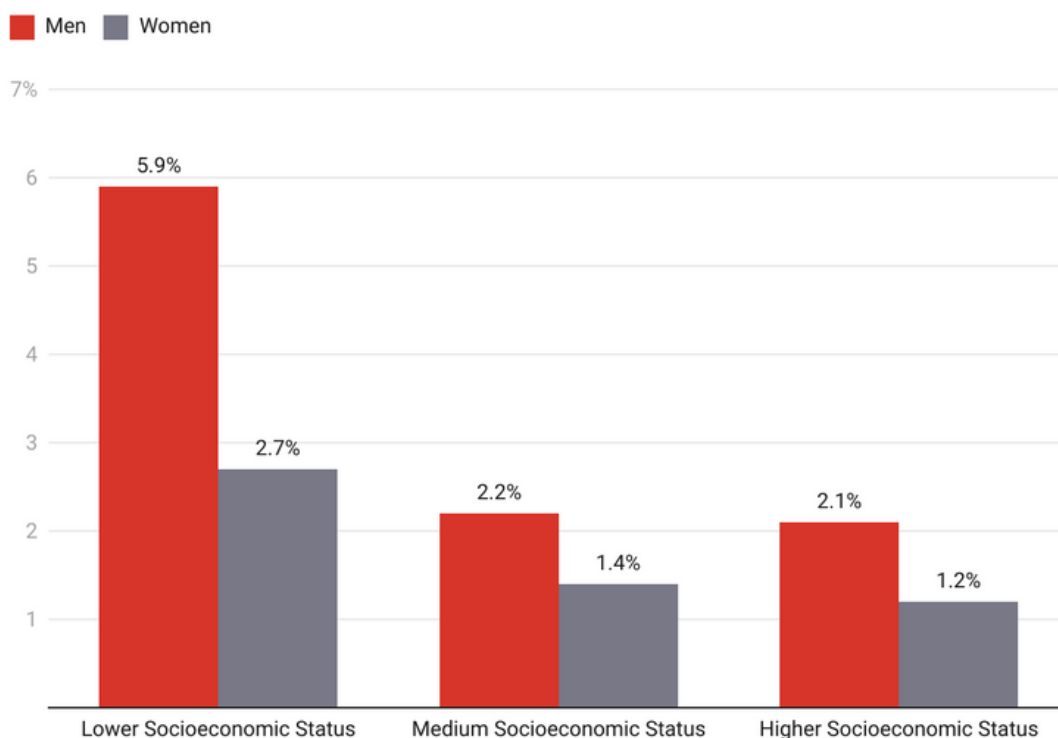
Using a HILDA sub-sample of 10,719 working-age Australians, we evaluated whether self-reported hearing loss was more common among people from lower socioeconomic backgrounds than for those from higher socioeconomic backgrounds between 2008 and 2018.

Relying on self-reported hearing data instead of information from hearing tests is one limitation of our paper. However, self-reported hearing tends to underestimate actual rates of hearing impairment, so the hearing loss rates we reported are likely an underestimate.

We also wanted to find out whether people from lower socioeconomic backgrounds were more likely to develop hearing loss in the long run.

We found people in the lowest income

Prevalence of hearing loss by socioeconomic status



Based on author computations of HILDA survey
Chart: The Conversation • Created with Datawrapper

groups were more than twice as likely to have hearing loss than those in the highest income groups. Further, hearing loss was 1.5 times as common among people living in the most deprived neighbourhoods than in the most affluent areas.

For people reporting no hearing loss at the beginning of the study, after 11 years of follow up, those from a more deprived socioeconomic background were much more likely to develop hearing loss. For example, a lack of post secondary education was associated with a more than 1.5 times increased risk of developing hearing loss compared to those who achieved a bachelor's degree or above.

Overall, men were more likely to have hearing loss than women. As seen in the figure below, this gap is largest for people of low socioeconomic status.

Why are disadvantaged groups more likely to experience hearing loss?

There are several possible reasons hearing loss is more common among people from low socioeconomic backgrounds. Noise exposure is one of the biggest risks for hearing loss and people from low socioeconomic backgrounds may be more likely to be exposed to damaging levels of noise in jobs in mining, construction, manufacturing, and agriculture.

