Cochlear implant surgeon Dr Phillip Chang in theatre.

Image: Phillip Chang.

Boosting cochlear implantation in adults

Only one in 10 adults who could benefit from cochlear implants in Australia receive them, a figure that has not changed in 25 years. Clinicians say creating more awareness and referrals is everyone's responsibility.

One of Dr Phillip Chang's oldest cochlear implant recipients, Helen, 92, was told for more than four decades she wasn't a candidate for an implant, despite meeting audiological criteria. "Fortunately, she had an independent audiologist who advocated for her and reached out to us," he says. "We were finally able to offer her a cochlear implant."

Dr Chang admits even he was initially hesitant because of her age. "But once I met her, it was clear she was medically fit, socially engaged, cognitively sharp, and surrounded by a supportive family," he says.. "Hearing loss was the only barrier to her continued independence. In the end, these qualities mattered far more than the number of candles on her birthday cake."

Following activation, Helen was overwhelmed. "She cried and said, 'I'm back.' Not long after, her daughter told me she was playing the piano again," he adds.

Dr Chang, a Sydney-based cochlear implant surgeon, says many of his patients face delays of 10 to 20 years before accessing the technology.

"They're met with myths like: 'Your hearing isn't bad enough,' 'Cochlear implants are only for children,' 'They're too expensive,' 'You're too old,' 'They sound robotic,' or even 'They're dangerous and can cause meningitis.'"

Many only reach his clinic after years of frustration, either through their own persistence or advocacy from relatives. "It's hit or miss," he adds. "And not everyone has someone pushing for them."

He believes there's an urgent need for better public messaging. "We must empower individuals, clinicians and the community with accurate, up-to-date information about cochlear implants for adults," Dr Chang says.

The reality is most adults who struggle with speech perception despite hearing aids benefit from cochlear implants and the cost is usually covered publicly or privately, he adds.

The device has come a long way since Professor Graeme Clark AC implanted the first multi-channel cochlear implant in Melbourne in 1978. Since then, about 15,000 Australians and more than one million people globally have received implants.

Early body-worn devices were large and cumbersome. Advances have made them smaller, more powerful, and easier to use.

Eligibility has evolved too. "Three decades ago, implants were for profound hearing loss," Dr Chang says. "Today, we assess moderate to severe cases, focusing on speech discrimination, functional hearing, and life quality."

Yet uptake remains low. "Only around 10% of eligible adults receive one," he says. "And I'm ashamed that figure hasn't changed in 25 years."

This feature also includes insights from ENT surgeon Professor Catherine Birman OAM and audiologists Dr Jaime Leigh and Mrs Annemarie Narraway.

Everyone's responsibility

Responsibility for recognising when a patient may benefit lies with the entire hearing health community and doctors, says Dr Chang. "Whether you're a GP, audiologist, audiometrist, or ENT specialist, we all share the duty to start that conversation.

"We haven't done enough to keep our medical and audiological colleagues up to date on the basics of adult cochlear implantation. The professionals entrusted to care for patients with hearing loss too often don't recognise when cochlear implantation should be considered," he says.

When giving lectures to audiology students, Dr Chang tells them "cochlear implants aren't the domain of a few elite clinics anymore. Every audiologist will care for a patient who has or needs one. It's part of their specialty now."

This year, he invited two patients to present.

"One was an 80-year-old man from Sydney who lost his hearing to meningitis in London," he says. "An Australian-trained audiologist there told him to come home immediately because our cochlear implant system is the world's best. Here he was able to access treatment in weeks, not months or years.

"The other was a teacher, aged 50, from regional NSW. Her audiologist had guided her for more than a decade, reminding her that if her hearing declined, a cochlear implant might be necessary. That ongoing conversation meant she was informed and prepared when the time came."

Both shared their journeys and the impact was profound. "They said more to the students than I ever could," Dr Chang says. "The teacher is thriving – still in the classroom and now back for her second implant. By the end, the students' jaws had dropped. They walked out thinking, 'this is my responsibility'."

Long-term guidance from audiologists is crucial. "The audiologist is the custodian of hearing," he says. "They know when hearing aids are no longer enough, and the patient trusts them. They are central to the cochlear implant journey – before, during, and after surgery."

