1 University Avenue
Macquarie University NSW 2109
AUSTRALIA
www.cochlear.com

# ASX Announcement

27 October 2023

## Cochlear Capital Markets Day

Cochlear Limited will today host a Capital Markets Day for analysts and investors at its global headquarters at Macquarie University. Please find attached the presentation materials.

Details of the event are as follows:

| | |
|---|---|
| Date: | 27 October 2023 |
| Time: | 9.00-12.00pm AEDT |
| Webcast: | https://publish.viostream.com/app/s-d63eg9m |
| Location: | 1 University Avenue, Macquarie University, Sydney |

The webcast allows participants to listen in to the presentations and to view the presentation slides.

Presentation documents, including an archived copy of the webcast, will be available on our website: https://www.cochlear.com/au/en/corporate/investors/results-and-presentations/capital-markets-day

For further information, please contact:

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This announcement is authorised by the Company Secretary.

Hear now. And always

# Corporate strategy

## Cochlear Capital Markets Day | 27 October 2023

**Dig Howitt**
**CEO & President**

This material is intended for analysts and investors

# Acknowledgement of Country

Worimi, Welcome,
On behalf of Cochlear, it is a pleasure to acknowledge the Wallumattagal Peoples of the Darug Nation, who are the Traditional Custodians of the Macquarie Park area. We would like to pay respect to Elders, both past and present and to leaders emerging.

# Our mission

We help people hear and be heard.

We **empower** people to connect with others and live a full life.

We **transform** the way people understand and treat hearing loss.

We **innovate** and bring to market a range of implantable hearing solutions that deliver a lifetime of hearing outcomes.

# Agenda

| | | |
|---|---|---|
| Corporate strategy |  | Dig Howitt<br>CEO & President |
| Product and services innovation |  | Jan Janssen<br>Chief Technology Officer |
| Developing a treatment pathway for adults |  | Dean Phizacklea<br>SVP Global Strategic Marketing |
| Cochlear's US business |  | Lisa Aubert<br>President, Cochlear North America |
| Manufacturing and supply chain |  | Greg Bodkin<br>SVP Global Supply Chain |

# Cochlear at a glance

## Business segments

**Cochlear Implants***

**58%** Cochlear implant systems

**Services***

**30%** Sound processor upgrades, accessories and other

**Acoustics***

**12%** Bone conduction systems and sound processor upgrades

## Global presence

**>$1.9b** in sales revenue* across

**~4.8k** employees across

**180+** countries

**50+** countries

**53%** female

gender balanced workforce

**6** manufacturing locations

## Market leader

**$240m+** in annual R&D investment

**750k+** implants sold helping

**~650k** people to hear#

**AAA** MSCI ESG rating Healthcare equipment & supplies**

**99.87%** Cochlear implant reliability^

**>60%** global market share^^

* Based on sales revenue (FY23) ^Nucleus® Profile™ Plus Series implant cumulative survival percentage within four years ^^Cochlear estimate for cochlear and acoustic implants
#Includes cochlear and acoustic implants. ** Measures a company's resilience to financially material environmental, societal and governance (ESG) risk

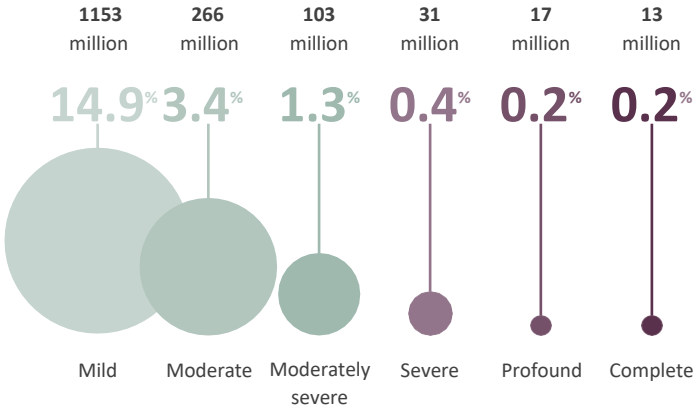
# Growth opportunity

Growing awareness of the cost-effectiveness and quality of life benefits of our products has the potential to underpin long- term industry growth.

### Hearing loss is prevalent and under-treated

The World Health Organization estimates that there are over 60 million people worldwide who experience severe or higher hearing loss,[1] yet fewer than 5% of the people that could benefit from an implantable hearing solution have received one.[2]

**Over 60m people with severe or higher hearing loss**




Globally 1.5 billion people live with hearing loss

### Cochlear implants are a cost-effective solution for all age groups

Cochlear implants provide life changing outcomes for recipients, empowering them to connect with others and live a full life. They also provide a cost-effective solution for all age groups, delivering significant returns on the investment made by the healthcare system.

**Significant return on investment for healthcare systems investing in cochlear implants**

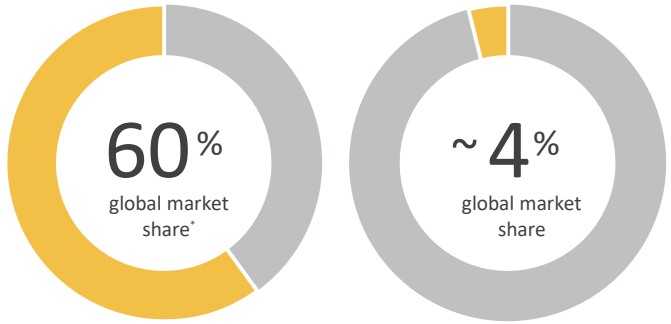
For a pre-lingual deaf child, the return to society is more than 13 times for every dollar spent on a cochlear implant solution based on the cost savings in education and improved productivity as an adult.[3]

The effective use of implants is cost-effective in adults and seniors with an estimated return on investment of 10:1.[4]

### Cochlear implants can deliver superior outcomes to hearing aids for indicated patients

Cochlear implants can provide a significant improvement in hearing outcomes and quality of life when compared to hearing aids for many people with a severe or higher hearing loss.

**We are the market leader in cochlear implants but a small player in the severe or higher hearing loss segment where hearing aids dominate**




Cochlear implant market share

Hearing devices treating the severe or higher hearing loss segment

Source: World Health Organization; 2021

* Cochlear estimate

# Growth opportunity

## Product indications are broadening and funding is expanding

Product indications and funding are expanding as payers increasingly recognise the improved outcomes and cost-effectiveness of our implantable solutions.

**Recent changes to reimbursement or indications**

**US:**
lowered the age of cochlear implantation from 12 to 9 months and included single-sided deafness as an indication for Cochlear's Nucleus® implant

**US, UK, Germany and Australia:**
Cochlear™ Osia® 2 System reimbursement achieved across a number of countries

**New Zealand:**
cochlear implant funding to reduce the adult waiting list

**Japan, UK and Belgium:**
expansion of reimbursement criteria for cochlear implants to include severe hearing loss

**Australia:**
reimbursement for remote programming of cochlear and bone conduction implants

**US:**
the Centers for Medicare & Medicaid Services expanded coverage for cochlear implants to cover a broader spectrum of hearing loss

**France:**
reimbursement approved for Baha® sound processors

## Good hearing is essential to healthy ageing

Hearing loss is particularly prevalent in people over the age of 60, with one in four suffering moderate or higher hearing loss.[5]

There is a growing understanding of the importance of properly treating hearing loss in this age group. It affects communication and is associated with cognitive decline, social isolation, anxiety and depression.[6]

**Growing understanding of the link between good hearing and healthy ageing**

**Cognitive decline**
Hearing loss associated with accelerated cognitive decline and dementia in older adults.[7]

**Depression**
Significant association between hearing impairment and moderate to severe depression.[8]

**Falls**
Higher risk of dizziness causing falling.[8]

**Social isolation**
Hearing loss linked to withdrawal from social interactions, which can have a significant impact on psychological well-being and physical health.[9]

**Ability to work**
Hearing loss can affect sufferers' ability to work or stay in the workforce.[10]

**Loss of independence**
Seniors with hearing loss less likely to be able to self-care.[8]

# Key market segments

Our efforts are targeted at improving awareness, expanding access and building on the clinical evidence that demonstrates the effectiveness of our products across four key market segments.

## Cochlear implants: Children in developed markets

Cochlear implantation has been established as the standard of care for newborns across the developed markets, with bilateral implants indicated across most countries as evidence supports the benefit of binaural hearing.

**Addressable market***
**~160,000 people**
Current penetration
>80% under 3-year-old children

## Cochlear implants: Adults and seniors in developed markets

Adults and seniors in the developed markets provide the biggest opportunity for us to address the unmet need for hearing implants given the large, and growing, market size as the population ages and the low levels of penetration.

**Addressable market***
**>6m people**
Current penetration
~6%

## Cochlear implants: Children in emerging markets

Our emerging markets business has been growing rapidly as awareness of cochlear implants increases and wealth grows across many emerging economies.

**Addressable market***
**>1.3m people**
Current penetration
<10%

## Acoustic implants: Next generation bone conduction hearing solutions

The bone conduction market is under-penetrated and currently has limited geographic reach. We have developed a product that we believe provides the opportunity to drive deeper category penetration.

**Addressable market***
**>3m people in developed markets**
Current penetration
<1%

* Cochlear estimates of segment prevalence of severe or higher hearing loss.

# Our strategy

## Our goal is to deliver value by helping more people to hear, which contributes to building a healthier and more productive society.

At Cochlear, we are strongly connected to our mission to help people hear and be heard. It's the passion that drives the organisation and focuses the strategy.

With every hearing implant, we begin a lifelong journey with our recipients. We have a responsibility to be here to support that lifetime of hearing which means we need to deliver sustainable financial growth, benefiting all our stakeholders.

### How we create value

Our strategy is focused on improving awareness of and access to implantable hearing solutions for people indicated for our products.

In helping more people to hear, we create value for our stakeholders by building a healthier and more productive society, providing a lifetime of hearing solutions for our recipients, having thriving employees and being environmentally responsible. Doing these things well should enable us to achieve sustainable financial returns over time.

| We help more people to hear, creating value across five pillars | What we aim to achieve over the longer term |
|---|---|
| **A healthier and more productive society**<br>Delivering societal benefit through improved health outcomes, educational cost savings and productivity gains. | **Grow the hearing implant market**<br>Help at least 8% more people to hear each year with a cochlear or acoustic implant. |
| **A lifetime of hearing solutions**<br>Innovating to build a market-leading portfolio of products and services that improve hearing outcomes and provide a lifetime of hearing solutions for recipients. | **Retain market leadership**<br>Develop market-leading technology and deliver a world-class customer experience to recipients and professional customers. |
| **Thriving people**<br>An engaged, capable, high-performing and diverse workforce that delivers on our strategy and supports the creation of sustained value. | **A stronger organisation**<br>Retain employee engagement levels at or above 80%. |
| **Environmental responsibility**<br>Minimising the impact of our operations on the environment. | **Minimise environmental impact**<br>Net-zero carbon emissions in our operations by 2030 and across our value chain by 2050. |
| **Sustained value**<br>Maximising spending to grow the market while maintaining our competitive position. Ensuring we operate fairly, honestly and legally. | **Consistent and sustainable growth**<br>Sustainable and responsible business practices, targeting growth in sales revenue of around 10% per annum and an 18% net profit margin. |

# A healthier and more productive society

Delivering societal benefit through improved health outcomes, educational cost savings and productivity gains.

## Strategic priorities

### Grow the hearing implant market

- Strengthen the referral pathway for adults
- Develop the acoustic implant segment
- Broaden reimbursement and improve indications
- Expand access in emerging markets

### Our target

Help at least 8% more people to hear each year with a cochlear or acoustic implant

### How payers and society more broadly benefit

- Appropriate funding for a cost-effective intervention
- Standard treatment pathway for implantable hearing devices for all age groups
- Improved education and productivity opportunities
- Understanding of the link between good hearing and healthy ageing and the need to act

### Relevant UN Sustainable Development Goals

# Strengthen the referral pathway for adults

## Standard of care initiatives aim to establish a consistent process for diagnosing and referring adult cochlear implant candidates by all healthcare professionals

- Adults and seniors in the developed markets provide our biggest opportunity given the large, and growing, market size as the population ages and the low levels of penetration – ~6m candidates and ~5% penetration*
- Awareness of cochlear implantation among primary and hearing health care clinicians is inadequate, leading to poor identification of eligible candidates
- DTC activities and sales teams focused on increasing awareness with both professional customers and candidates
- We are making investments in long-term initiatives to develop a standard clinical pathway for adults that aims to establish a more sustained referral model. These investments are geared towards:
  - **Building clinical and economic evidence** that compels early adult referral and coverage
  - **Developing consistent referral guidelines** to enable early identification and referral
  - **Driving awareness and advocacy** through hearing professionals and patient advocacy groups

### Key elements of developing a treatment pathway for adults

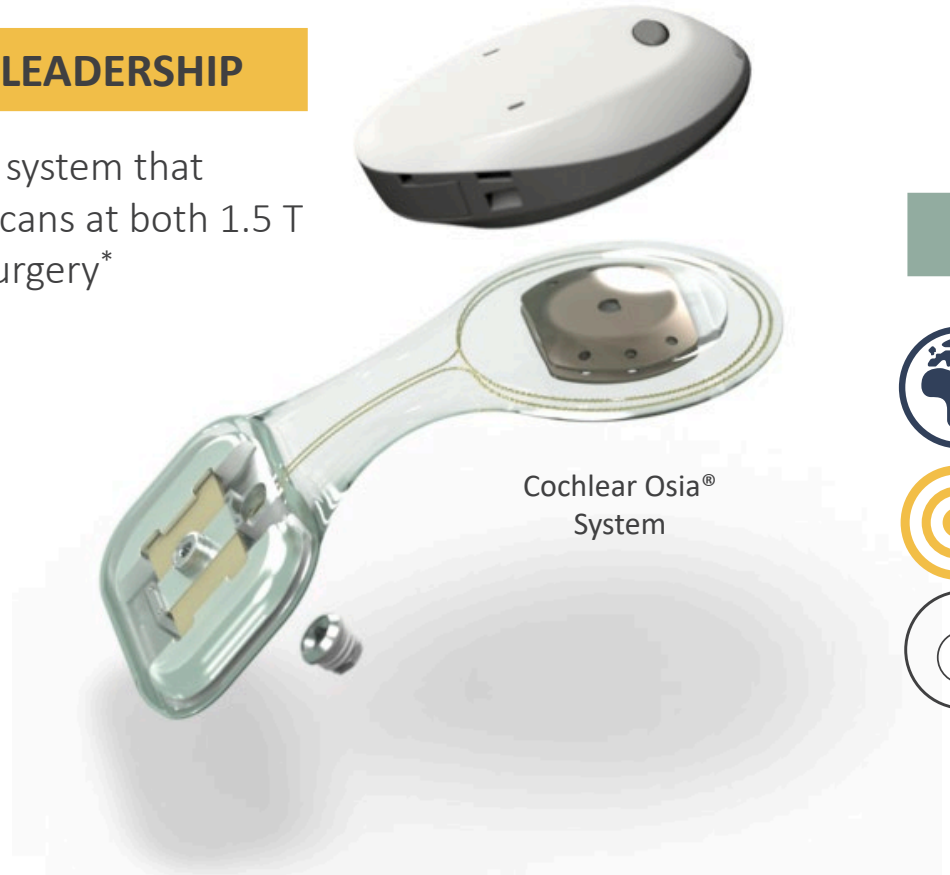

* Prevalence of developed market adults and seniors with > 70dB hearing loss. Excludes hybrid and SSD candidates.

# Develop the acoustic implant segment

**Cochlear Osia® System has the potential to become the first choice in acoustic implants, competing more effectively with reconstructive surgery while expanding geographically**

## MAINTAIN TECHNOLOGY LEADERSHIP

The only active bone conduction system that allows patients to undergo MRI scans at both 1.5 T and 3.0 T without the need for surgery*




## GROW THE MARKET

- Geographic expansion
- Compete with reconstructive surgery
- Indication expansion (eg paediatrics in US)

* Ellsperman SE, Nairn EM, Stucken EZ. Review of Bone Conduction Hearing Devices. Audiol Res. 2021;11(2):207-219.

# Broaden reimbursement and improve indications

## The economic benefits associated with cochlear implants extend beyond healthcare budgets with significant net economic gains to society from improved health outcomes, educational cost savings and productivity gains.*

- Growing evidence of the cost-effectiveness of cochlear implants. Our products can improve the quality of life of thousands of people each year and further reduce the cost to society of untreated, or poorly treated, hearing loss by billions of dollars*
- Developed market opportunities to:
  - Continue to expand reimbursement in Europe, Canada and parts of Australia where funding caps restrict access, leading to waiting lists
  - Expand indications to include bilateral implants and single-sided deafness across many markets
- Our market access teams work with governments and payers to recognise the benefits of treating hearing loss so we can continue to increase access to our products

### FY23 indication and funding expansion

**US:**
The Centers for Medicare & Medicaid Services expanded coverage for cochlear implants to cover a broader spectrum of hearing loss + expanded private insurance cochlear implant coverage for single-sided deafness

**Emerging markets:**
Expanded newborn hearing screening in Thailand and Malaysia and Karnataka in India

**Osia® 2 System:**
Achieved funding in Australia and New Zealand

**Cochlear implants:**
Additional funding for cochlear implants in Australia, Canada, Argentina, Mexico and the Netherlands

* Tordrup et al 2022. Global return on investment and cost effectiveness of WHO's HEAR interventions for hearing loss: a modelling study. The Lancet. https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(21)00447-2/fulltext
** https://www.cms.gov/medicare-coverage-database/view/ncacal-decision-memo.aspx?proposed=N&ncaid=306 ***Neve et al 2021

# Expand access in emerging markets

## We are continuing to identify opportunities in emerging economies to grow the hearing implant market, with a focus on improving rates of implantation in children

- Emerging markets represent ~20% of cochlear implant revenue
- Growing rapidly as awareness of cochlear implants increases and wealth grows drives both new implants and sound processor upgrades
- Most countries however remain very under-penetrated (<10% for children and few adult implants). Our priorities for this segment are focused on market expansion with activities targeted at:
  - **Building awareness** – public education campaigns, direct-to-consumer marketing and hearing screening
  - **Expanding funding** – driven by the compelling health economics of implantation in children
  - **Expanding our presence** – distributor relationships combined with an expanding direct presence
  - **Developing professional capability** – surgeon training and audiology education
  - **Maximising penetration** through a tiered product offering
- More volatility due to macroeconomic / geopolitics factors and tender lumpiness
- Lead markets, like China, already seeing broad adoption of neonatal newborn hearing screening, enabling early intervention and providing better lifetime outcomes, and basic medical insurance that covers cochlear implants

# A lifetime of hearing solutions

Innovating to build a market-leading portfolio of products and services that improve hearing outcomes and provide a lifetime of hearing solutions for recipients.