Lifestyle factors which may be more prevalent in lower socioeconomic communities such as smoking, unhealthy diet, and a lack of regular exercise are also related to the risk of hearing loss.

Finally, people with lower incomes may face challenges in accessing timely hearing care,



Hearing loss might be more common in low income groups because they're exposed to more noise at work.

alongside competing health needs, which could lead to missed identification of treatable ear disease.

Why does this disparity in hearing loss matter?

We like to think of Australia as an egalitarian society – the land of the fair go. But nearly half of people in Australia with hearing loss are of working age and mostly ineligible for publicly funded hearing services.

Hearing aids with a private hearing care provider cost from around A\$1,000 up to more than \$4,000 for higher-end devices. Most people need two hearing aids.

Lack of access to affordable hearing care for working-age adults on low incomes comes with an economic as well as a social cost.

Previous economic analysis estimated hearing loss was responsible for financial costs of around \$20 billion in 2019–20 in Australia. The largest component of these costs was productivity losses (unemployment, under-employment and Jobseeker social security payment costs) among working-age adults.

Providing affordable hearing care for all Australians

Lack of affordable hearing care for working-age adults from lower socioeconomic backgrounds may significantly exacerbate the impact of hearing loss among deprived communities and worsen social inequalities.

Recently, the federal government has been considering extending publicly subsidised hearing services to lower income working age Australians. We believe reforming the

current government Hearing Services Program and expanding eligibility to this group could not only promote a more inclusive, fairer and healthier society but may also yield overall cost savings by reducing lost productivity.

All Australians should have access to affordable hearing care to have sufficient functional hearing to achieve their potential in life. That's the land of the fair go.

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COMPENSIBLE TINNITUS AND INDUSTRIAL DEAFNESS

By Megan Ellmaker Au.D., CCC-A, MACAud & Dr. Paul Fagan MD, [Honoris Causa], FRCS, FRACS

Tinnitus is a common and at times distressing accompaniment of various forms of hearing loss. It is particularly associated with Noise Induced Hearing Loss (NIHL, Industrial Deafness) called in earlier times, Boilermaker's Deafness. The tinnitus that accompanies high tone sensory-neural loss is generally high-pitched and "steady state" (Fernandes, 2010)¹; that is to say, the character of the tinnitus is not pulsatile, which latter has entirely different causes (Grierson et al)².

Tinnitus can vary in severity, ranging from barely discernible to extremely severe when thoughts of suicide, which are not unknown, plague the patients. The latter describe their tinnitus as severely intrusive, significantly impacting their mood, sleep, and the activities of daily life (Hoekstra, Wesdorp, & Van Zanten, 2014)³.

The tinnitus that is described above is truly severe, but this letter directs concern towards tinnitus of lesser degree, which still represents a major threat to the quality of life. In part, this presentation was initiated by a report in which it was inferred that patients who were disturbed by tinnitus had a lack of "normal fortitude" (Fernandes, 2010)¹.

Tinnitus is one of a multitude of triggers that can precipitate distress in these patients. Regardless of which issue arose first, both tinnitus and depression have been shown to combine to form a relentless cycle that can be exacerbated by each other (Langguth et al, 2011)⁴. Michikawa et al. (2013)⁵, showed that a cohort of males with tinnitus who previously had no mental health illness, had higher rates of depression when assessed 2 1/2 years later as compared to those who did not have tinnitus. In the cohort of women also followed in this study, there was no change in depression rates.

One of the problems in assessing tinnitus is the lack of an objective measurement (American Tinnitus Association)⁶. Therefore, the clinician is greatly dependent on the description given by the patient. The authors of this article from two separate disciplines (Audiology and Otology) have an extensive experience of assessing tinnitus. It is our opinion that the great majority of patients are genuine, but they may present in an emotional fashion.

These authors believe that most tinnitus is, to a certain extent, disturbing and/or intrusive. Many patients who took part in an informal

survey described below, on being told about the comment "not of 'normal fortitude'" replied that it was clear that the author of this idea had never suffered from tinnitus.

As more is known about chronic pain than tinnitus, it can be valuable to compare the two. Chronic pain, like tinnitus, lacks a readily available objective test that can be used to quantify the severity of the condition. In each, there is a heavy reliance on self-reporting and targeted questionnaires. Despite this difficulty, there are many accepted clinical tools for evaluating pain that give useful estimates of severity and can help determine treatment (Younger et al., 2009)⁷.