Thanks to remote technology, follow-up care is more accessible. "We

can return patients to their local clinician for continuity of care and even program their implants," he adds.

Dr Chang has dedicated 25 years to advancing cochlear implant care. He established a leading paediatric program through The Shepherd Centre and Sydney Children's Hospital, and founded Hearing Implants Australia network focussed on adult cochlear implant services.

"For children, the pathway is clear, well-funded, and consistently prioritised," he says. "A baby born with profound hearing loss in Australia receives universal newborn hearing screening, timely MRI imaging, counselling, and streamlined care. With the understanding of the family, cochlear implantation routinely occurs between six and nine months of age. This model is considered international best practice and is replicated worldwide."

But the adult experience is fragmented, delayed, and riddled with myths and inconsistent advice, Dr Chang adds.

"Adult-onset hearing loss is more complex and can emerge gradually. "Hearing aids may work well for years, but when hearing – and especially speech clarity – deteriorates, a cochlear implant may be the best solution. Yet too many adults never get referred, stalled by dead ends, outdated beliefs, and clinician hesitancy."

Unlike paediatric care, adult hearing services are decentralised and diverse. "Adults are everywhere – seeing audiologists in hearing retail chains, independent clinics, government services and diverse clinical practices across rural and urban settings," he says. "Hearing care professionals must be informed, supported, and confident in recognising when to refer."

Education, collaboration, and decentralisation are key.

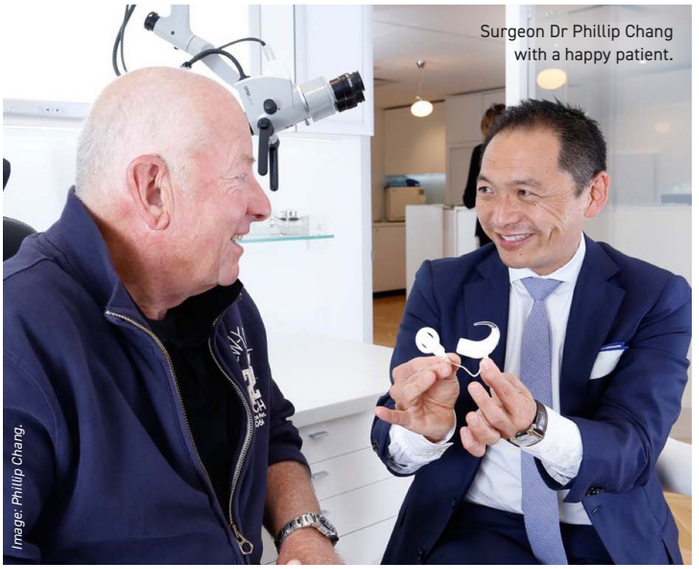
"Unless we actively involve all hearing professionals who've been walking alongside these patients –often for decades – adults will keep missing out," Dr Chang says. "With broader education and a more integrated, inclusive model of care, cochlear implantation can become as timely, routine and successful for adults as it is for children."

Over 65s the biggest group

Fellow Sydney cochlear implant surgeon, Clinical Professor Catherine Birman OAM, agrees more awareness and access is needed for adults but says those over 65 are now the largest group undergoing cochlear implantation in Australia due to more people realising implants are for all ages.

She says all children who need them can receive them early due to neonatal hearing screening and Hearing Australia's long term follow-up with provision of hearing aids and hearing testing.

"I think people have become more comfortable in coming forward fora cochlear implant over the past 10 years. They'll have a knee replacement and can see that a hearing implant will also help them so they're happy to go ahead with it," she says.



Surgeon Dr Phillip Chang with a happy patient.

Image: Phillip Chang.

Surprisingly, working adults aged 20 to 65 are the group most likely to delay the surgery, she adds.

"In the past, people maybe thought it was neurosurgery but it's not surgery into the brain, it's in the inner ear," Prof Birman says.

"Often a person might not realise they have an alternative to hear more with a cochlear implant than what they can hear with their hearing aids. "Hearing loss also has far-reaching consequences. Studies linking it to anxiety, depression and dementia risk have huge implications for the timely provision of better hearing through a cochlear implant."

Prof Birman says cochlear implants are a huge success story. "In one study I compared recipients aged 65 and over with those under 65, and found seniors had the same great outcomes as middle aged or even younger people so age is not a factor," she says.