## Strategic priorities

### Retain market leadership

- Advance the product and services pipeline, with annual R&D investment of 12% of revenue
- Deliver our latest sound processor upgrade technology to existing recipients
- Strengthen our lead in customer service and support
- Maintain high standards of product quality, safety and reliability

### Our target

Develop market-leading technology and deliver a world-class customer experience to recipients and professional customers

### How payers and society more broadly benefit

- High quality and reliability
- Improving hearing outcomes and quality of life for new and existing recipients
- The right care is available at the right time and is easy to use
- Reduced cost to serve for professional customers
- Expanded product indications

### Relevant UN Sustainable Development Goals

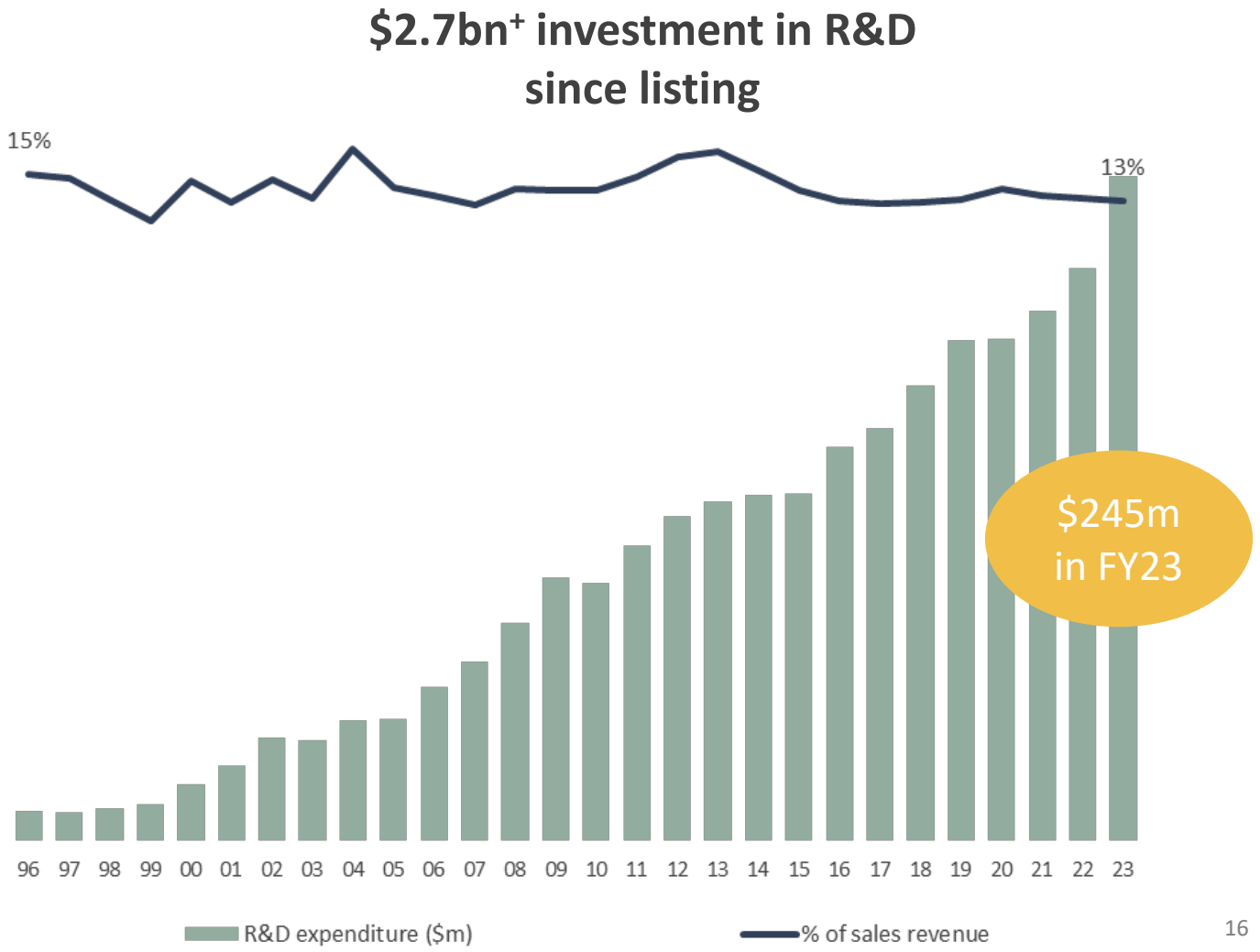
# Advance the product and services pipeline, with annual R&D investment of 12% of revenue

**R&D investment strengthens our market-leading technology position and helps drive market growth**

- Continued R&D investment at ~12% of revenue
- Portfolio of 1,700+ patent and patent applications worldwide
- Global innovation network with 550+ R&D employees
- Primary R&D located in Australia with Advanced Innovation in Belgium and a software hub in Sweden

**Innovation focus areas**

- Hearing outcomes
- Lifestyle and ease-of-use
- Connected care
- Expanding the portfolio



# Providing a market leading portfolio of product and services

**Cochlear's market-leading portfolio aims to improve hearing outcomes for recipients and provide a lifetime of hearing solutions. Our scale enables us to develop all aspects of the product and service portfolio, leading to improved outcomes and lower cost of care**

## Cochlear implant portfolio

Cochlear™
Nucleus® System

## Acoustic solutions portfolio

Cochlear
Osia® System

Cochlear
Baha® System

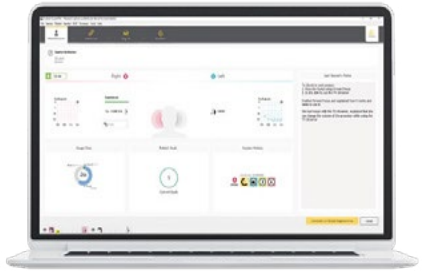
## Recipient support tools

Cochlear Nucleus, Baha and Osia Smart Apps


Cochlear CoPilot App

## Cochlear Connected Care solutions


Cochlear Nucleus
SmartNav System



Cochlear Custom Sound® Pro
Fitting Software



Cochlear™ Link

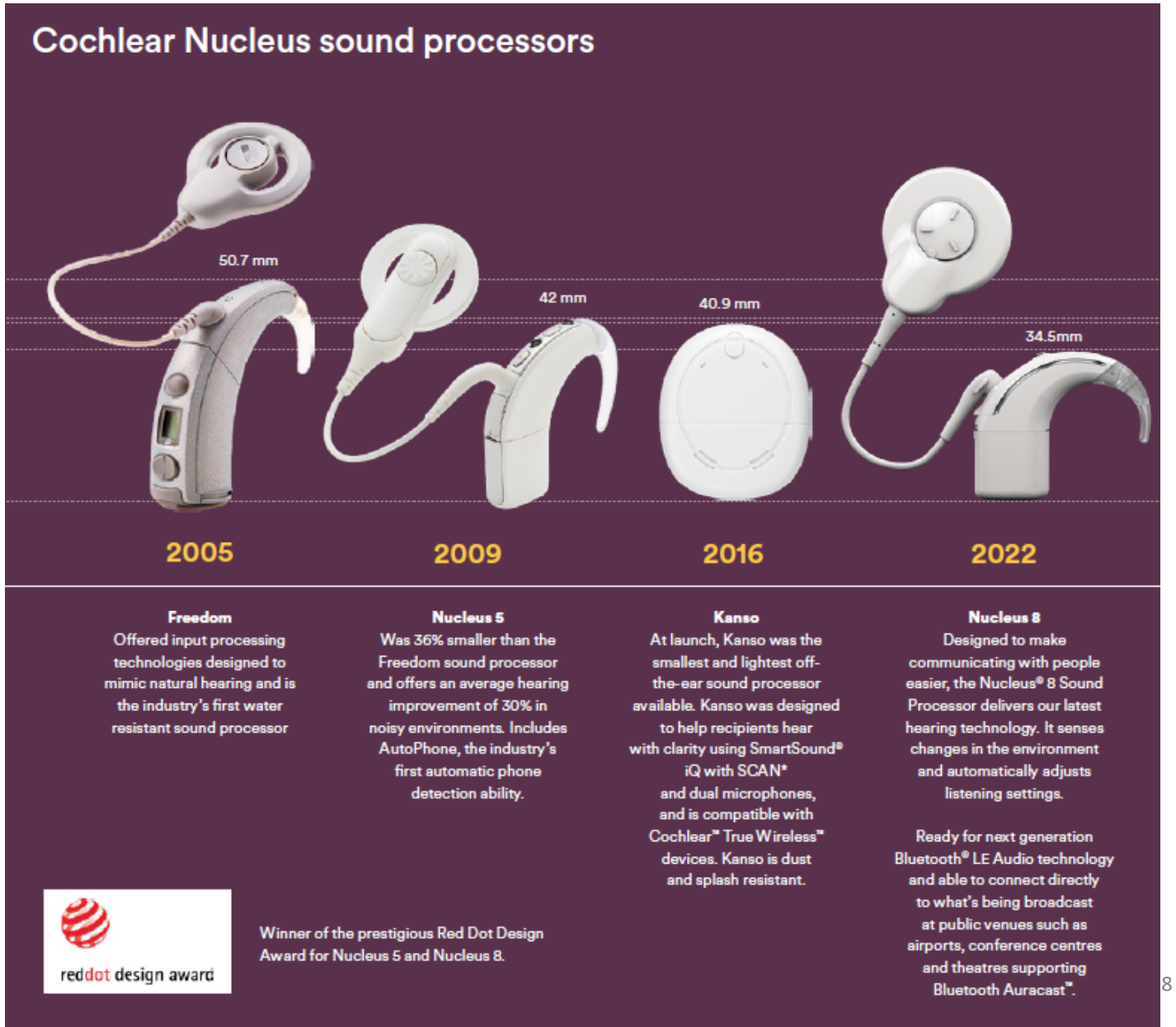
Cochlear
Remote Assist


Cochlear Remote Check
solution for cochlear implants

# Deliver our latest sound processor upgrade technology to existing recipients

## The growing recipient base underpins growing demand for Services

- In FY23 we delivered latest generation sound processors to over 48,000 prior generation cochlear implant recipients, up 19%, growing demand for Services which makes up 30% of revenue
- Our goal is to see our recipients continue to improve their hearing outcomes as our sound processor technology improves with:
  - **Improved hearing outcomes** with sound processing technology designed to provide clearer sound and reduced background noise
  - **Connectivity** to the world and people, by integrating with smartphone technology to allow direct streaming, control and monitoring with apps
  - **Lifestyle benefits**, with each generation being smaller and lighter, easier to use and with longer battery life



# Strengthen our lead in customer service and support

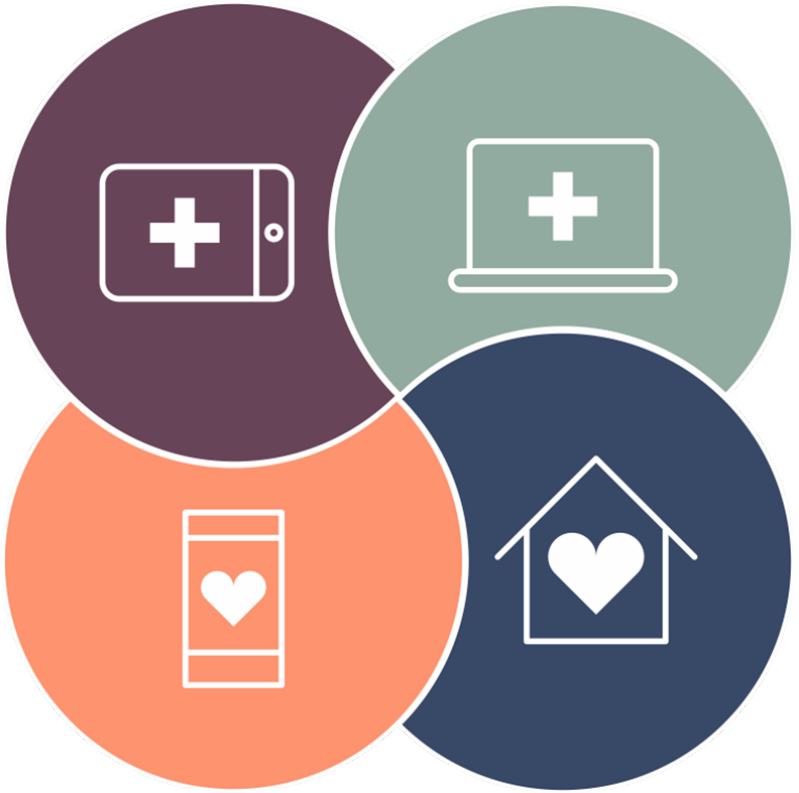
**Connected care is our vision for hearing care – where Cochlear, the recipient and hearing care professionals work together to ensure the right care is available at the right time and is easy to use**

- Deliver convenient, evidence-based care for patients at every stage of their journey, spanning surgical care, self-managed care, in-clinic care and remote care
- Targeting to reduce cost to serve and increase clinic efficiency for professional customers
- Opportunity for AI to improve recipient outcomes and the care they receive, from algorithms that can better enhance speech in noise, to personalised rehab and AI fitting. For health care professionals, the focus of AI is on improving accuracy and productivity, streamlining the care model

## Cochlear's connected care solutions

### Surgical Care
Surgical Care solutions can enhance patient outcomes through intraoperative tools and insights and improve the surgical experience.

### Self-managed Care
Self-managed Care solutions empower patients to proactively manage their hearing in everyday moments and build listening skills.



### In-clinic Care
In-clinic Care solutions streamline patient management and care, giving clinicians the time and flexibility to optimise every appointment.

### Remote Care
With Remote Care clinicians can monitor patients and deliver quality care when it's needed, without a trip to the clinic.

# Maintain high standards of product quality, safety and reliability

## Our market-leading products are the result of our world-class manufacturing process and meet stringent, internationally recognised standards

- Cochlear's implants are the most reliable over time*
- Our world-class manufacturing processes meet stringent, internationally recognised standards. Our Quality Management System provides the framework, processes and procedures for ensuring:
  - Safety and efficacy of our products
  - Compliance with regulatory requirements
  - Product design, manufacture and marketing consistently meet customer and regulatory requirements
- We monitor the performance of our products throughout their lifetime via an extensive post market surveillance process. Information gathered throughout the product lifecycle is used to improve current and future products


* Based on implant generations released within a comparable period with 5+ years of CSP data

# Thriving people

An engaged, capable, high-performing and diverse workforce that delivers on our strategy and supports the creation of sustained value.

## Strategic priorities

### A stronger organisation

- Strengthen and nurture the organisational culture
- Attract, develop and retain talent
- Champion a culture of diversity and inclusion
- Support the wellness and safety of our teams

### Our target

Retain employee engagement levels at or above 80%

### How payers and society more broadly benefit

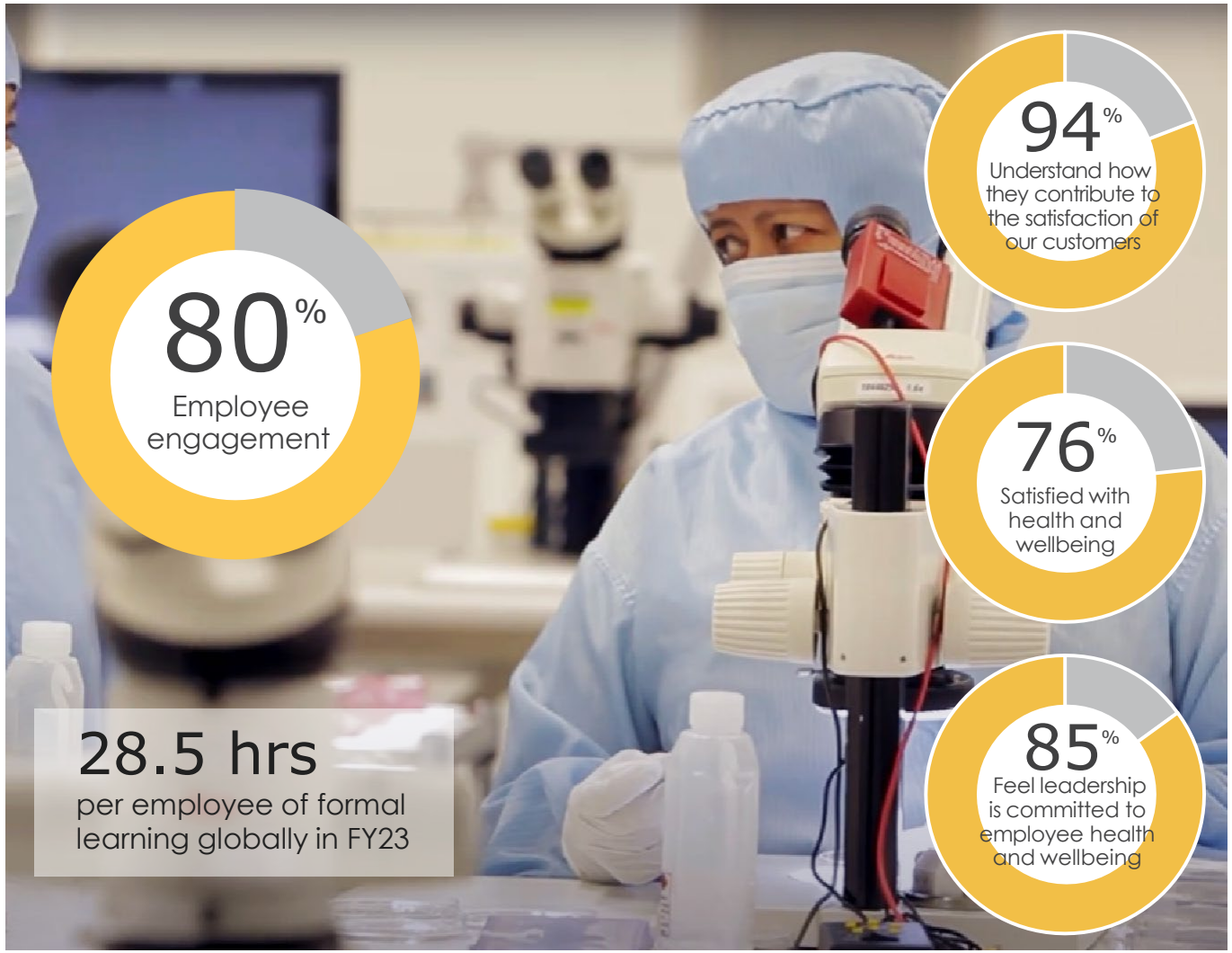
- Engaged, capable and high-performing employees
- Diverse, equitable and inclusive workplace
- Engaging development and career opportunities
- Strong health, wellbeing and safety culture

### Relevant UN Sustainable Development Goals

# Strengthen and nurture the organisational culture

## Shaping a culture that will enable us to grow and deliver for our customers in the future

- **Building enterprise leadership** - strengthening enterprise leadership with a focus on inclusive leadership, building critical skills and capabilities at both an individual and organisational level
- **Attracting, developing and retaining top talent** - continued efforts to engage and retain our talent, focussing on career progression and development, pay and recognition and ensuring all our employees feel a sense of belonging, regardless of their background and experiences.
- **Supporting wellness and safety** - taking a holistic approach to the wellness of our people through maintaining both a physically safe and mentally healthy work environment.

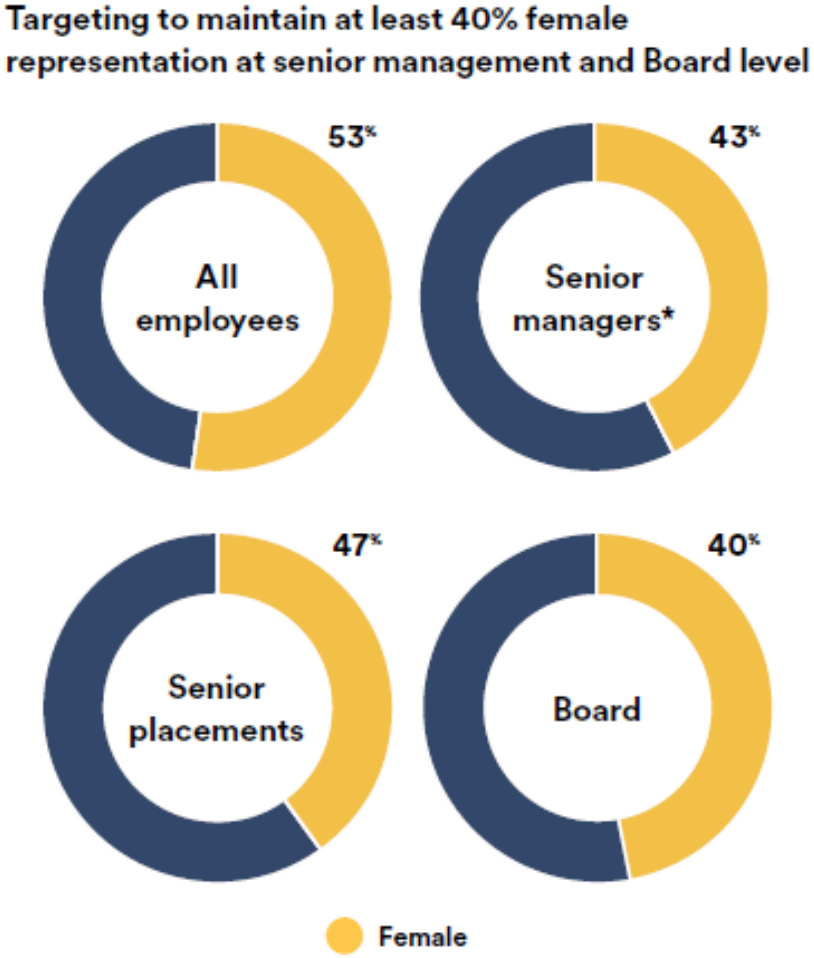


# Champion a culture of diversity and inclusion

## A diverse, equitable and inclusive organisation improves employee engagement, our performance and productivity as well as customer engagement

### Diversity and inclusion (D&I) strategy closely integrated with our work on culture

- D&I strategy is aimed at creating an environment where our people feel safe, valued, included and empowered to do their best work. The strategy is built around target setting and policies, hiring and development, training and communication and engagement
- Focus to date has been on gender diversity with targets set and achieved
- Working to maintain, embed and build on these achievements through hiring and development including:
  - Improving gender diversity in our senior leadership succession pipeline – in FY23 females made up 47% of senior placements during FY23
  - Growing diverse pipeline of entry level talent – 62% of Summer Interns and 50% of Graduates female; commenced partnership with CareerTrackers providing Australian First Nations students with ongoing internship placements



# Environmental responsibility

To be a sustainable business, we aim to minimise the impact of our operations on the environment.