There is a belief by some that patients with either pain or tinnitus exaggerate the severity of their symptoms, in order to receive compensation. Many authors use the term 'compensation neurosis', but this view is not always accepted (Osterweis et al, 1987)⁸. In fact, Mendelson (1992) 9 reported that pain scores are essentially identical in patients awaiting compensation with those who were not. "In an oft-quoted aphorism, Foster Kennedy defined 'compensation neurosis' as "a state of mind, born out of fear, kept alive by avarice, stimulated by lawyers, and cured by a verdict."⁹

A working group commissioned by the British Association of Otolaryngologists, Head and Neck Surgeons (1999) describe severe tinnitus by the following. "Almost always heard, rarely if ever masked. (It) Leads to a disturbed sleep pattern and can interfere with ability to carry out normal daily activities. Quiet activities are adversely affected. There should be documentary evidence of the complaint being brought to the general (or some other) medical practitioner (prior to any medico-legal claim). Hearing loss is likely to be present, but its presence is not essential. Given the epidemiological data, grading in this group should be uncommon."¹⁰

The authors would agree that such tinnitus is indeed truly severe. However, we would disagree that a pre-requisite for compensation should be a prior attempt to seek treatment as there is a very widely held belief that no universally effective treatment is available. Further, these authors would not agree that grading tinnitus¹⁰ in the severe group "should be uncommon".

Some patients, a minority in our experience, will have no tinnitus at all or will state that the tinnitus is rarely present, nonintrusive, and able to be totally ignored, Tinnitus of this degree is, widely accepted to be non-compensable and with this we agree.

The current authors believe that tinnitus considered as even mildly intrusive can have a significant adverse effect on quality of life. This feeling has been reinforced by a recent informal survey carried out by one of the authors. Ninety-five consecutive patients (as of end December 2021) being assessed for Noise Induced Hearing Loss and tinnitus were asked the following question: "Would you rather be free of your tinnitus?". One patient gave a neutral response to the above question, but every other patient responded with a vehemence that varied from "if only I could" to "what sort of dumb question is that?"

All the patients assessed in this informal survey were, in our opinion, of "normal fortitude." The authors of this article are strongly of the view that the use of the term "lack of 'normal fortitude'" is in the vast majority of cases inappropriate, and in many instances, demeaning. A reasonable conclusion, these authors believe, is that tinnitus of any degree associated with Noise Induced Hearing Loss is intrusive and disruptive and worthy of compensation. Fernandes (2010)⁴ states "If liability for severe tinnitus is accepted, it would seem that the presence of severe tinnitus should be accorded five per cent and its absence as zero per cent." The current authors would

would agree that 5% should be reserved for cases of truly severe tinnitus associated with suicidal thoughts, However, we believe that significant compensation should be paid for all patients whose tinnitus is less severe than that.

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HAASA CPED DAY Sydney 2024 RECAP

Thank you to those who attended the HAASA CPED Day in Sydney last month. We welcomed a record number of you for the final HAASA Continuing Education day before our exciting union with ACAud in the coming months.

The day began with Starkey's Steven Le and 'Genesis AI - All New Everything', with Associate Professor Zoran Becvarovski following with the complications of otitis media. After a short break, Cochlear's April Young and Sara McLachlan took us through the journey to better hearing with cochlear implants before Macquarie University's Associate Professor Jorg Buchholz illustrated the realistic functional assessment of hearing ability and device benefit. We welcomed back NAL's Padraig Kitterick as he took us ahead to the future of audiology and what tomorrow's hearing healthcare will look like.

Lunch allowed us to refuel and reconnect with friends before Sonova's Dr Sam Sambhi took us from research to real world with Phonak Lumity. Sonic Equipment's chief audiologist, the delightful Jan Pollard followed with an interactive session on speech in quiet and speech in noise assessment. Joshua Margach from the Department of Health and Aged Care delivered an update from the Hearing Services program before we drew the day to a close with a Q&A session with the HAASA Board as well as ACAud CEO Jane Hedger and Chair of ACAud Marguerite Rushworth.