One screening tool is the 60/60 rule of when to refer for cochlear implant candidacy evaluation. If the better ear unaided monosyllabic word score is less than 60% and pure tone average is 60dBHL or less, candidacy evaluation for a cochlear implant is indicated, she adds.

"Audiologists need to send these patients for assessment and GPs are also important in raising this with patients," she says.

Hearables such as ear pods of various brands can act like a mild hearing aid getting people used to hearing better and are a good idea as hearing drops slightly, she believes. As hearing deteriorates, people progress to hearing aids and will demand to stay at a good hearing level. As hearing aid efficacy reduces, they'll hopefully happily progress to a cochlear implant if needed, as they have maintained good access to sound all along.

Community members listening to audiologist Annemarie Narraway at a cochlear implant information session she organised.

Image: Annemarie Narraway.

Image: Cochlear.

At Cochlear training (from left) NextSense's Jane Brew, Annemarie Narraway and Cochlear's Anna Driscoll.

Prof Birman also encourages involvement with the Cochlear Implant International Community of Action (CIICA), an advocacy group for patients and clinicians to share ideas of raising awareness and support for recipients.

One independent audiologist who is raising the profile of cochlear implants and access to them in her community is Mrs Annemarie Narraway.

Narraway has practised in Australia for 25 years after emigrating from South Africa where she studied speech pathology and audiology. She worked for Hearing Australia in Canberra and Wagga Wagga for 15 years doing paediatric, adult specialist, and Indigenous work including with cochlear implant recipients.

She then moved to the coast and worked for Connect Hearing, later opening her own independent clinic, Hear Well-Live Well, in Narooma, NSW in March 2021. "I thought - what services can I provide that my community needs to make the world a better place, make life easier for my clients and lessen the environmental and emotional impacts of current practises?" she says.

"Our nearest ENT specialist and closest cochlear implant clinics were three hours away in Canberra or Nowra. For the first year post implant, patients need almost monthly mapping which could be a barrier if you're over 80 and have to travel."

Spreading awareness locally

Since then, she has referred and followed up eight cochlear implant recipients. Narraway regularly provides information sessions at local venues to spread awareness about the implants. She puts up fliers around town advertising the talks and wrote a newspaper column. Cochlear also assists with invitations through its engagement team.

"From observation, it takes several mentions (three or four times) before clients consider looking at it as an option," she says. "So, if I find someone whose hearing loss is deteriorating or if their speech discrimination score isn't good, I start mentioning it right away."

In February, 11 clients whose hearing had become poor enough for her to recommend an implant assessment attended a talk with their partners. Existing CI recipients also presented and told their powerful stories.

One man with Ménière's disease, aged 80, now has bilateral implants. "He and his wife were in tears afterwards as it has changed their lives to such an extent," Narraway says.

"I do a lot of testing including speech testing before we consider candidacy. The hoped-for result after a year of practising with the cochlear implant is 75% correct word recognition. For him, within three months, he was scoring an unbelievable 90% and now he's at 97%!"

Her oldest recipient, aged 90 when she received her implant, is also doing well, Narraway says. "Before the surgery, she scored her ability to hear in noise as two out of 10 in a group setting, and a year later, she scored it eight out of 10!

"She used to go out and couldn't follow the gist – I saw her at the club with a blank look on her face but now there's no blank look, she's out in the community and involved, and it's so good to see. It's not perfect but it's so much better."

Narraway lends the best hearing aids to people to trial before they sign up for an implant.

"This is another way to make sure it's not a faulty/lower quality aid that is keeping them from getting good speech perception results. It helps with realistic expectations and helps us know that we have tried everything," she says.

Narraway works with several surgeons and hospitals who do Cochlear and MED-EL implants and has had great support from both with all training provided. "The benefit is, you keep your clients for life as you keep offering something after hearing aids don't work anymore," she says.

"I love the challenge and the privilege of being on the cutting edge of technology, being able to offer great service closer to their homes and for clients who are even further away such as in Eden, I'll use the remote care feature to adjust implants from a distance.

"Cochlear and MED-EL work with me to improve the lives of our local hearing-impaired people and their loved ones. To see such improvement is a privilege."

Audiologist Dr Jaime Leigh, clinical lead of the Victorian Cochlear Implant Program at The Royal Victorian Eye and Ear Hospital, says a key barrier is fear, particularly of surgery.