## Strategic priorities

### Minimise environmental impact

- Advance the implementation of initiatives to reduce our Scope 1, 2 and 3 carbon emissions
- Embed sustainability into product design, development and manufacturing
- Deliver a global approach to managing the environmental impacts of packaging

### Our target

Net-zero carbon emissions in our operations by 2030 and across our value chain by 2050

### How payers and society more broadly benefit

- Climate resilience
- Efficient use of natural resources

### Relevant UN Sustainable Development Goals

# Advance the implementation of initiatives to reduce our Scope 1, 2 and 3 carbon emissions

## We are committed to taking an active role in the global effort to tackle climate change and are using climate science to better understand our impacts and define our strategy

### Scope 1 and 2 emissions

- Our manufacturing facilities account for 70% of the total energy consumption
  - Reduced emissions by 68% from our FY19 baseline by increasing renewable energy use in our manufacturing sites
  - Using 96% renewable energy at our manufacturing facilities, 100% renewable energy in five of our six facilities
- Implementing other initiatives to further reduce our fossil fuel use and energy consumption

### Scope 3 emissions

- Business flights are our single biggest source of reported carbon emissions
  - Reduced by 91% in FY23 with a 47% reduction in business flights per FTE from our FY19 baseline and offsets purchased for ~80% of our remaining business flights
- For other Scope 3 emissions, we have initiated a complete inventory in line with the GHG Protocol, with results expected during FY24. We will develop a reduction plan in line with the Science Based Target Initiative methodology.

### Our emission reduction targets

| | |
|---|---|
| 2025 | • 25% reduction in our absolute Scope 1 and 2 emissions*<br>• 50% reduction in business flight emissions (Scope 3)* |
| 2030 | • Net-zero emissions in our operations (Scope 1 and 2) |
| 2050 | • Net-zero emissions across our value chain (Scope 1, 2 and 3) |

Our targets are in line with the Science Based Target Initiative methodology, consistent with the reductions required to limit warming to 1.5 degrees above pre-industrial levels

* From a FY19 baseline

# Enhancing environmental management and compliance

## We continue to integrate environmental considerations into our business, focused on minimising our impact, complying with regulation and improving efficiency

### Sustainable design and packaging

- We incorporate a sustainability mindset into our product development, packaging and logistic processes, with a focus on increasing the environmental efficiency of our products
- Focused on minimising packaging while still meeting medical device safety standards. Eg: introducing recyclable PaperFoam (99% recyclable) and biodegradable packaging across all our products, shipping optimisation to reduce distance travelled

### Product life cycle assessments

- Initiated our first life cycle assessment – using the Cochlear™ Nucleus® 8 Sound Processor – to measure environmental impacts during all stages of the product's life
- The results of the assessment will help us define a baseline for sustainable product innovation and enable us to make better decisions throughout the life cycle of our products in areas including:
  - Waste management
  - Environmental impact of packaging
  - Material preferences for products and packaging
  - Carbon footprint

# Sustained value

Maximising spending to grow the market while maintaining our competitive position. Ensuring we operate fairly, honestly and legally.

## Strategic priorities

### Consistent and sustainable growth

- Deliver sustainable financial returns
- Improve efficiency and agility
- Maintain high levels of corporate governance and an ethical and sustainable supply chain
- Vigilance around data security and privacy

### Our target

Sustainable and responsible business practices, targeting growth in sales revenue of around 10% per annum and an 18% net profit margin

### How payers and society more broadly benefit

- Consistent financial performance
- Disciplined capital management
- Strong corporate governance
- Ethical and sustainable supply chain

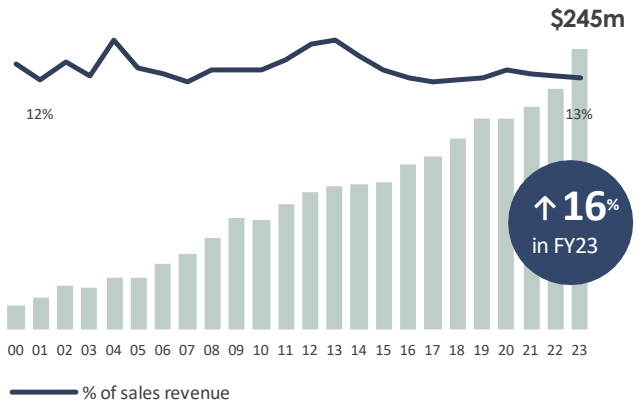
### Relevant UN Sustainable Development Goals

# Financial history

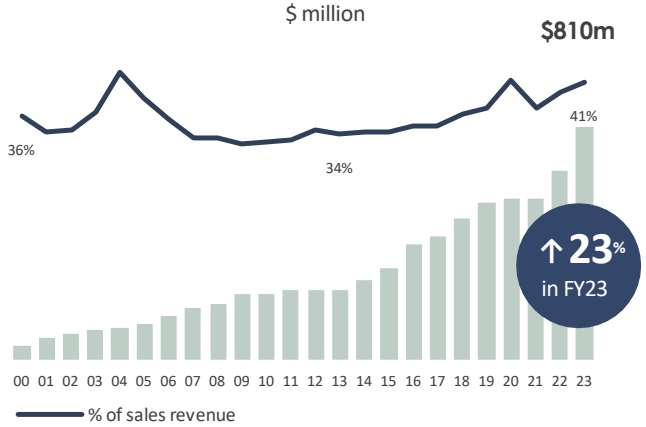
## Cochlear has a long track record of investing to grow, delivering growing sales revenue, profits* and dividends

### Consistent investment in R&D and market growth activities

**Research and development**
$ million

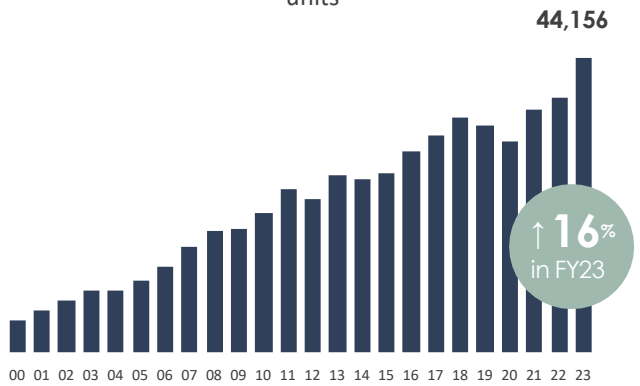



**Operating expenses (excl R&D)**
$ million

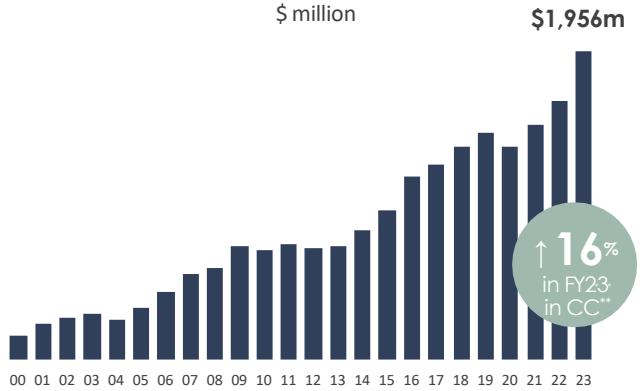



### Long-term growth in sales revenue

**Cochlear implants**
units

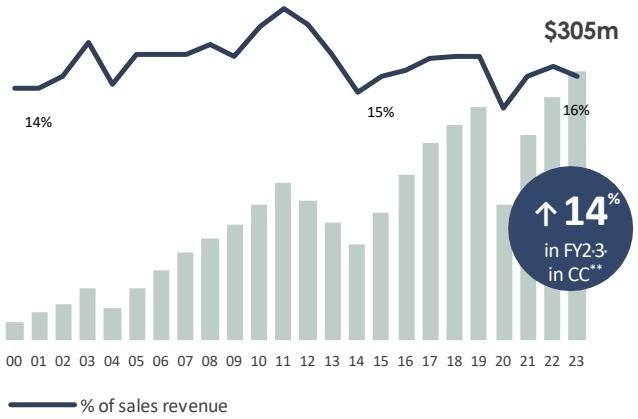



**Sales revenue**
$ million

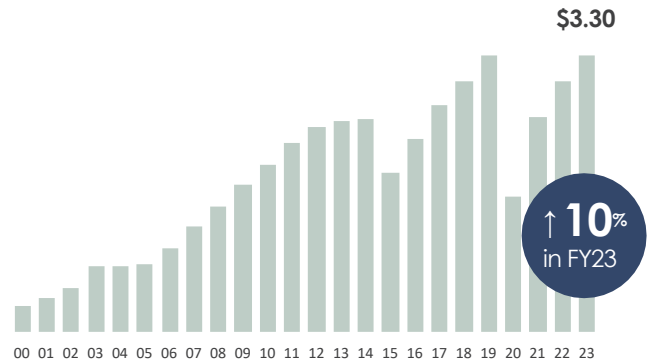



### Growing profits and dividends

**Underlying net profit***
$ million




**Dividends**
per share




* Excluding one-off and non-recurring items. ** Constant currency

# Delivering sustainable financial returns

## Our long-term approach to investing, combined with disciplined capital management, has delivered consistent growth in sales revenue, profits and dividends over many decades

### We plan and invest over long timeframes

- Over the coming years we expect to continue to invest consistently to improve the adoption of our products
- We see a significant opportunity to grow by strengthening the clinical pathway for adults and seniors through improving awareness and access for those who would benefit from a cochlear implant
- Improving these pathways takes time, requires us to trial novel approaches and adapt quickly as we learn. We need to constantly challenge ourselves on how best to prioritise and optimise this growth investment and measure progress
- We have set high level targets to guide our investment, aiming to balance financial objectives and expectations with the organisation's capacity to grow at a manageable pace

### High level financial targets

| | |
|---|---|
| **Sales revenue growth** | **10% pa** |
| **R&D investment** | **12% of sales revenue** |
| **Underlying net profit margin*** | **18%** |
| **Maintain a strong balance sheet** | **~$200m in net cash** |
| **Dividend policy** | **Payout 70% of underlying net profit** |

Nb: the outcomes for any individual year may vary as a result of prevailing trading conditions



* Excluding one-off and non-recurring items

# Being agile and efficient

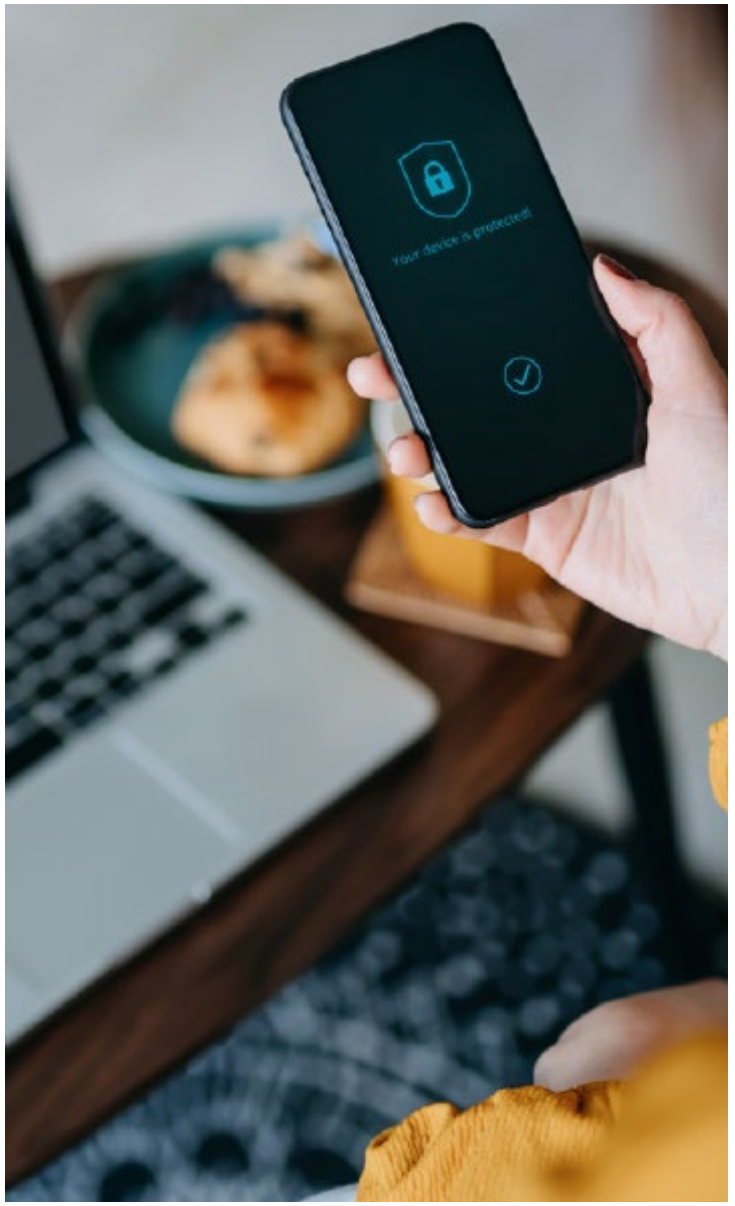
**We are investing in strengthening our business processes and IT platforms to improve efficiency and agility. Successfully executing this transformation program will enable us to scale more effectively and provide even better solutions for our customers**

- Investing $150m over five years to replace core systems and unify global operating processes
- Salesforce Healthcloud has been implemented for sales, customer service and marketing
- Workday has been implemented for human capital management
- These systems provide better data and are platforms for leveraging AI to enhance customer experience and drive efficiency
- The next steps are to replace the ERP for finance and supply chain
- In manufacturing the Lean methodology has been used for over 15 years to drive productivity and quality improvements and maintain gross margin at 75%

# Creating value responsibly

## We recognise that high standards of corporate governance and transparency are important for the creation, maintenance and enhancement of long-term sustainable value

- The Board is committed to high standards of corporate governance practice and fostering a culture of compliance which values ethical, lawful and responsible behaviour, personal and corporate integrity, accountability, transparency and respect for others
- Continuing to strengthen capability and transparency in areas including:
    - **Responsible supply chain:** We have a framework of policies, procedures and processes in place to manage risks relating to human rights, labour practices, corporate governance, safety and wellbeing and environmental sustainability in our supply chain
    - **Cyber security:** We handle and store personal information, including health information, for our customers and employees. With expanding information privacy and security regulations, we recognise data security as a key element of our relationship with our stakeholders
    - **Data privacy:** We commit to processing and protecting the personal information of all our stakeholders in a compliant and ethical way



# Our strategy is strongly aligned to the mission and focused on delivering value to our stakeholders

| We help more people to hear, **creating value** across five pillars |  **A healthier and more productive society** |  **A lifetime of hearing solutions** |  **Thriving people** |  **Environmental responsibility** |  **Sustained value** |
|---|---|---|---|---|---|
| **Strategic priorities** focus our time and resources | **Grow the hearing implant market** | **Retain market leadership** | **A stronger organisation** | **Minimise environmental impact** | **Consistent and sustainable growth** |
| We have longer term **targets** | Help at least 8% more people to hear each year with a cochlear or acoustic implant. | Develop market-leading technology and deliver a world-class customer experience to recipients and professional customers. | Retain employee engagement levels at or above 80%. | Net-zero carbon emissions in our operations by 2030 and across our value chain by 2050. | Sustainable and responsible business practices, targeting growth in sales revenue of around 10% per annum and an 18% net profit margin. |
| We provide clear **stakeholder benefits** | **Payers and society more broadly**<br>• Appropriate funding and indications for a cost-effective intervention<br>• Standard treatment pathway for implantable hearing devices for all age groups<br>• Improved education and productivity opportunities<br>• Understanding of the link between good hearing and healthy ageing and the need to act | **Our customers**<br>• High quality and reliability<br>• Improving hearing outcomes and quality of life for new and existing recipients<br>• The right care is available at the right time and is easy to use<br>• Reduced cost to serve for professional customers | **Our people**<br>• A collaborative, values-driven culture that inspires innovation and customer focus<br>• Engaged, capable and high-performing employees<br>• Diverse, equitable, safe and inclusive workplace<br>• Engaging development and career opportunities | **All stakeholders**<br>• Climate change mitigation and resilience<br>• Conservation of natural resources<br>• Reduced pollution and waste<br>• Healthier communities | **Our shareholders**<br>• Consistent financial performance<br>• Disciplined capital management<br>• Strong corporate governance<br>• Ethical and responsible supply chain |

Hear now. And always

Cochlear®

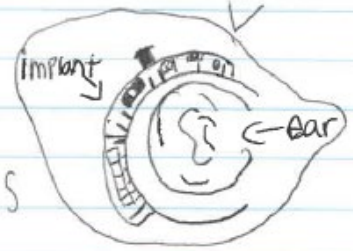
# Product and services innovation

## Cochlear Capital Markets Day | 27 October 2023

**Jan Janssen**
**Chief Technology Officer**

April 28, 2023

Dear Cochlear Corporation,
I would like if you could make a cochlear implant that is waterproof with no case. I think it would be very good to have one. This is what I think it should look like.




It will also have a light for when it is dark.

I do not like when I have to put on a case because people go in the pool first

I hope you can help.