Thank you to our brilliant speakers as well as our amazing sponsors and exhibitors – Starkey, Cochlear, Phonak, Unitron, Sonic Equipment and the Ethics Review Committee. These days would not be possible without you. Thank you to everyone who joined us on the day! We hope to see you at our first Continuing Education event as ACAud inc. HAASA.





HEARING BUSINESS ALLIANCE REPORT

The annual Hearing Business Alliance 2024 Seminar, held on the Gold Coast in February, provided the ideal opportunity for attendees to liaise and collaborate with audiology colleagues, friends, presenters, exhibitors, and suppliers. Feedback from delegates and sponsors was overwhelmingly positive. Attendees were pleased to hear the Hon. Mark Butler MP, Minister for Health and Aged Care, acknowledge the significant contribution HBA members make to the hearing health of Australians and to commend the indispensable role of small-medium audiology businesses in raising awareness, providing tailored solutions, and promoting overall hearing health.

The seminar saw the unveiling of the *HearingUp* partnership with HBA in Australia—a groundbreaking initiative spearheaded by the renowned audiologist, Dr. Cliff Olson, AuD, to promote best practice audiologic care provided by small-medium independent

HBA hearing businesses. Additionally, Dr Cliff’s contribution to the seminar was significant, as keynote speaker, with presentations around creating value in your business, communication styles, and methods to best service clients’ hearing needs.

The seminar was well-timed, with HSP launching Phase 1 of the Consultation regarding proposed changes to the Program, just two days earlier. Delegates had a constructive session with the HSP team. HSP Providers were encouraged to read the information sent to them, and to complete the survey. The aims of the proposed changes are to prioritise and improve client outcomes, simplify program requirements, reduce provider and government administrative burden, improve program transparency and accountability, and improve program data to support evidence-based decision-making.

The Dept. noted *“While a fee structure has not yet been developed, these changes are designed to be cost neutral to providers, while making the program much simpler to administer and deliver. Service providers will not be worse off.”* HBA member business owners expressed some apprehension that the absence of financial details complicates assessment of the changes' potential impact on financial viability and the ability to maintain clinical service delivery. It is crucial that financial sustainability of Providers is assured as many also provide additional clinical services, such as paediatric diagnostic audiology, tinnitus counselling, vestibular assessments, cerumen management, adult cochlear implant support, and services to First Nation's organisations. Whilst the survey is open to all, with a separate survey for HSP clients, Providers did note that they will have a greater understanding of possible long term fiscal implications than other respondents.

As Chair of the Hearing Health Sector Alliance, I have since met with leaders of the key industry bodies and we are confident the Alliance will work towards a constructive dialogue with HSP about the proposed changes.

The HBA Seminar was held prior to World Hearing Day. This year's World Health Day theme, *“Changing Mindsets: Let's Make Ear and Hearing Care a Reality for All,”* provides the opportunity to consider this global health

issue, often overlooked. WHD provides a focal opportunity to remind us that hearing plays a crucial role in connecting us to the world, enabling communication, understanding, through sound, language, and music. Communication contributes to relationships, safety, and appreciating our surroundings. Equitable access for all is important. I appreciate the opportunity to contribute to the improved quality of life in my work as an audiologist, a business co-owner delivering clinical audiological services to our regional and rural areas. This is in addition to my role as CEO of the Hearing Business Alliance, the business body representing approximately 160 small-medium audiology businesses, servicing their local communities at more than 660 locations across Australia. My role as Chair of the Hearing Health Sector Alliance ensures collaboration across the HHSA constituencies of Professionals, Researchers, Industry Providers, and -most importantly- those living with hearing and ear-related issues.

A handwritten signature in black ink that reads "Jane MacDonald".

Chief Executive Officer

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[^]4D Sensor technology only available in Oticon Intent 1 & 2.
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Using AI to Write Clinical Notes and Reports

Dr Sandra South
Ethics Officer

The ethics of using artificial or augmented intelligence (AI) to write clinical notes and reports has been raised in conversations with the Ethics Officer and members of the Ethics Review Committees. Although no complaints have arisen from the use of AI to date, this appears to be an emerging topic of interest to members.