"People think it's major surgery, which it isn't," she says. "There's no penetration through the skull or into the brain. It's a straightforward, hour-and-a-half procedure, often day surgery, but many hear 'implant' and assume it's high-risk or not suitable for them due to age or other health issues."

A recent scan across Australia confirmed only about 10.5% of adults who are eligible for the implants receive them, she adds, so there's significant unmet need to improve awareness and access in the adult population.

She stresses referral is for assessment, not surgery. "Only once someone has completed their audiological, medical and anaesthetic workup can we make a recommendation about surgery," she adds.

Improvement in residual hearing

Misunderstandings around hearing preservation are another obstacle. "Historically, implants meant loss of residual hearing but now about 80% of people retain some level post-surgery, thanks to improved electrodes and surgical techniques," Dr Leigh says.

Assessing candidacy involves comparing a person's hearing performance with well fitted hearing aids against large-scale cochlear implant outcome data.

"We map that person's current performance against average outcomes with a cochlear implant to advise whether they're likely to perform better

with an implant than their current hearing," Dr Leigh says.

"We only recommend an implant if we're confident they'll hear better with it than with hearing aids. If someone isn't suitable now, the assessment sets a baseline for future consideration if hearing declines."

However, less than half of those assessed proceed to surgery, she says, as sometimes current hearing aid benefit is sufficient. "In those cases, we advise staying in touch and reassessing if hearing changes."

Another major influence on pursuing an implant is the guidance of their community audiologist or audiometrist.

"We know patients trust their community clinician," says Dr Leigh. "But there's still a knowledge gap about current cochlear implant outcomes and the assessment process. Many clinicians aren't confident talking about it, which means patients may never be referred."

To address this, the Eye and Ear runs education sessions, webinars, and case study workshops with community audiologists.

"One of the most effective strategies is asking clinicians to bring in real patient cases they're unsure about. We work through barriers together and equip them with practical resources they can use immediately," Dr Leigh says.

Eye and Ear staff demonstrate the implants and give the community clinicians tools and resources to assist with their own patients. But engagement must be ongoing.

"You might see a spike in referrals after a training session but it drops off unless we maintain contact. Building lasting relationships between implant centres and local providers is key," Dr Leigh adds.

Community audiology sites

Accessibility has also been a longstanding issue as services were historically centralised in Melbourne.

Since 2020, the Eye and Ear has rolled out a decentralised model through the Victorian Cochlear Implant Program. It now partners with 28 community audiology sites statewide which saves patients travelling long distances for pre and post implant care.

"Patients can now be assessed and supported locally," Dr Leigh says. "Community clinicians are upskilled, trained and mentored by our team, and all recommendations are reviewed centrally. It means quality is maintained while access improves."

So far, nine partnering services cover all Victorian regions. "Access across the state is now well established – the next big push is continuing to build awareness among patients and clinicians," she says.

Royal Victorian Eye and Ear Hospital audiologist Dr Jaime Leigh.

Image: Jaime Leigh.

Programs from across Australia and internationally are taking interest in Victoria's approach, though Dr Leigh notes service delivery models vary widely. "Victoria's has been unique in its centralisation," she says.

"Other states have different service delivery models with more service providers operating independently and they don't operate under a statewide model, so it's quite hard to compare state to state."

This makes a national approach harder, but that may change soon as national adult cochlear implant guidelines are in development which Dr Leigh believes will help streamline practices and improve consistency nationwide.

Dr Chang says one reason children do so well with cochlear implants is due to neuroplasticity of the developing brain, which is primed to adapt and form new connections, making early intervention so effective.

At the other end of the age spectrum is what he calls 'neurofragility' – a decline in language, cognition, and higher brain function that can occur when hearing is lost and left untreated. "But neuroplasticity doesn't disappear with age," Dr Chang says. "The brain can rewire itself and learn new skills throughout life. It may take a little longer as we get older, but we're never too old to learn to lip-read, adapt to hearing aids or benefit from a cochlear implant. That's the key ingredient for hearing success - at any age." ●

Audiologists in the Victorian Cochlear Implant Program attending the program's 2024 symposium at The Royal Victorian Eye and Ear Hospital.

Image: The Royal Victorian Eye and Ear Hospital.