Sincerely
Ophelia

# Delivering a lifetime of hearing outcomes with market-leading implantable hearing products and services

Improving hearing outcomes

Improving quality of life

Easy to use

## Cochlear implants

Benchmark in size, implant reliability and neural interface, with proven perimodiolar advantage

Slim Modiolar Electrode

Cochlear™ Nucleus® Profile™ Plus implant

## Acoustic implants

Cochlear™ Osia® System

Benchmark in performance and aesthetics

## Sound processors

Benchmark in size, smartphone connectivity and hearing performance

Cochlear™ Nucleus® 8 Sound Processor

Cochlear™ Nucleus® Kanso® 2 Sound Processor

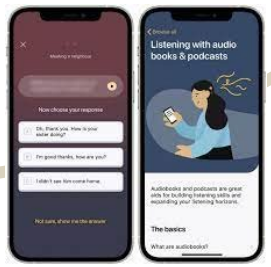
Cochlear™ Baha® 6 Max Sound Processor

## Convenience & confidence

Apps and rehabilitation tools aimed at improving ease of use and quality of life for recipients

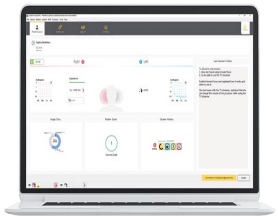
Nucleus, Baha & Osia Smart Apps

Cochlear™ CoPilot



## Clinical & surgical support

Streamlining customer care for surgeons and clinicians



Custom Sound® Pro Fitting Software

Nucleus® SmartNav System

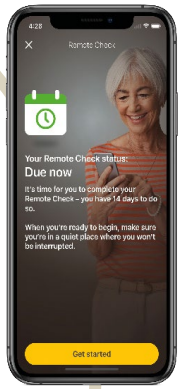
## Responsive & convenient service

Cloud-based service reducing time spent 'off air' when recipients need a replacement processor

Cochlear™ Link

## Telehealth solutions

Convenient, at-home testing for routine cochlear implant checks outside the hearing clinic



Remote Check solution for cochlear implants

Cochlear®

# Innovation focus areas

## Hearing Outcomes

## Lifestyle and ease-of-use

## Connected Care

## Expanding the portfolio

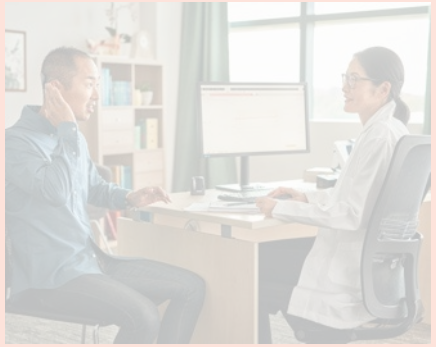
# Innovation focus areas

## Hearing Outcomes

## Lifestyle and ease-of-use

## Connected Care

## Expanding the portfolio



# Hearing outcomes have improved significantly over time, leading to expanded indications and funding for cochlear implants… but there is still scope to improve

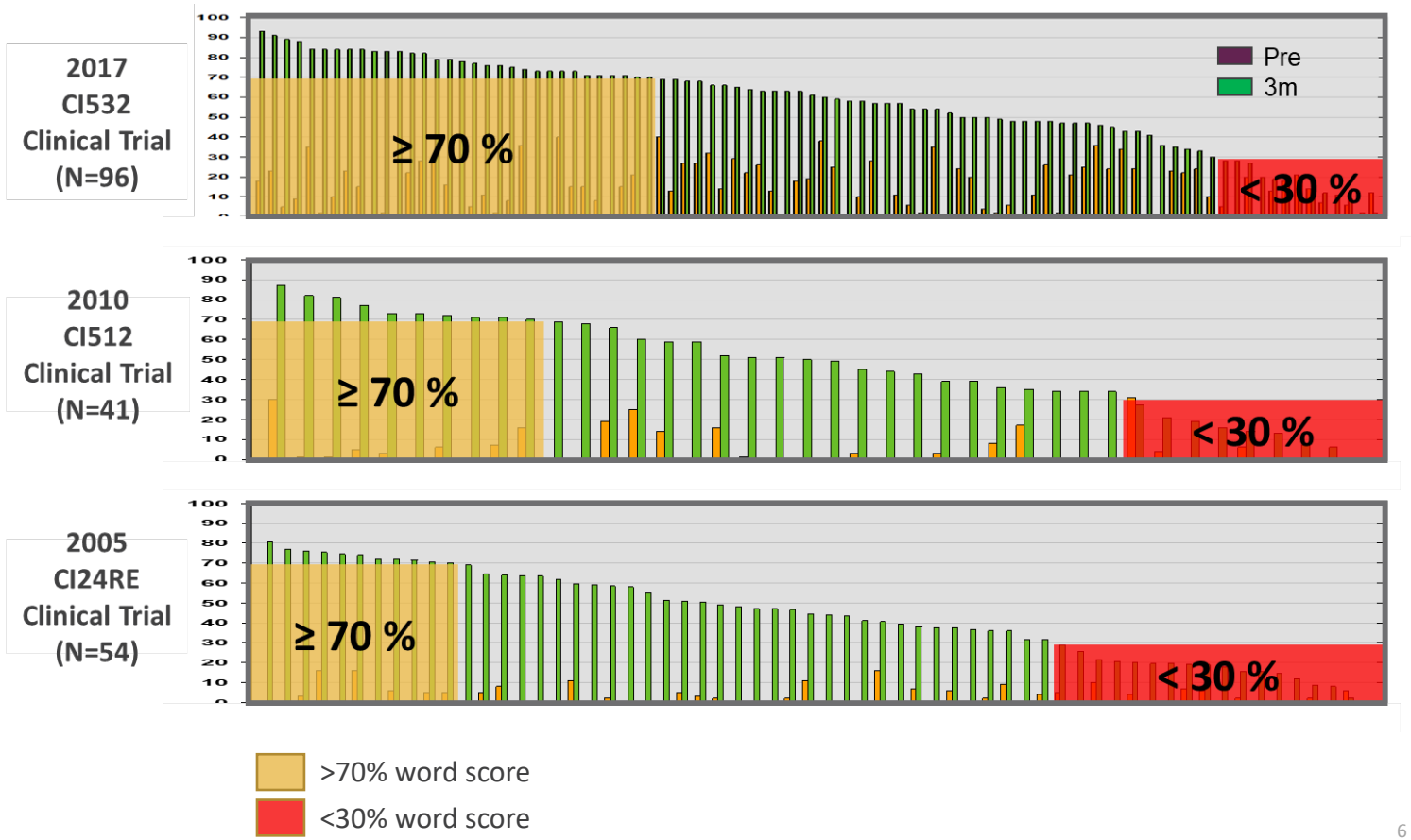
## Drivers of improved hearing outcomes…

- **Improved technology**, including dual microphone technology, advanced pre-processing algorithms and wireless connectivity
- **Earlier intervention**, with the majority of children in developed markets bilaterally implanted by 18 months[2]

## Leading to growing total addressable market from expanding indications…

- Indications have shifted from profound hearing loss to severe to profound hearing loss across most markets
- Lowering age of implantation (eg: from 9 months in the US)
- Single-sided deafness in many markets

### Clinical data demonstrating that over time more people are hearing better with cochlear implants[1]

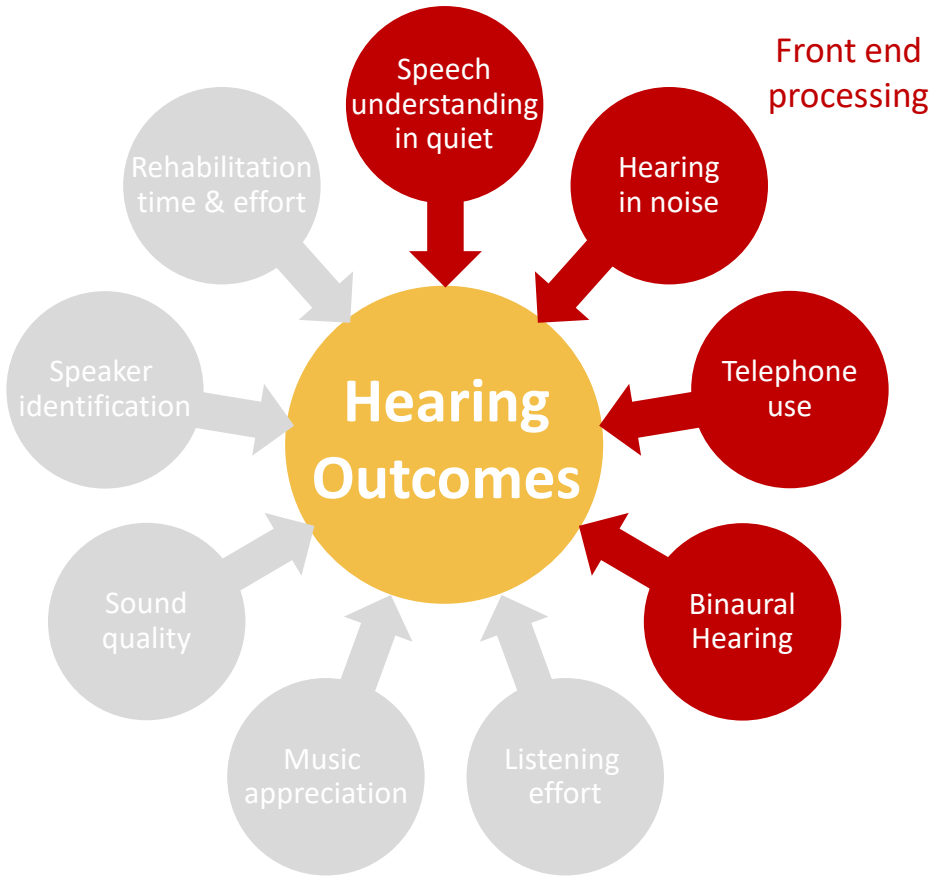



1. Clinical Evaluation of the Cochlear Nucleus CI532 Cochlear Implants in Adults Investigator Meeting. 2019 Apr.
2. Based on Cochlear's surgery data for children under 3 in developed markets

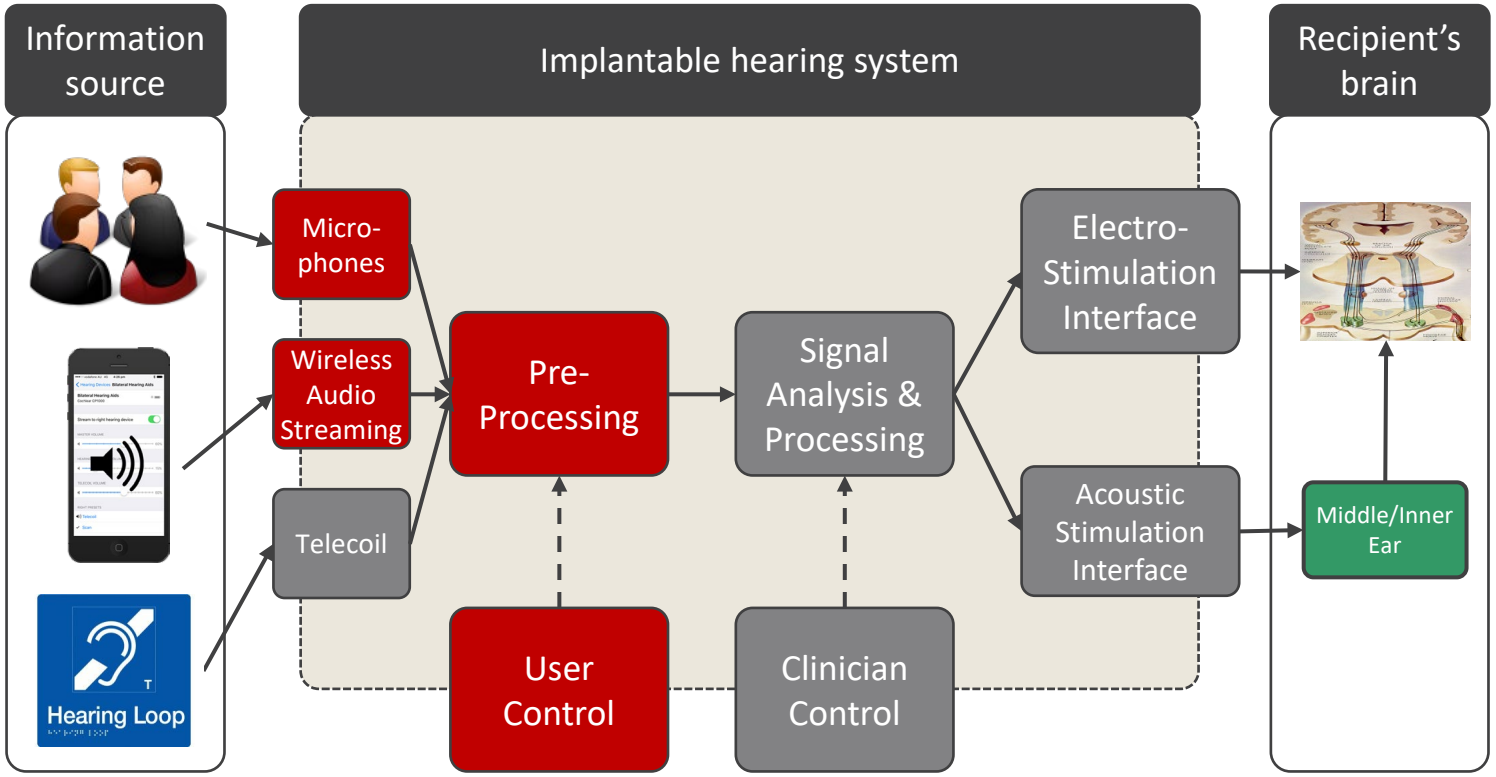
# Improved hearing outcomes over the past decade largely driven by advancements in sound processing technology

Cochlear®

Key sources of improved hearing outcomes



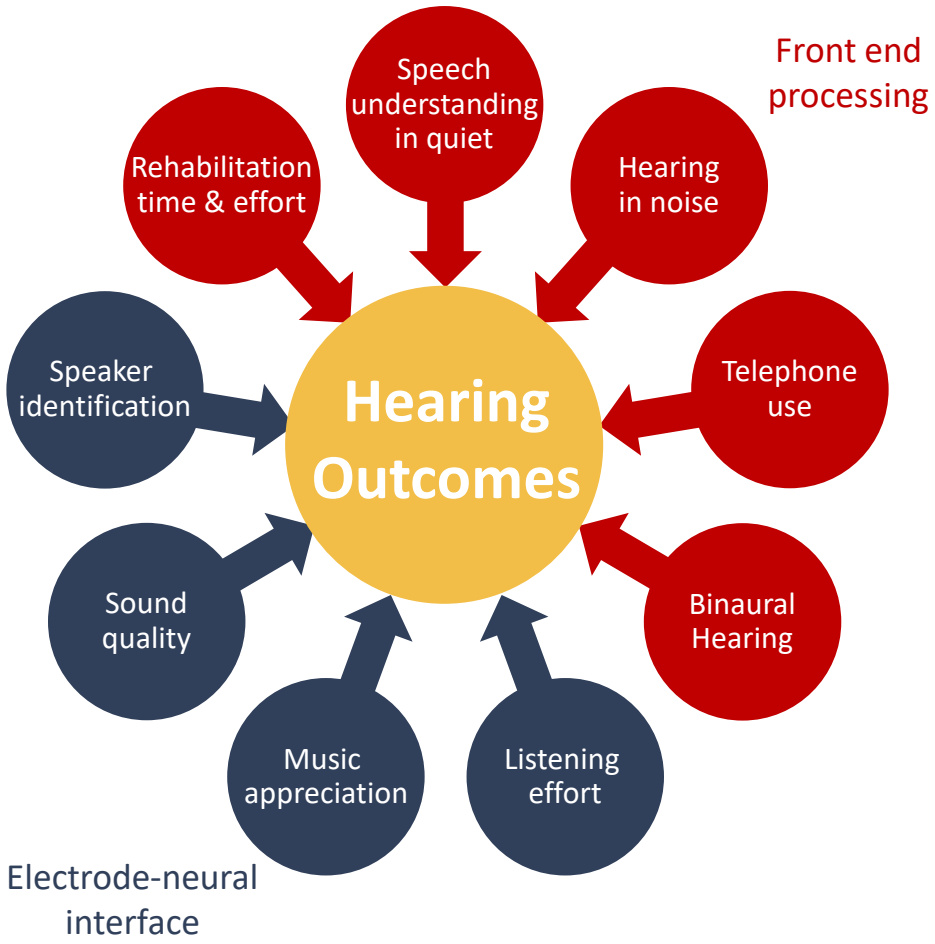

Front end processing

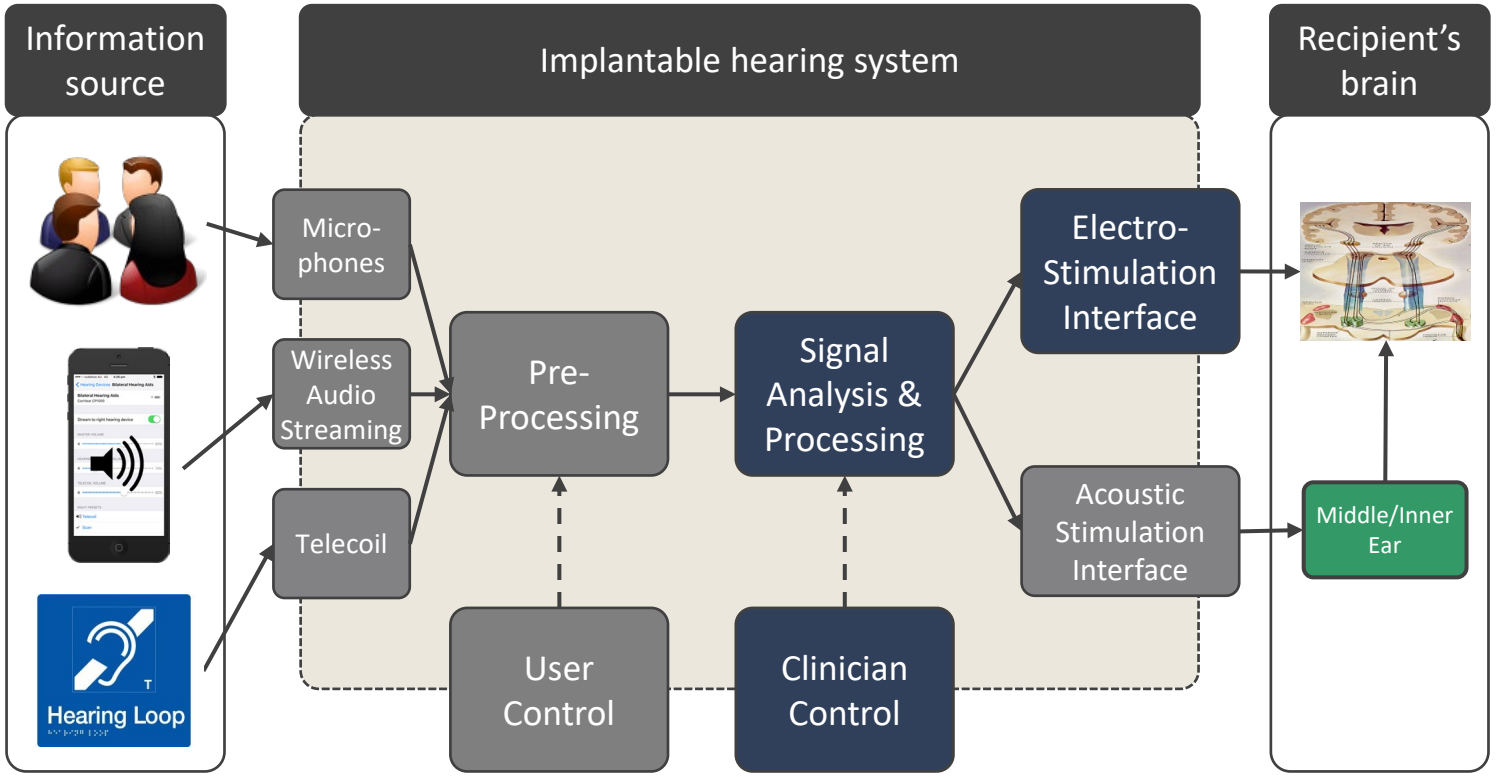


# Future technology aims to improve hearing outcomes from next generation implant innovation

Cochlear

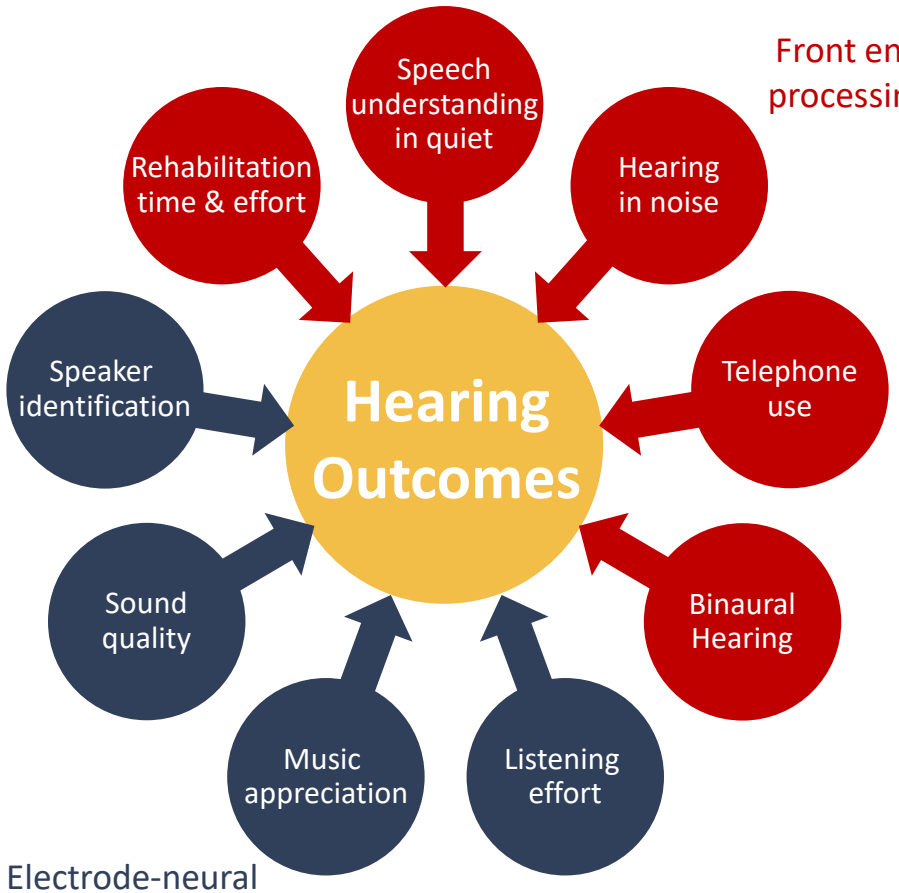
Expected sources of improved hearing outcomes