You are responsible for the actions of any AI you use

The ethical perspective on the use of AI to write clinical notes and reports is clear:

As the healthcare professional, you remain responsible for clinical notes and reports developed using AI, which means that you will also be held responsible for the actions of any AI you use.

The American Medical Association (AMA) has published a range of resources on AI, including the publication 'ChatGPT and generative AI: What physicians should consider' (1). This includes a summary of the known current limitations of Large Language Model (LLM) natural language processing tools like ChatGPT, namely:

- Risk of incorrect or falsified responses.
- Training dataset limitations.
- Lack of knowledge-based reasoning.
- LLMs are not currently regulated.

- Patient privacy and cybersecurity concerns.
- Risk of bias, discrimination, and promoting stereotypes.
- Liability may arise from use.

The Australian Alliance for Artificial Intelligence in Healthcare 2023 National Policy Roadmap for Artificial Intelligence in Healthcare (2) notes particular issues with AI used in clinical note-taking and report writing:

"While clinical AI is subject to TGA software as a medical device (SaMD) safety regulation, non-medical generative AI like ChatGPT falls into a grey zone, where it is being used for clinical purposes but evades scrutiny because they are general purpose technologies not explicitly intended for healthcare. Uploading sensitive patient data into a non-medical AI like ChatGPT hosted on United States servers is also problematic from a privacy and consent perspective." (2)

Any one of these limitations could lead to multiple potential breaches of the Code of Conduct for audiologists and audiometrists, including, but not limited to those relating to:

- *Standard 1 – Members must provide hearing services in a safe and ethical manner*
- *Standard 2 – Members must provide hearing services in a respectful manner and not discriminate against anyone they interact with in a professional capacity*
- *Standard 4 – Members must promote the client's right to participate in decisions that affect their hearing health*
- *Standard 16 – Members must comply with all relevant laws and regulations*
- *Standard 17 – Members must adhere to appropriate documentation standards*
- *Standard 18 – Members must be covered by appropriate indemnity insurance*

Before you use AI, you need to understand AI and be able to understand how it works and how it will impact your clinical note taking and/or report writing. This means that before you use AI in your clinical practice you have to:

- ***acknowledge and accept the limited evidence on AI, and***
- ***put in place processes and systems to ensure that any potential risks are addressed.***

Furthermore, you need to be able to explain to your clients how AI is used in your clinical practice and how this may affect your clinical decision making processes (e.g. how it may affect the information of your clinical notes and/or reports and how this, in turn,

may affect advice given). This relates to a client's right to participate in decisions that affect their hearing health as required under Standard 4 above.

There is no evidence on the accuracy or potential risks of AI

A quick internet search results in numerous software products that claim to provide allied health professionals with clinical note taking and report writing tools supported by AI.

The New South Wales Government Agency for Clinical Innovation has a living table available on its website titled 'AI: automating indirect clinical tasks and administration: living evidence' (3). This living table is updated with relevant results from weekly PubMed searches. Nonetheless, it includes only 29 publications across all indirect clinical tasks and administration, with only three of these relating to clinical note taking (4-6).

Two of these three publications are by health software providers and report on anecdotal support of AI by healthcare clinicians (4 and 6) with no references to patient perspectives, clinical trials or other reports on accuracy of transcription and AI summary functions (5). None of these publications are in peer-reviewed academic journals.

If you do not fully understand how AI works, how it stores and uses your data, and how the use of AI may impact your adherence with the Code of Conduct for audiologists and audiometrists, you should not use it in your clinical practice.

At this stage, it is likely that few, if any,

audiologists or audiometrists practicing in Australia currently have the skills and expertise, or resources, to address the significant risks explored above given the lack of evidence on AI and its impacts.