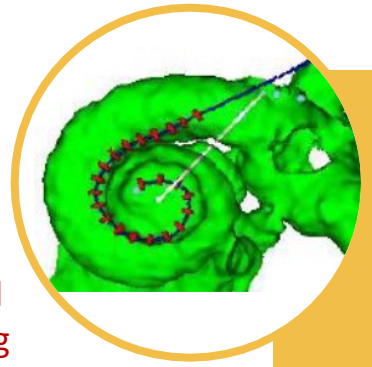


# Key focus areas

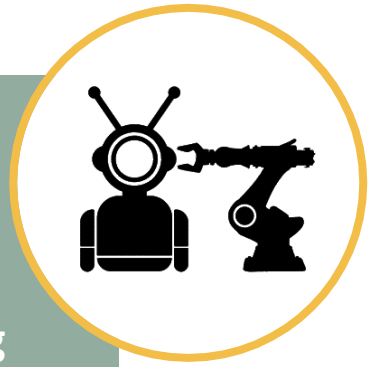
Sources of improved hearing outcomes



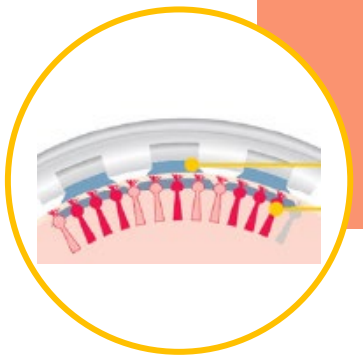



Get close to the auditory nerve

Minimise cochlear trauma during surgery



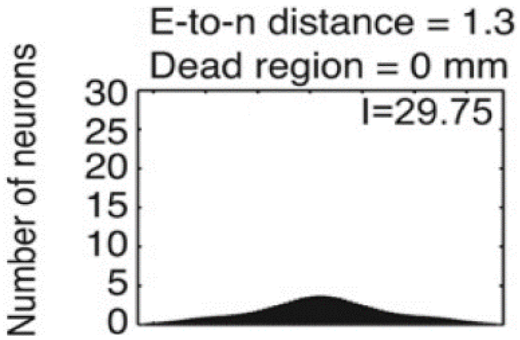
Improve the quality of stimulation of the auditory nerve



Drug / device combinations

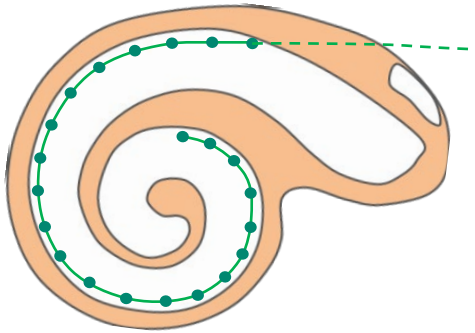
# Peri-modiolar electrodes deliver electrical stimulation closer to the hearing nerve

## Lateral wall electrodes



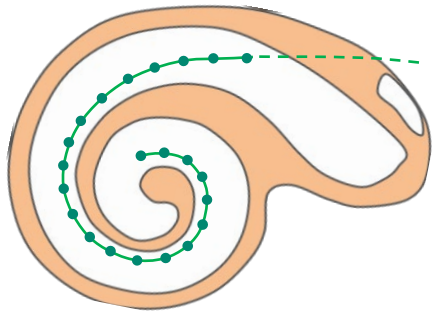

Spatial patterns of simulated neural excitation: 100 activated neurons

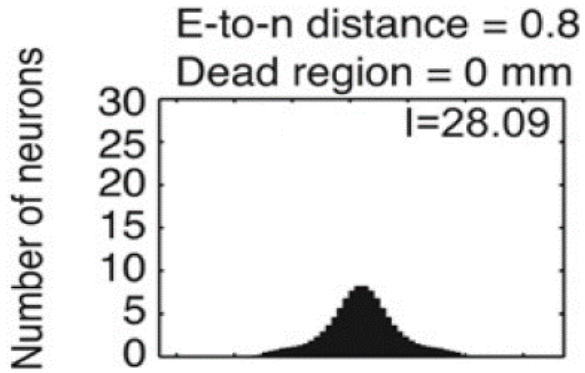
Lateral Wall electrode position



## Peri-Modiolar electrodes

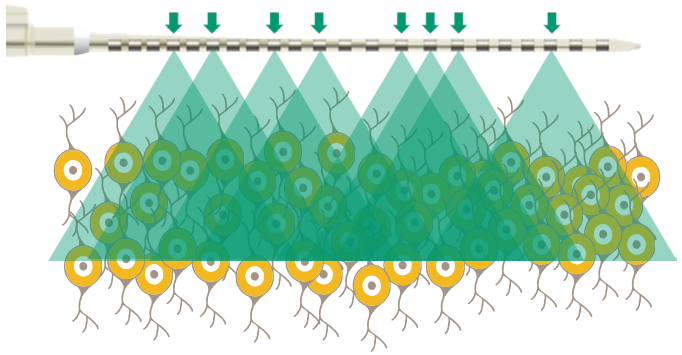
Peri-modiolar electrode position





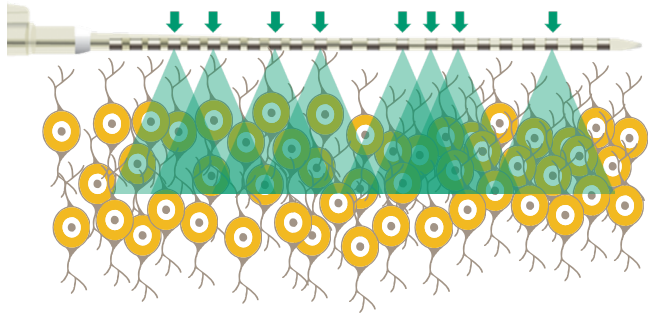

Spatial patterns of simulated neural excitation: 100 activated neurons

Lateral wall electrode position



*"At close electrode-neuron distances, excitation patterns become more spatially localized….."**

Peri-modiolar electrode position





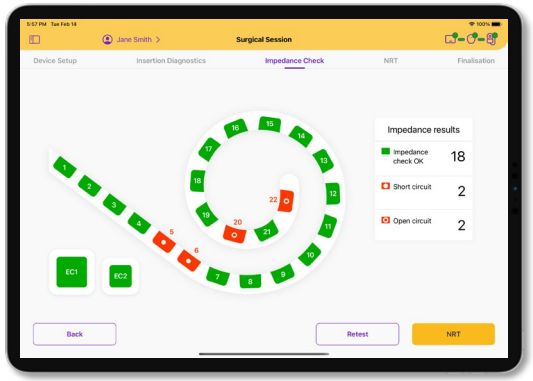
*Goldwyn J et al, Modelling the electrode-neuron interface of cochlear implants: Effects of neural survival, electrode placement, and the partial tripolar configuration, Hearing Research 2010

# Surgical tools to minimise cochlear trauma during surgery

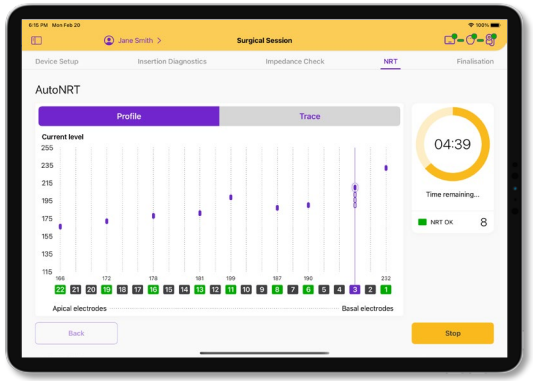
## The Nucleus® SmartNav System

- Includes an iPad app and a surgical processor for use in the operating room
- Delivers wireless, real-time, actionable insights to support surgical navigation
- Gives added assurance that surgery is successful and the electrode array is properly placed
- Provides diagnostic measurements to confirm device integrity, auditory system response and inform post-operative programming
- Supports automated implant registration and cloud data transfer

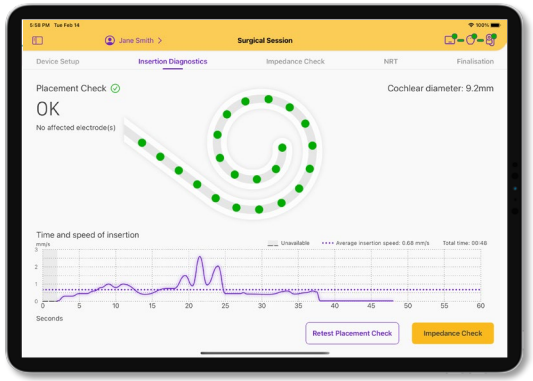
# Nucleus® SmartNav System features



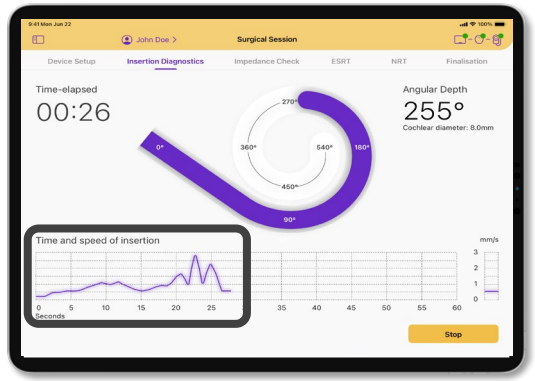

Impedance Check



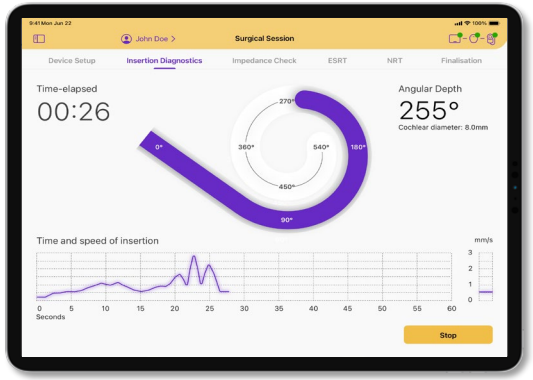

AutoNRT®



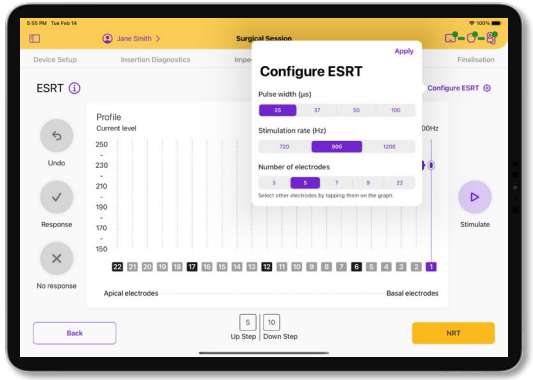

Placement Check



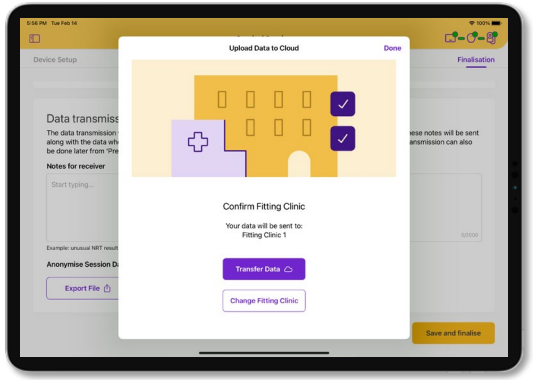

Speed of Insertion



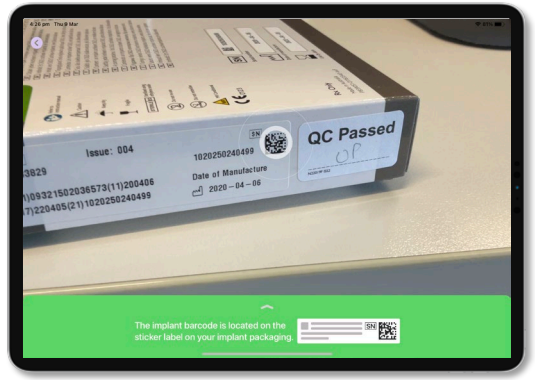

Angular Insertion Depth




Electrical Stapedius Reflex Threshold

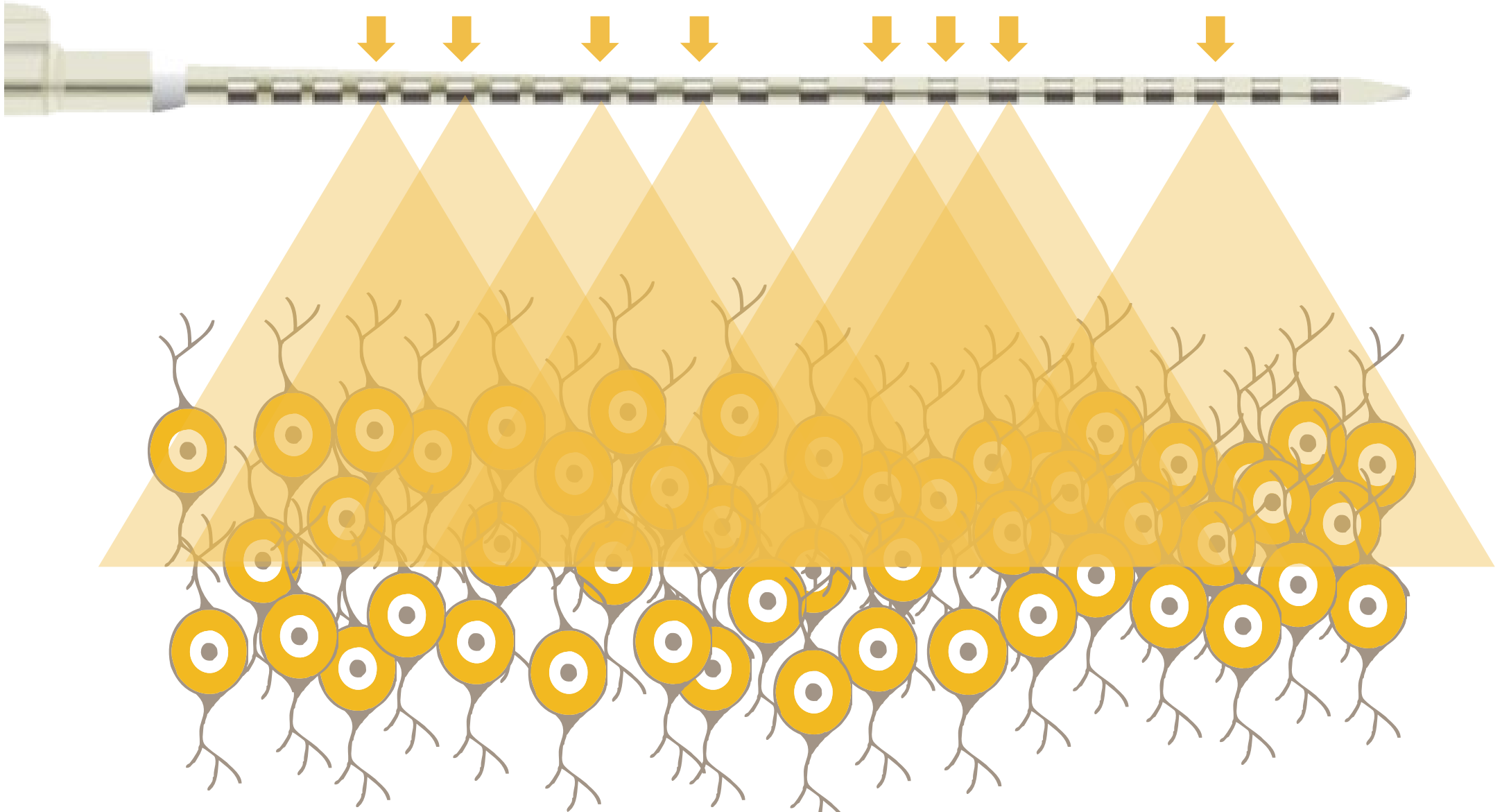



Seamless Data Export (Cloud)