“To prepare the sector for the increased use of AI, we will need to support the creation of national consensus on foundational clinical competencies, scopes of professional practice, and codes of professional conduct to use AI, and provide a basis for patient safety, service quality and practitioner credentialling.” (2)

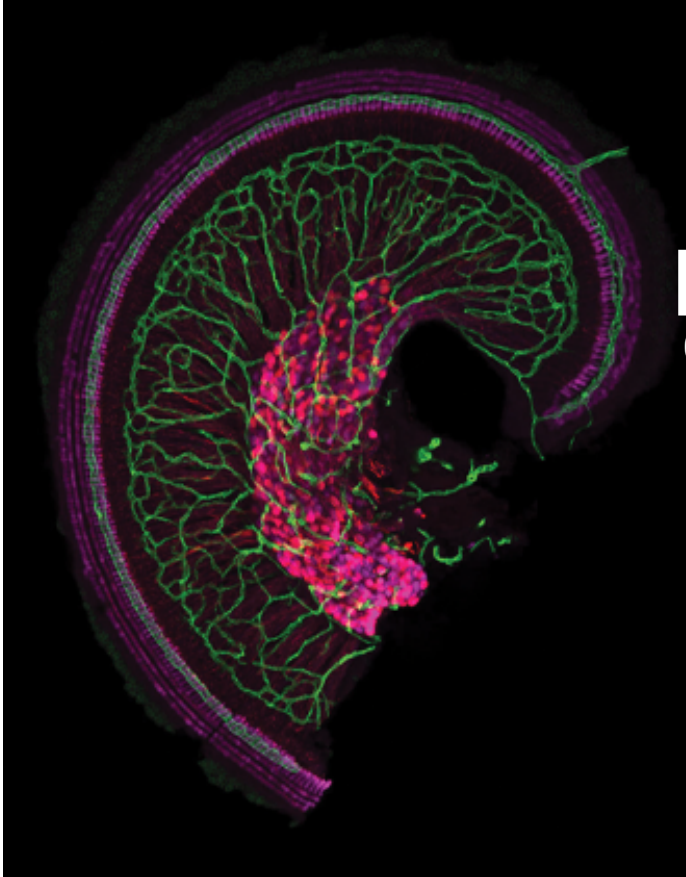
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EXPERIMENTAL GENE THERAPY ENABLES HEARING IN FIVE CHILDREN BORN DEAF

Study co-led by HMS scientist
corrects gene mutation involved in
inner ear function

By ALVIN POWELL
Harvard Gazette



Hair cells, shown in magenta, in the snail-shaped cochlea of the inner ear. Image: Katelyn Comeau

At a glance:

- **Trial treated six children aged 1 to 7 who had a mutation in the OTOF gene, which manufactures a protein important in transmitting signals from the ear to the brain.**
- **The five participants who responded to treatment showed improvement in the ability to recognize sound as speech.**
- **The gene therapy technique used in the study overcomes a roadblock presented by large genes and may prove useful in developing treatments for other forms of genetic deafness.**

A novel gene therapy approach has given five children who were born deaf the ability to hear. The method, which overcomes a roadblock presented by large genes, may be useful in other treatments, according to researchers.

The work, conducted in Fudan, China, by a team co-led by Harvard Medical School researchers [at Massachusetts Eye and Ear](#) and by collaborators at Fudan University's Eye & ENT Hospital, treated six children aged 1 to 7 who had a mutation of the OTOF gene, which manufactures a protein important in transmitting signals from the ear to the brain.

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Five of the six children showed improvement in hearing over the 26-week trial, with four

outcomes described by researchers as “robust.” With hearing a critical factor in language acquisition, researchers also measured speech perception — the ability to recognize sound as speech — and all five of those who responded to treatment showed improvement there.

Findings were published Jan. 24 in [The Lancet](#).

“This really opens the door to developing other treatments for different kinds of genetic deafness,” said co-senior author [Zheng-Yi Chen](#), HMS associate professor of otolaryngology head and neck surgery and a researcher at Mass Eye and Ear’s Eaton-Peabody Laboratories. Chen added that the study provides proof-of-concept that prior work in laboratory animals does translate to humans. “Now we can move forward in humans quickly. This has given us a real boost of confidence.”

Hearing loss affects more than 1.5 billion people worldwide, Chen said, including about 30 million cases of genetic impairment in children. Approximately 200,000 people worldwide are deaf due to a mutation in the *OTOF* gene. Those in the current trial had an *OTOF* mutation called DFNB9, which affects 2 to 8 percent of all cases of genetic deafness from birth.

The *OTOF* gene encodes the otoferlin protein, produced by cells in a snail-shaped part of the inner ear called the cochlea. In the cochlea, sound waves are translated into electric pulses carried by nerve cells to the brain, where they are interpreted as sound. Otoferlin plays a role in transmitting pulses from cochlear cells to the nerves and without it, sound is translated into electric signals but never reach the brain.

Chen and co-senior author Yilai Shu, deputy

director of the Fudan hospital where the work took place, said DFNB9 provided an attractive gene-therapy target because it is a relatively simple condition, caused by a single mutation and involving no physical damage to the cochlear cells.

Shu, who was a postdoctoral fellow in Chen’s lab from 2010 to 2014, said the large response to the request for study participants reflects the need for improved treatment for congenital deafness for which, Chen pointed out, there are no approved drugs. Researchers ultimately screened 425 potential participants, enrolling just six.

Of the six, four had cochlear implants — which, with training, allow interpretation of speech and sound — in one ear while the two youngest participants, ages 1 and 2, had no implants. When the implants were switched off, all participants were completely deaf.

Before the trial began, researchers had to tackle a significant technical problem related to the size of the *OTOF* gene. The procedure called for the gene to be inserted into the cochlea using a type of virus researchers commonly use for this purpose.

The virus inserts the gene into the DNA of target cells, which then begin to manufacture the missing protein. The problem in this case is that the *OTOF* gene is too big for the virus to hold. Researchers got past this by dividing the gene into two, encapsulating the halves into separate viruses, and then injecting a mixture with both halves of the gene into the cochlea.

Though the viruses inserted the gene halves at different spots on the cells’ DNA, when those halves were expressed, cellular machinery assembled the complete protein, restoring the cells’ ability to transmit signals to the brain.

The mixture was injected into the fluid of the inner ear, and the viruses made their way to the target cells as they would if they were a naturally occurring infection. Researchers had to wait for four to six weeks after injection to see the first signs that hearing was being restored.

In five of the six participants, the improvement was progressive. The three older children, with cochlear implants turned off, could understand and respond to speech by 26 weeks, with two able to recognize speech in a noisy room and have a telephone conversation.

The younger participants showed improvement in the ability to recognize speech but were too young for some tests. Anecdotally, Chen said the 1-year-old has been able to respond to stimuli and begun to verbalize simple first words, like “mama.” One of the six participants showed no improvement, which Chen and Shu said is poorly understood but may have been due to an immune reaction to the viral vector.

In some cases, Shu said, parents noticed the response even before the researchers conducted their first tests at four weeks.

“We first found out when the parents told us: When her mother called her, she turned back,” Shu said. “All of them are very hopeful. They were very, very excited, and all of them cried when they first found that their child can hear.”

The project, done in December 2022, was the first to make use of gene therapy to treat this condition, but several studies in various stages are targeting the same condition. This team and four others are expected to present their findings Feb. 3 at the [Association for Research in Otolaryngology Annual Meeting](#).

Chen said that will hopefully accelerate work that, though it has taken years to reach this point, has recently seen rapid progress.

Next steps, he and Shu said, include monitoring the participants in this study, as well as beginning a new study with participants from more diverse backgrounds. If all goes well, Chen said, approval of the treatment by U.S. federal regulators could be as little as three to five years away.

“This is truly remarkable. When we tell the story, even for our colleagues, it brings a tear to the eye,” Chen said. “I’ve been working in this field for three decades, and I know how difficult it has been to come to this point. I also know we’re at the juncture of a great future.”

Funding, authorship, disclosures

Co-first authors include Jun Lv, Hui Wang, Xiaoting Cheng, Yuxin Chen, Daqi Wang. Co-senior authors include: Wuqing Wang, Renjie Chai, Zheng-Yi Chen, Huawei Li, and Yilai Shu. Additional co-authors include: Longlong Zhang, Qi Cao, Honghai Tang, Shaowei Hu, Kaiyu Gao, Mengzhao Xun, Jinghan Wang, Zijing Wang, Biyun Zhu, Chong Cui, Ziwen Gao, Luo Guo, Sha Yu, Luoying Jiang, Yanbo Yin, Jiajia Zhang, and Bing Chen.

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[Adapted from a Harvard Gazette news article.](#)

Sudoku

The rules for sudoku are simple. Each 9×9 square must be filled in with numbers from 1-9 with no repeated numbers in each line, horizontally or vertically. Further, there are 3×3 squares marked out in the grid, and each of these squares can't have any repeat numbers either.

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