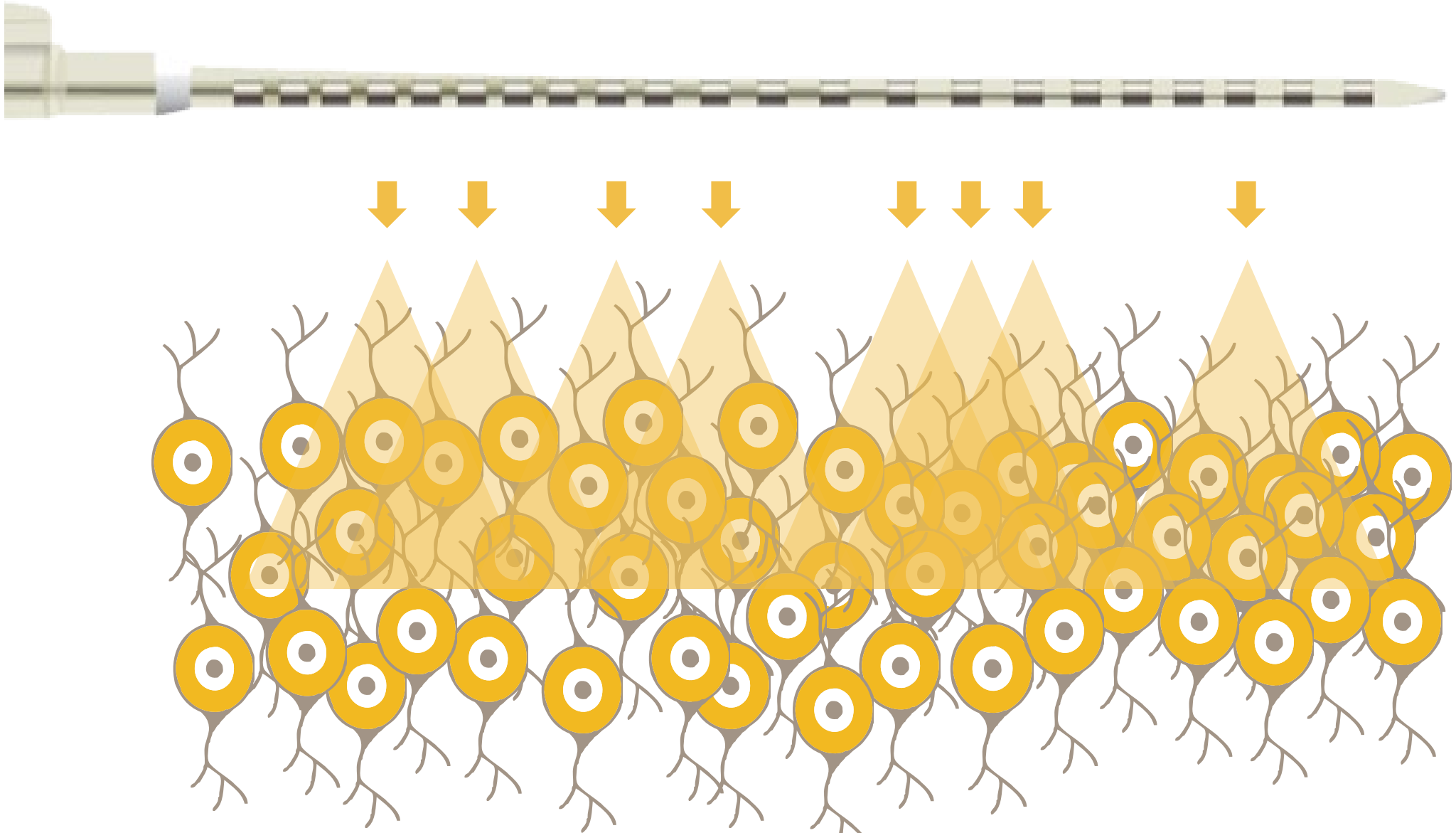



Automated implant registration

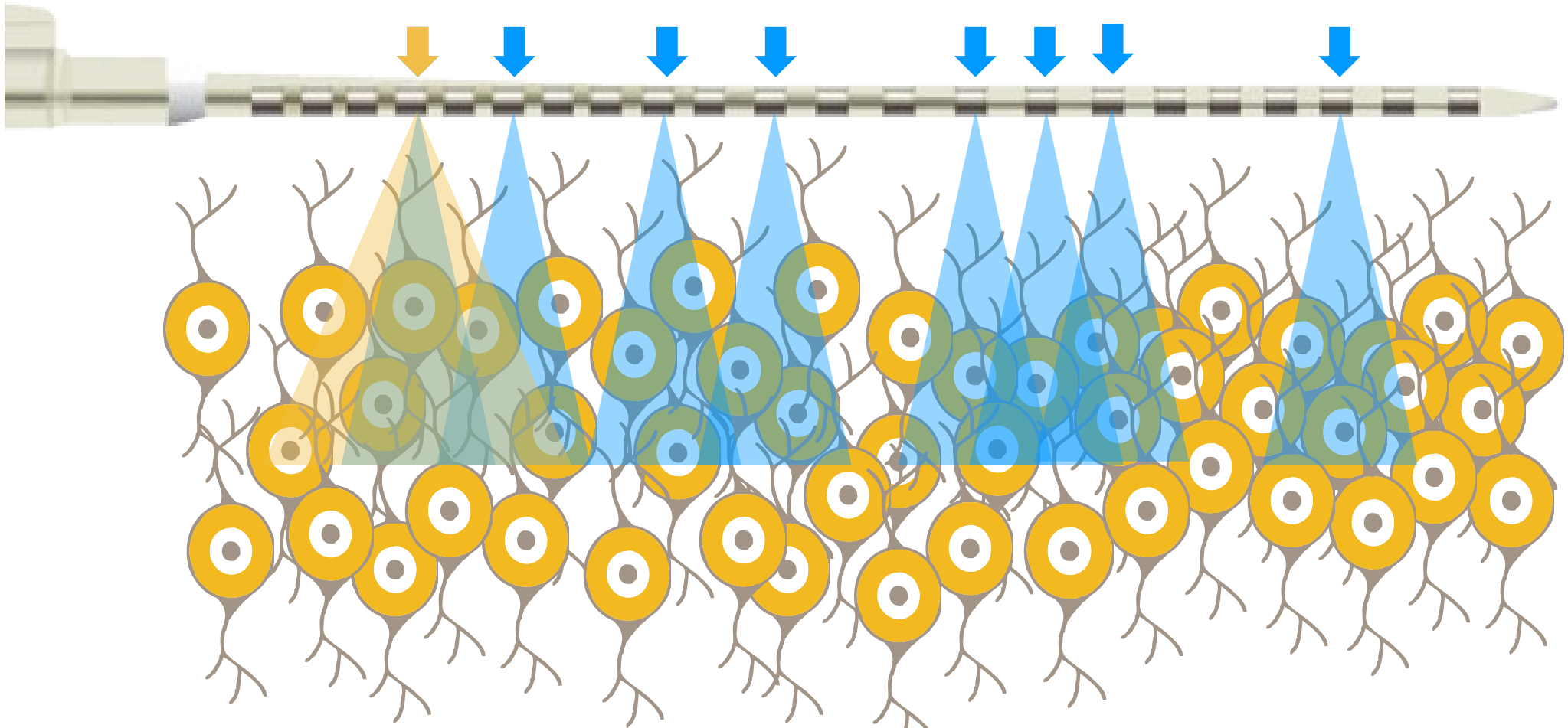
# Lateral wall electrodes = high channel interaction / overlap



# Peri-modiolar electrodes = reduce channel interaction / overlap



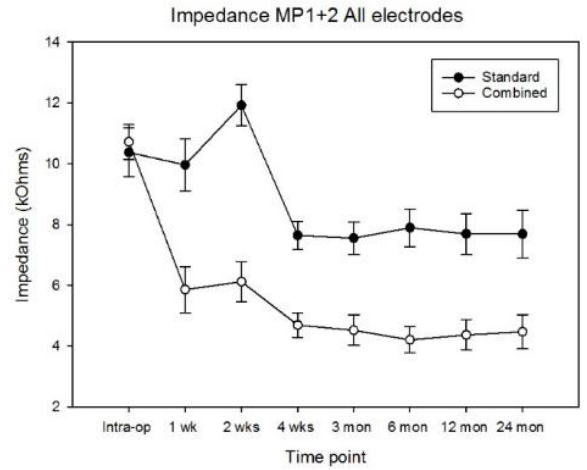
# The combination of a peri-modiolar electrode and more precise auditory nerve stimulation has the potential to further improve hearing outcomes



# A range of drug / device combination studies underway

- Drug/device combinations have the potential to improve hearing outcomes by minimising the foreign body reaction from surgery
- We are progressing our dexamethasone eluting electrode clinical studies following a feasibility study that indicated the potential for improved hearing outcomes
- Commercialisation still a number of years away with a pivotal study and regulatory submission still to come
- Further research collaborations include:
  - Oral drug delivery with Sensorion SENS-401 feasibility study focused on preservation of residual hearing after cochlear implantation
  - Gene therapy with a cochlear implant. BaDGE® neurotrophin gene therapy clinical trial investigating regeneration of the auditory nerve to improve hearing outcomes for cochlear implant recipients

Dexamethasone eluting electrode clinical studies demonstrating lower impedances




Sensorion SENS-401 feasibility study

BaDGE® neurotrophin gene therapy clinical trial

# Innovation focus areas

## Hearing Outcomes

## Lifestyle and ease-of-use

## Connected Care

## Expanding the portfolio

# Living your life – cochlear implant sound processor wearing options

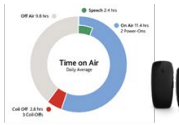
## Behind-The-Ear (BTE) Sound Processors

**Nucleus® 8 Sound Processor**


Dual microphones

SSiQ with SCAN

ForwardFocus*




Advanced Data Logs

True Wireless Accessories

Bi-modal compatibility

Works with android

Made for iPhone | iPad | iPod

## Off-The-Ear (OTE) Sound Processors

**Kanso® 2 Sound Processor**

## Continue to shrink the Sound Processor

## No external processor (TICI)

# Proven hearing performance technologies and industry-leading connectivity

**Nucleus® 8 Sound Processor**

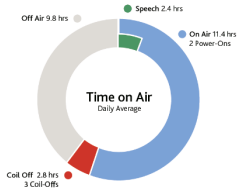
**Kanso® 2 Sound Processor**

## Performance

Dual microphones


SSiQ 2 with SCAN 2


ForwardFocus




Usage data

## Bimodal

Hearing aid compatibility

## Connectivity

Direct streaming for Apple and Android™

Nucleus® Smart App

## Lifestyle

True Wireless™

IP68

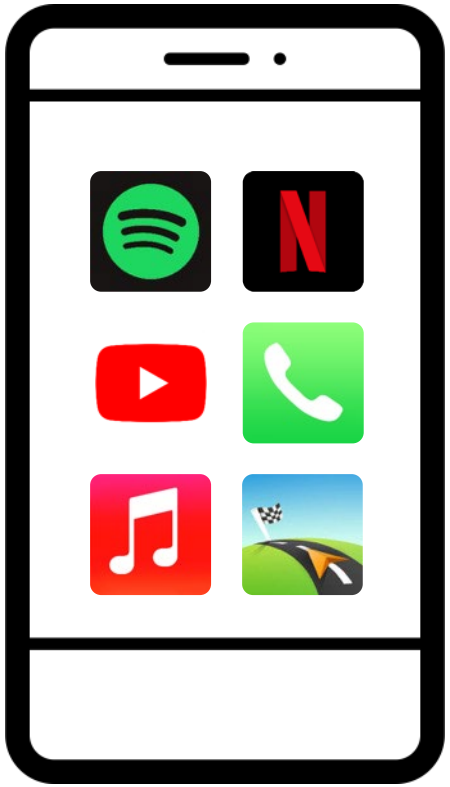
Wearing options

ForwardFocus is clinician enabled within Custom Sound® Pro fitting software.
The Cochlear Nucleus® 8 Sound Processor is compatible with Apple and Android devices, for compatibility information visit www.cochlear.com/compatibility.

# Nucleus 7, Nucleus 8 & Kanso 2: smart bi-modal hearing solution

Kanso® 2
Sound Processor

Nucleus® 8
Sound Processor



ReSound /
GN Hearing
Hearing Aids

Smart Hearing Alliance



For compatibility information and devices visit www.cochlear.com/compatibility and www.resound.com/compatibility.

AURACAST
A BLUETOOTH® TECHNOLOGY

Cochlear®

## Share your audio

Auracast™ broadcast audio will let you invite others to share in your audio experience, bringing us closer together.

## Unmute your world

Auracast™ broadcast audio will enable you to fully enjoy televisions in public spaces, unmuting what was once silent and creating a more complete watching experience.

## Hear your best

Auracast™ broadcast audio will allow you to hear your best in the places you go and is expected to become the next generation assistive listening technology, improving audio accessibility and promoting better living through better hearing.

Information taken from Bluetooth® website: https://www.bluetooth.com/auracast/

# 1st Generation totally implantable cochlear implant research device (2005-2006)

- Hearing performance in quiet and in noise significantly degraded when using invisible hearing
- Usability strongly affected by the presence of body noise (breathing, swallowing, eating, ...)
- Due to these issues the Melbourne recipients do not use the invisible hearing as the 'standard' hearing mode
- However ... today, all 3 recipients use the invisible hearing mode for part of the day in particular situations and activities
- The recipients were not prepared to give up the invisible hearing function:

*"I'm never deaf anymore"*

*"Freedom from deafness"*

3 patients implanted with first generation investigational TICI device in 2005

Briggs et al (2005)

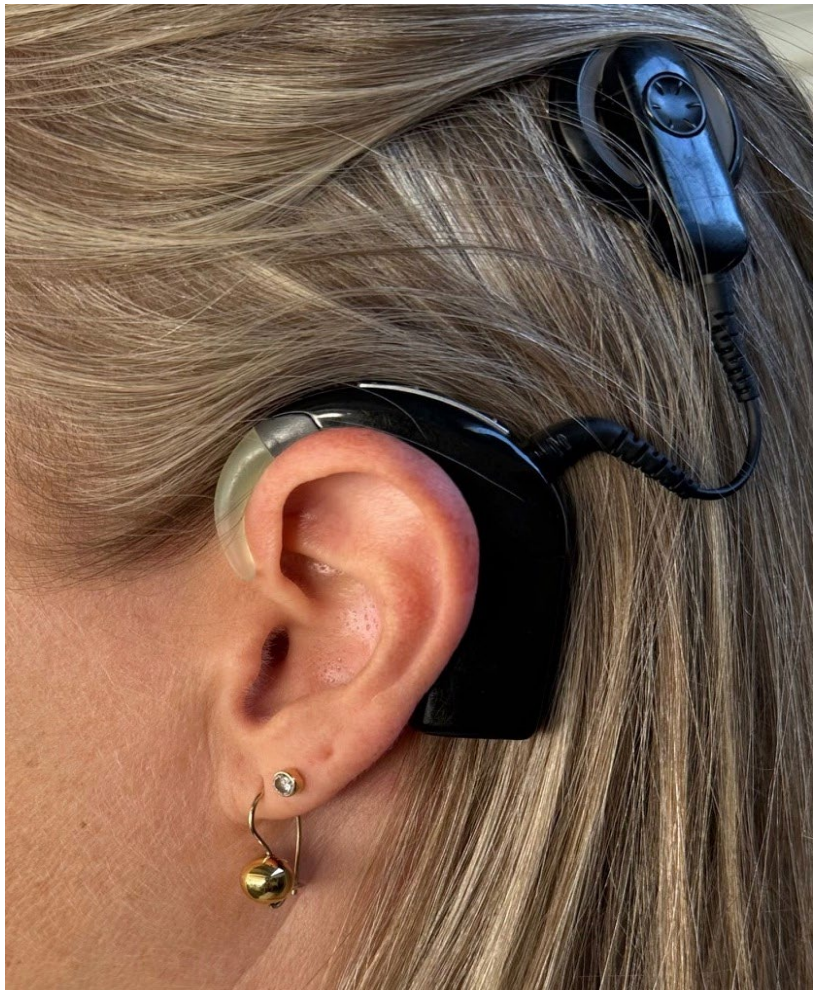
# 2nd Generation totally implantable cochlear implant research device (2018)

Custom body-worn charger

Cochlear Nucleus®6 Sound Processor

# 2nd Generation TICI research device hearing modes

External hearing mode



Invisible hearing mode

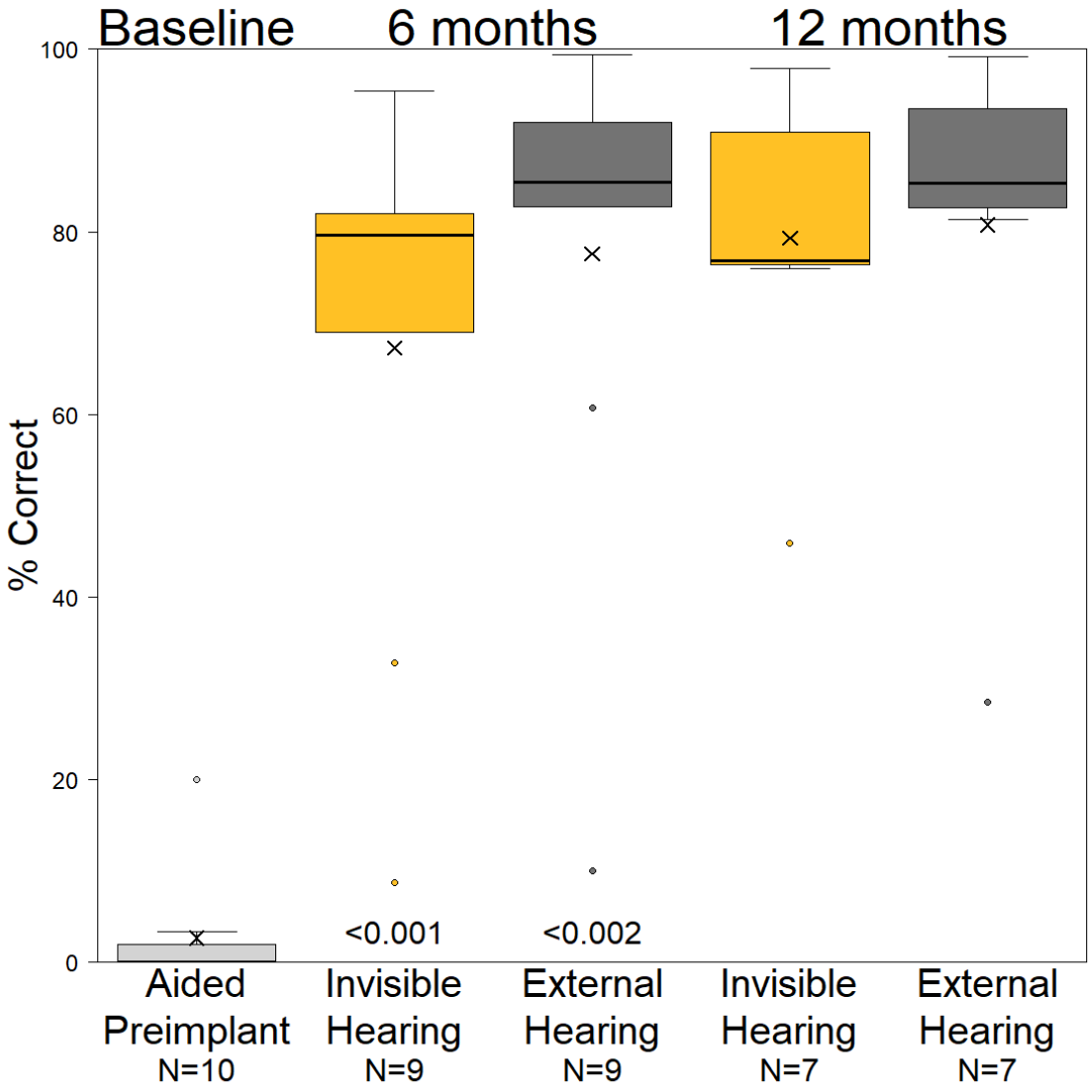
# 2nd Generation TICI research device – significant improvements in hearing outcomes

## Clinical study results (Briggs)

- 10 patients
- Baseline hearing (aided pre implant) of ~3% sentence understanding in quiet
- At 6 months after TICI switch on they can hear up to 80% in invisible hearing mode, improving even further after 12 months
- Great outcomes in invisible hearing mode compared to hearing with the external sound processor
- Body noise is still audible but is not as intrusive the 1st gen device

## Pathway to commercialisation – still many years away

- Finalisation of product development
- Pivotal clinical study
- Regulatory approval
- Reimbursement considerations



# Innovation focus areas

## Hearing Outcomes

## Lifestyle and ease-of-use

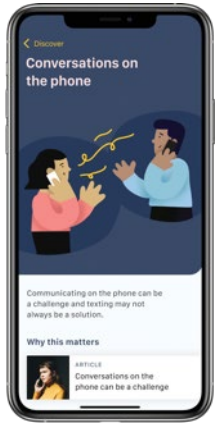
## Connected Care

## Expanding the portfolio

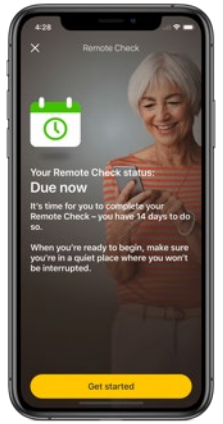
# Connected Care supports patients at every stage of their journey


## Surgical Care

## In-clinic Care



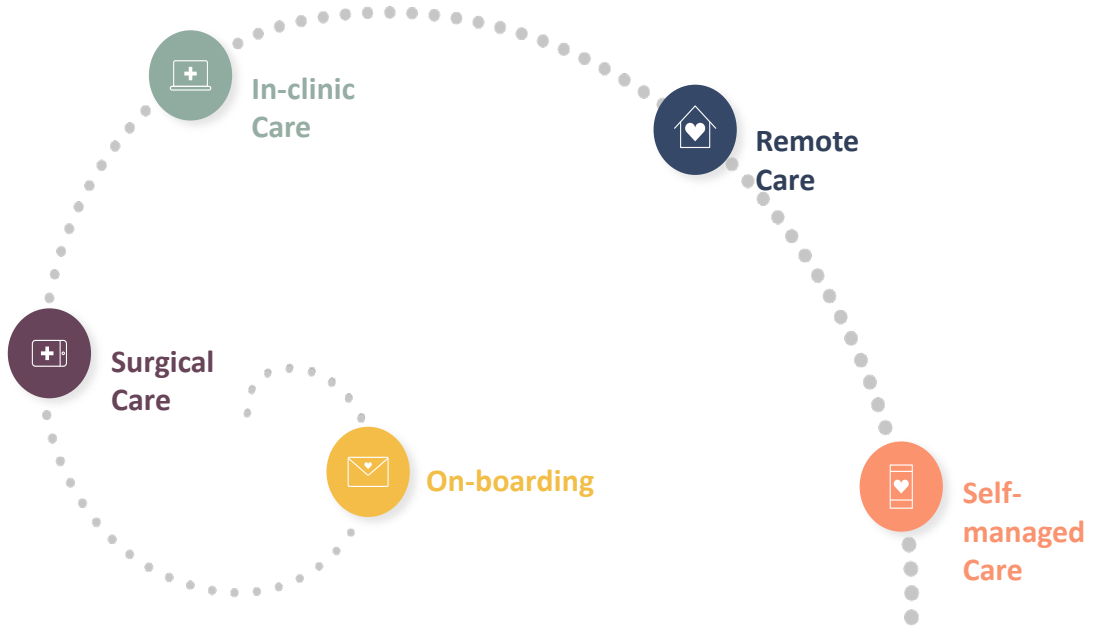

## Self-managed Care




## Remote Care

# Connected Care provides convenience and confidence to customers and has the potential to drive clinic efficiency and enable data-driven care

- **Convenience and confidence:** delivering digital products that enhance the patient and professional experience
  - Real-time surgical guidance
  - More convenient care delivery options
  - Insights and intuitive device controls to drive patient engagement
- **Clinic efficiency:** connected care products enable more efficient care delivery, reducing waiting lists and increasing access to new candidates
- **Data-driven care:** by capturing demographics, device info/usage patterns and longitudinal performance measures, we can create data-driven clinical decision support to enhance patient outcomes.
  - Establishes an evidence-based standard of care that delivers personalised care recommendations
  - Opportunity for AI-assisted fitting and rehab




**Connected Care impacts the entire patient journey**

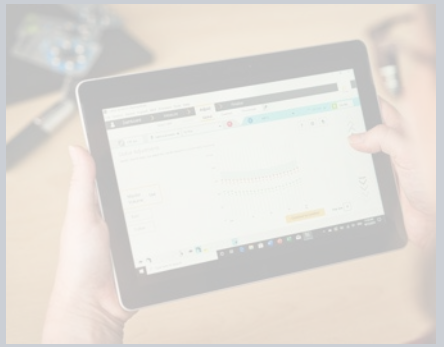
# Innovation focus areas

Cochlear®

## Hearing Outcomes

## Lifestyle and ease-of-use

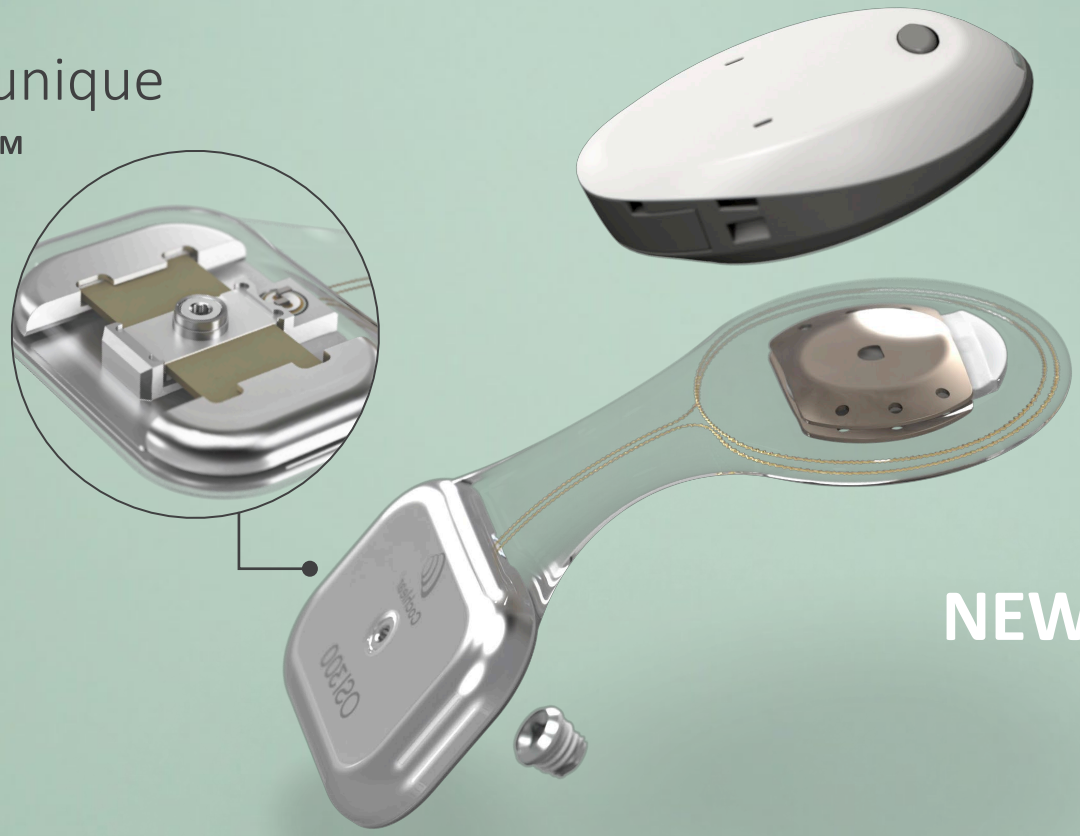
## Connected Care



## Expanding the portfolio

# The Osia™ System®
# Removing boundaries to bone conduction

Powered by unique Piezo Power™ technology



NEW!

**High-frequency power & performance**[1]

**Discreet & easy to use**

**Only active system enabling MRI at 3 T**[2]

1. Osia System R5 Datasheet. Cochlear Limited, Australia. 2023; D1991788
2. Ellsperman SE, Nairn EM, Stucken EZ. Review of Bone Conduction Hearing Devices. Audiol Res. 2021;11(2):207-219.

# High-resolution MRI, without compromise

**NEW!**
**Next-generation**
**3 T magnet**

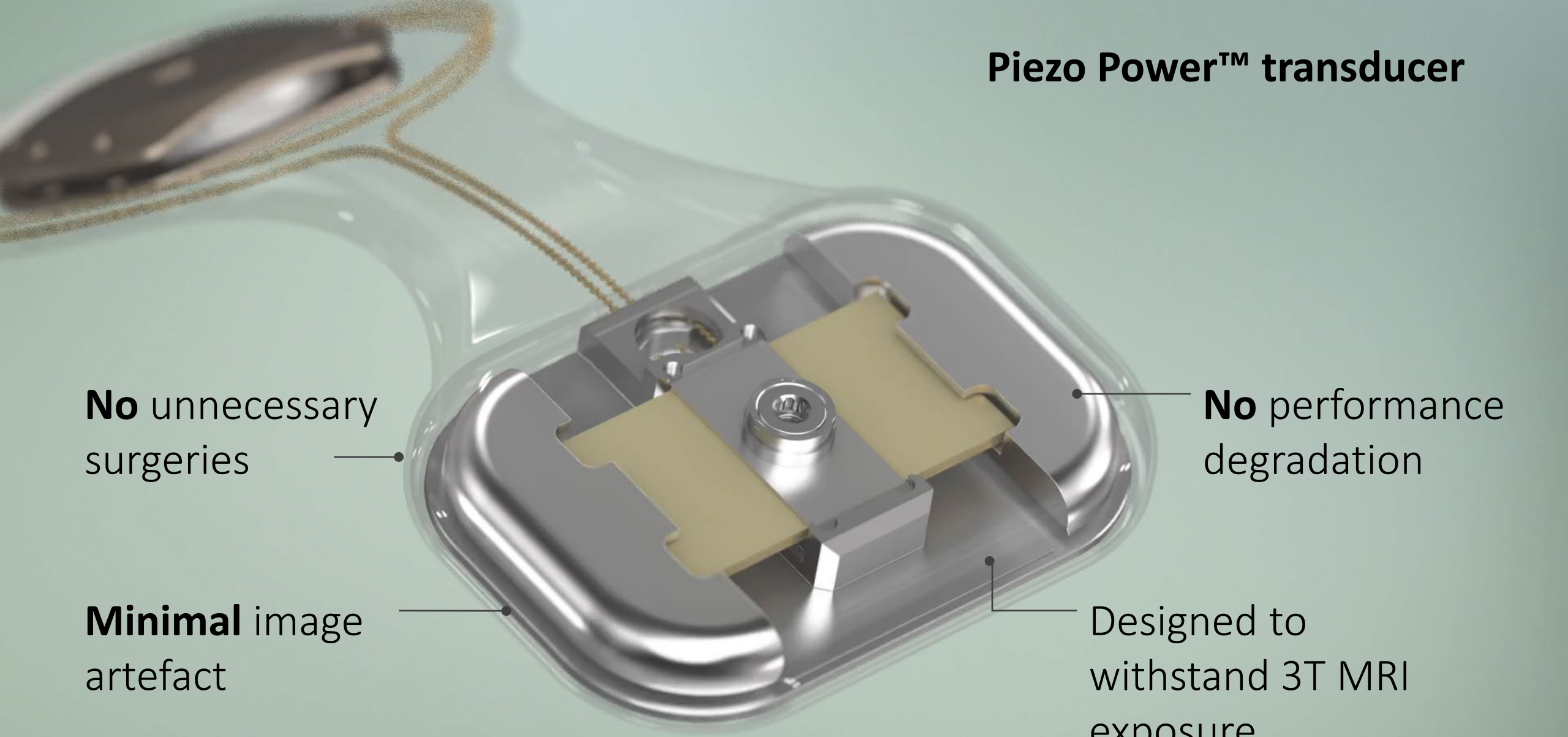

**Piezo Power™ transducer**

The Osia System is the **only active BC system enabling MRI at 3 T**[1,2*]

*The OSI300 implant is MRI conditional at 1.5 T and 3 T with magnet in place. Refer to Osia MRI guidelines for further information.

1. MRI Checklist for MED-EL Bone Conduction Implant BCI 602 MED-EL Elekromeizinische Geräte Gmbh, Austria; AW52878_1.0 (English US)
2. Ellsperman SE, Nairn EM, Stucken EZ. Review of Bone Conduction Hearing Devices. Audiol Res. 2021;11(2):207-219.

# Piezo Power™ transducer



**No** unnecessary surgeries

**No** performance degradation

**Minimal** image artefact

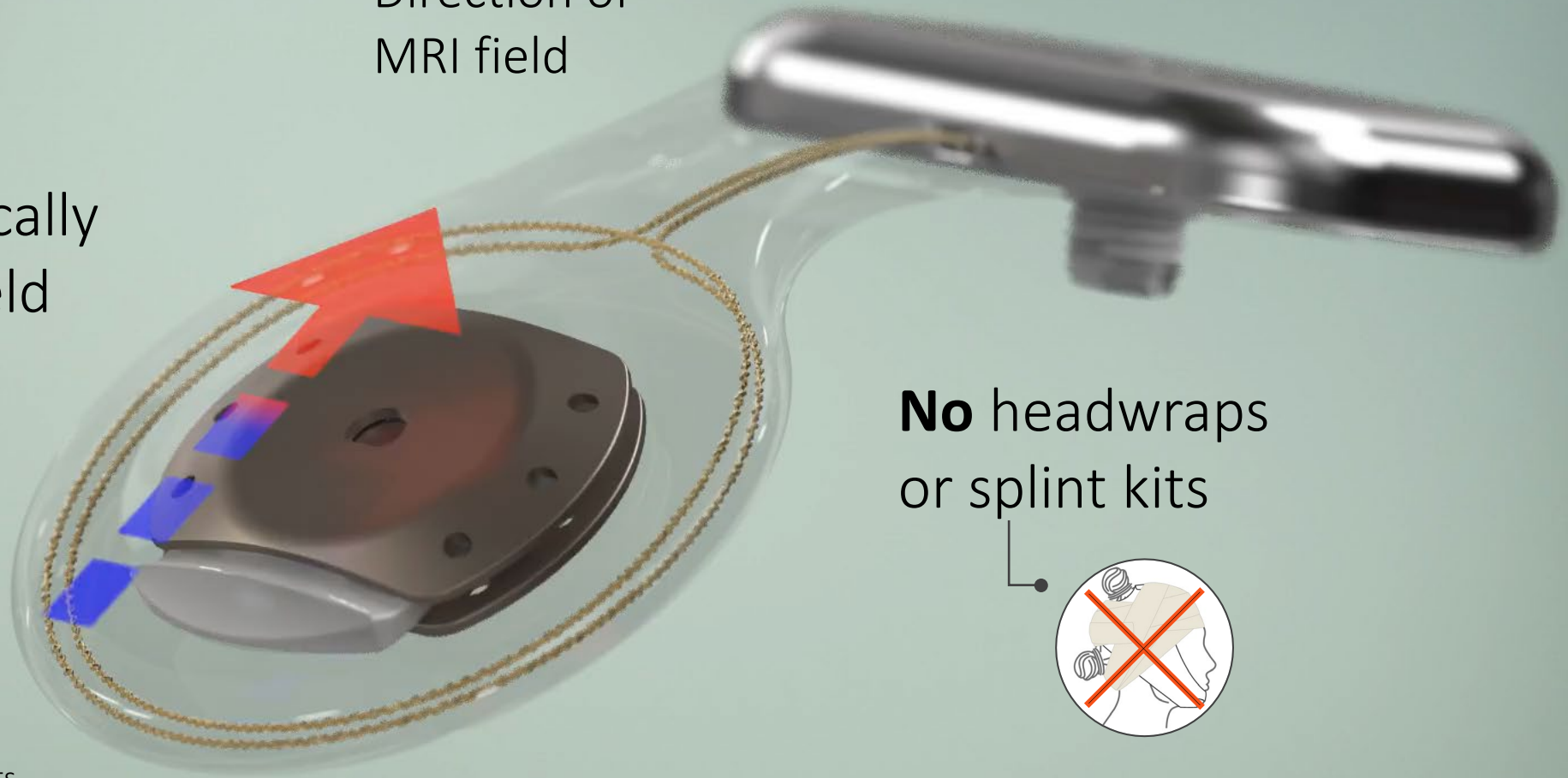
Designed to withstand 3T MRI exposure

*The OSI300 implant is MRI conditional at 1.5 T and 3 T with magnet in place. Refer to Osia MRI guidelines for further information.

# Next-generation 3 T magnet

Direction of MRI field

Magnet automatically realigns to MRI field



**No** headwraps or splint kits



**Simple** magnet removal *if needed*

For further reduced image artefacts

*The OSI300 implant is MRI conditional at 1.5 T and 3 T with magnet in place. Refer to Osia MRI guidelines for further information.

# We continue to invest ~12% of sales revenue each year in R&D, with a strong pipeline of products and services in development

- Opportunities to improve **hearing outcomes** from implant-focused investment – peri-modiolar electrodes + more precise auditory nerve stimulation, drug / device combinations
- **Lifestyle** focus on smaller, lighter, better connected sound processors and totally implantable cochlear implant solutions
- **Connected care** continues to focus on improving convenience and confidence to customers
- **Expanding the portfolio** with acoustic implant innovation as well as exploring potential opportunities to broaden the use of our technology outside of hearing loss

Hear now. And always

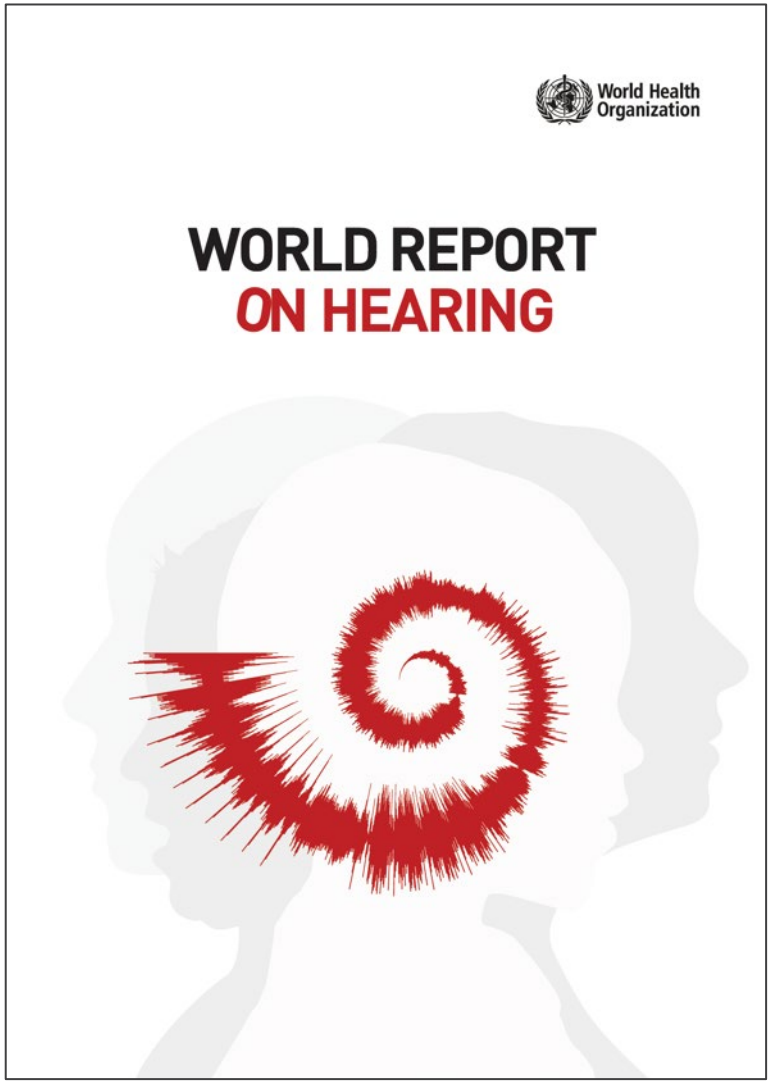
# Developing a treatment pathway for adults

## Cochlear Capital Markets Day | 27 October 2023

**Dean Phizacklea**
**SVP Global Strategic Marketing**

# The global burden of hearing loss is significant

- Hearing loss affects more than **1.5 billion people** or **20%** of global population[1]
- Most people with severe or worse hearing loss are **over 60**[1]
- **1 in 3 people over 65** are affected by hearing loss[1]
- Global cost of unaddressed hearing loss **< $980 billion annually**[1]
- Hearing loss is the **single largest modifiable risk** factor for dementia[2]




1. *World Health Organization. World report on hearing ,2021*
2. *Dementia prevention, intervention, and care: 2020 report of the Lancet Commission, Prof Gill Livingston, MD*

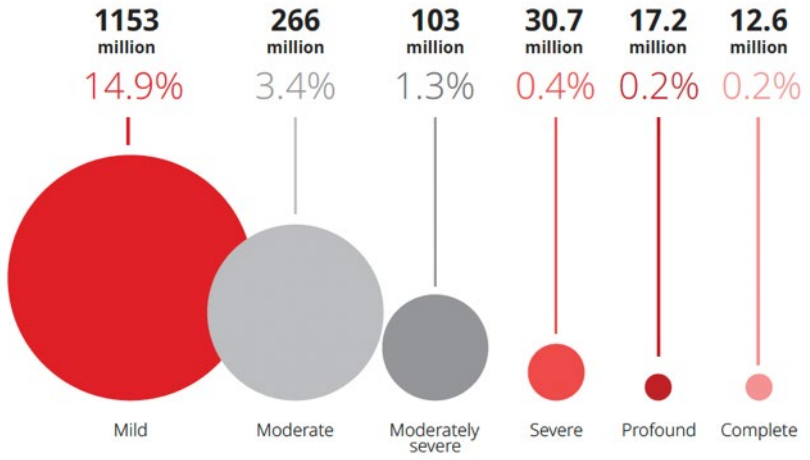
# An ageing population and a growing segment of patients who would be eligible for cochlear implants provides opportunity for sustained growth

**Total Population and Those Aged 60 and Older by World Region: 2020 and Projected 2050**

(Numbers in millions)

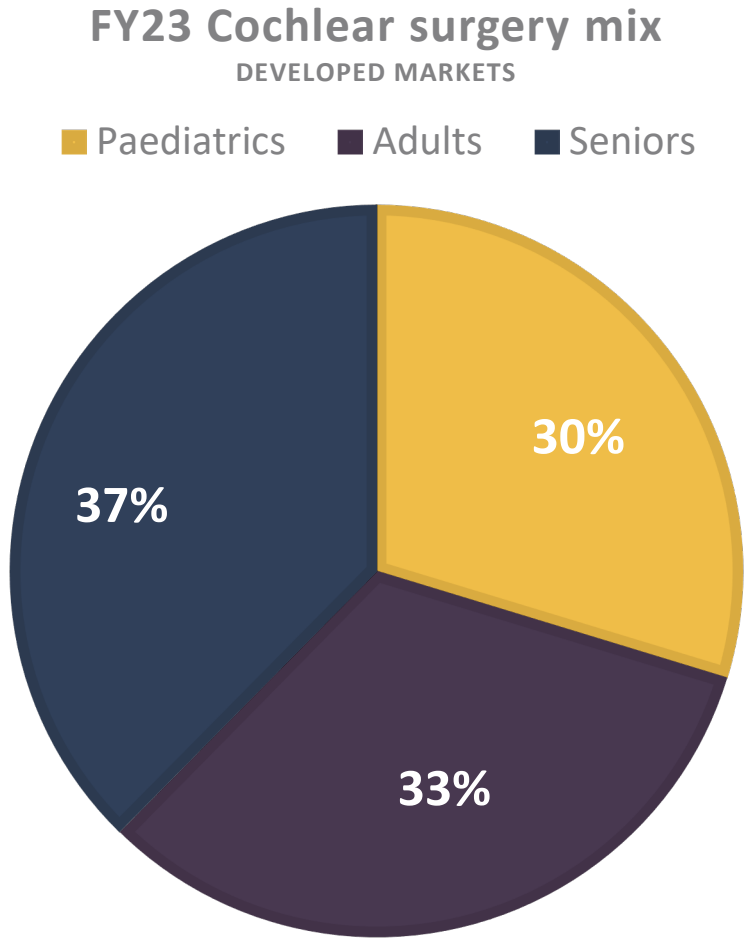
| Region | Total population | | Population aged 60 and older | | | |
|---|---|---|---|---|---|---|
| | | | 2020 | | 2050 | |
| | 2020 | 2050 | Number | Percent | Number | Percent |
| **World** | **7,684.3** | **9,665.3** | **1,045.4** | **13.6** | **2,092.2** | **21.6** |
| Africa | 1,339.5 | 2,533.6 | 74.4 | 5.6 | 235.1 | 9.3 |
| Asia | 4,539.6 | 5,188.0 | 603.2 | 13.3 | 1,292.2 | 24.9 |
| Europe | 749.3 | 716.4 | 191.1 | 25.5 | 246.7 | 34.4 |
| Latin America and the Caribbean | 644.3 | 742.6 | 82.6 | 12.8 | 183.4 | 24.7 |
| Northern America | 370.5 | 432.1 | 86.8 | 23.4 | 122.2 | 28.3 |
| Oceania | 41.1 | 52.6 | 7.3 | 17.9 | 12.6 | 24.0 |

Source: U.S. Census Bureau, International Database, 2019.

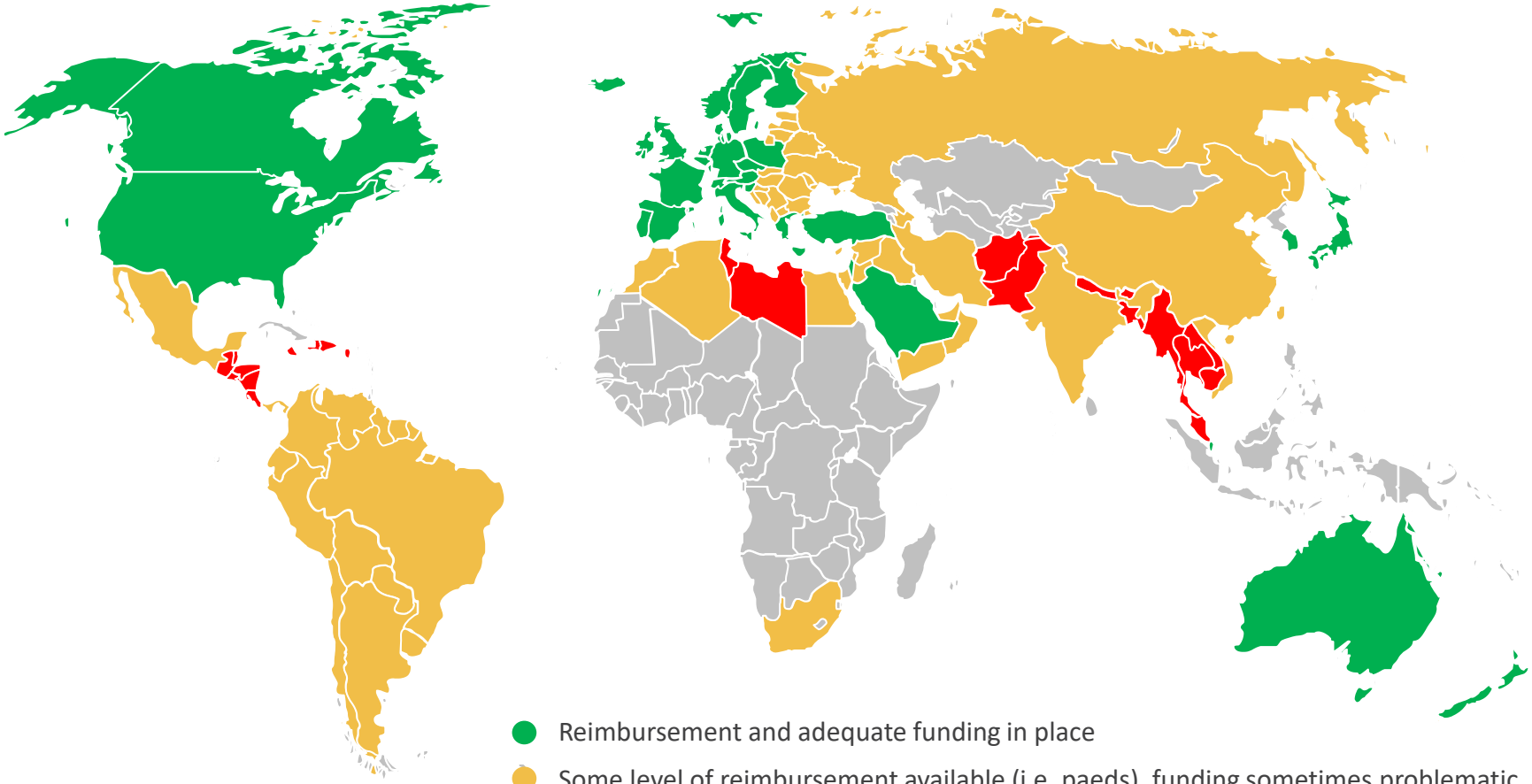



Globally 1.5 billion people live with hearing loss

Source: World Health Organization; 2021



# Reimbursement and funding for CI is well established in developed markets and improving in emerging markets



- Reimbursement and adequate funding in place
- Some level of reimbursement available (i.e. paeds), funding sometimes problematic
- Little or no reimbursement – mostly cash pay
- No reimbursement / limited cash pay

**Reimbursement criteria usually focuses on age, PTA threshold level and word / speech recognition**

| Country | Age criteria | PTA criteria | Audiometric criteria (adults) |
|---|---|---|---|
| **USA** | 9m+ | 70dB+ | <60% best aided |
| **Germany** | No age limit | 60dB+ | <60% Freiburger test |
| **UK** | No age limit | 80dB+ | <50% on AB word test |
| **Australia** | No age limit | 70dB+ | - |

# Cochlear implants became the standard of care for children by 2010

Development of health economic data supporting **cost effectiveness** of cochlear implants for children

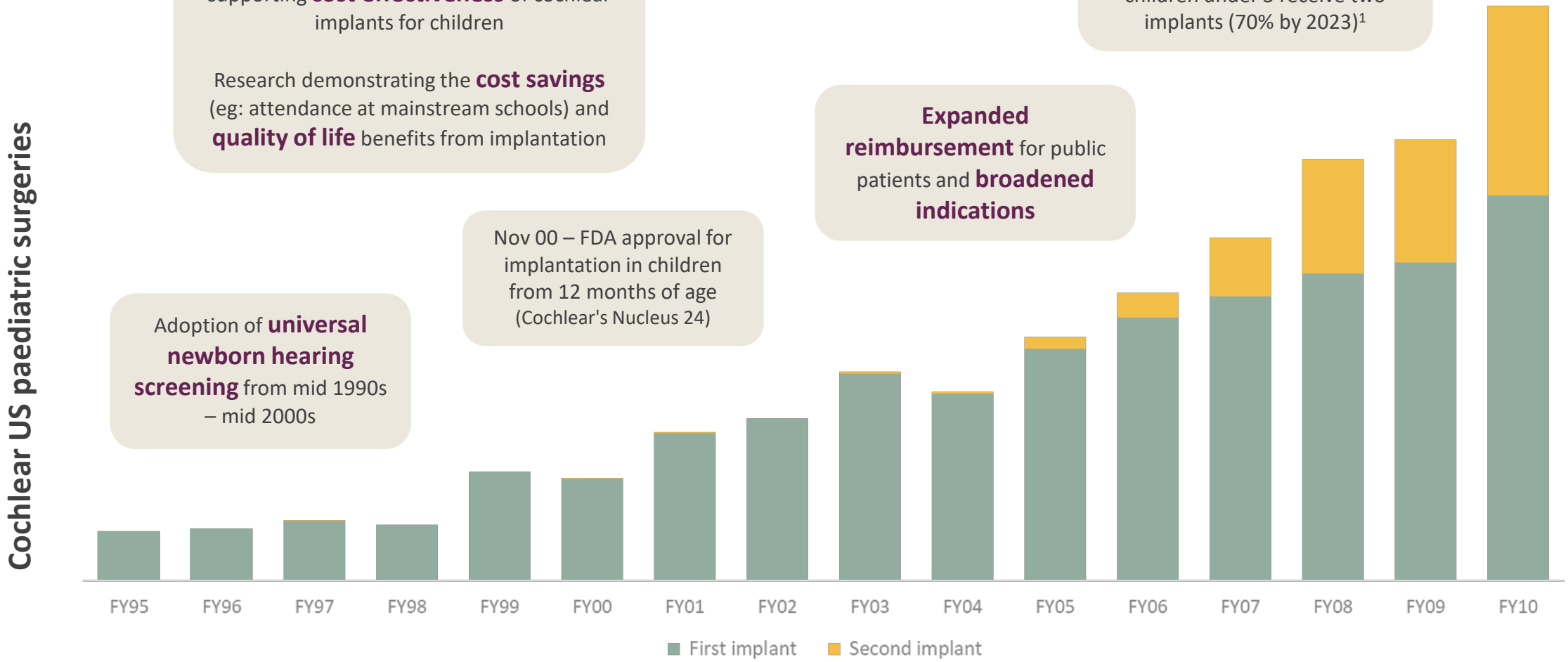
Research demonstrating the **cost savings** (eg: attendance at mainstream schools) and **quality of life** benefits from implantation

Clinical evidence supporting the benefits of **bilateral implantation**. By 2010, 50% of children under 3 receive two implants (70% by 2023)[1]

**Expanded reimbursement** for public patients and **broadened indications**

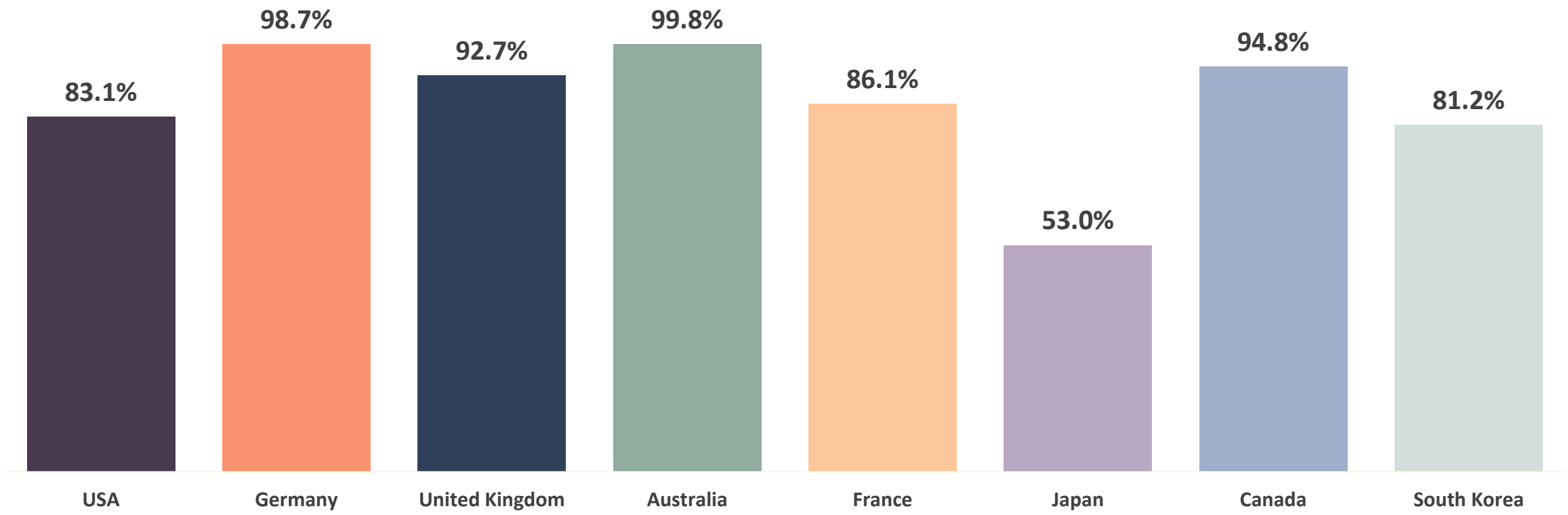
Nov 00 – FDA approval for implantation in children from 12 months of age (Cochlear's Nucleus 24)

Adoption of **universal newborn hearing screening** from mid 1990s – mid 2000s




1. *Based on Cochlear's surgery data for developed markets*

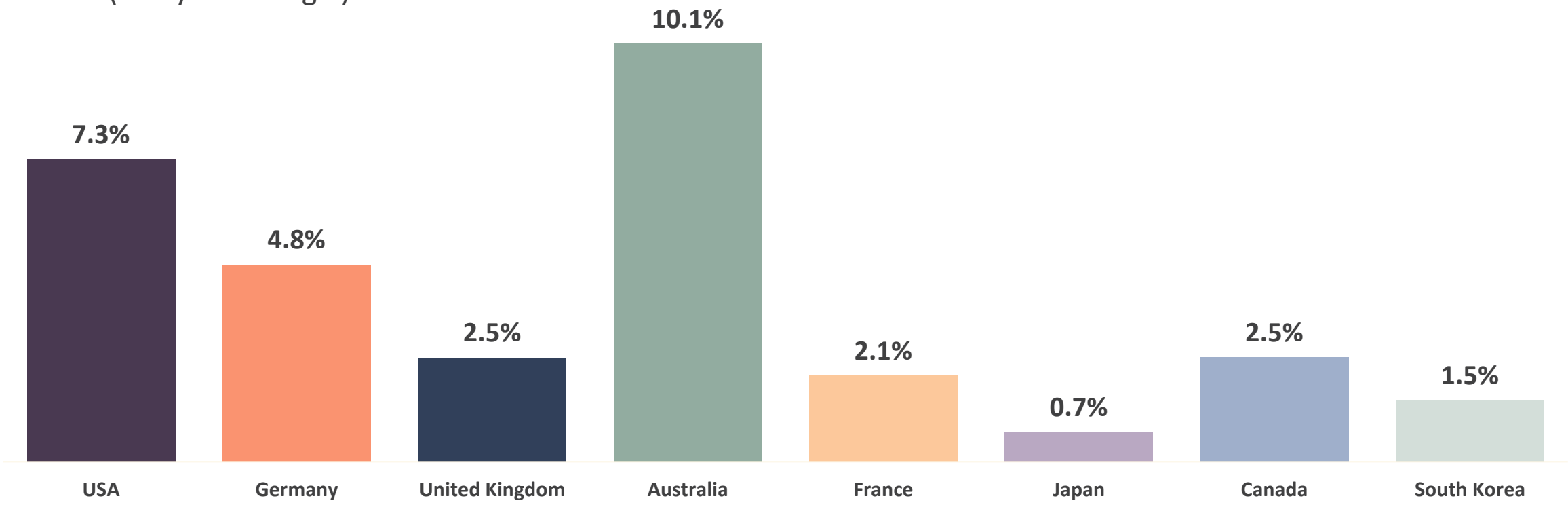
# Estimated penetration of cochlear implants in Children (developed markets)




- Eligible patient population aged 0-18 with hearing loss > 90db
- Prevalence % derived from Haile et al , Hearing loss prevalence and years lived with disability, 1990–2019: findings from the Global Burden of Disease Study 2019 , Lancet 2021; 397: 996–100)
- No adjustments made for funding availability and access
- Total market recipients derived using Cochlear recipient and Cochlear market share data (FY2023)

# Estimated penetration of cochlear implants in Seniors (developed markets)

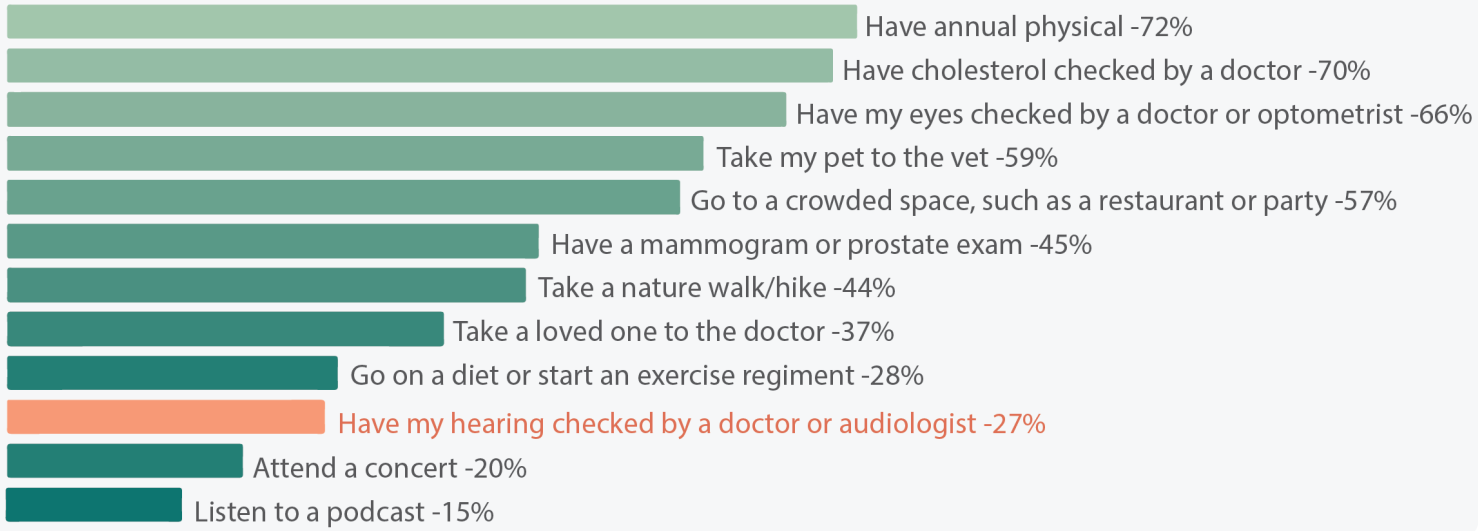
Seniors (65+ years of age )

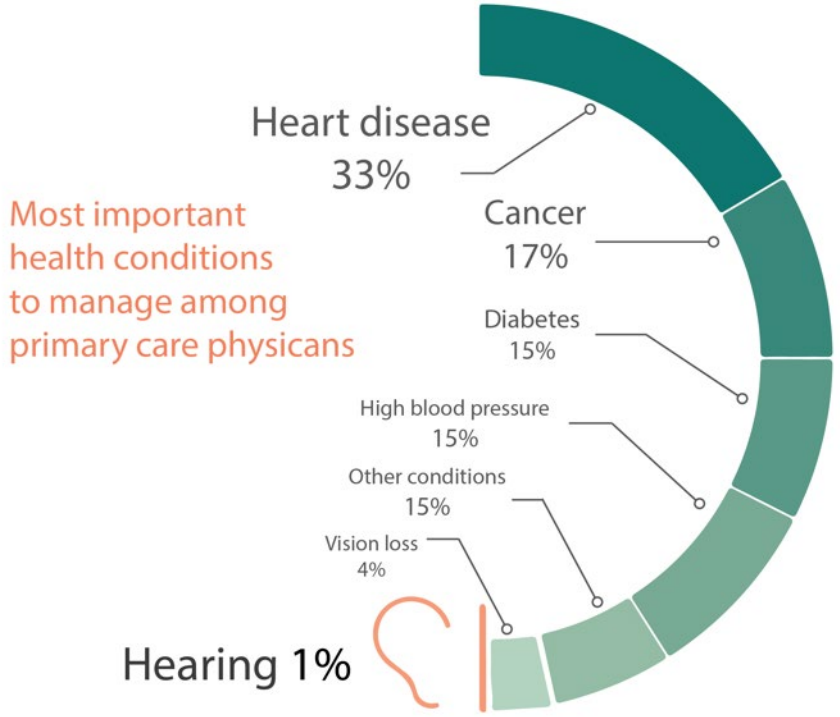



- Eligible patient population aged 65+ with hearing loss > 70db
- Prevalence % derived from from Haile et al , Hearing loss prevalence and years lived with disability, 1990–2019: findings from the Global Burden of Disease Study 2019 , Lancet 2021; 397: 996–100)
- No adjustments made for funding availability and access
- Total market recipients derived using Cochlear recipient and Cochlear market share data (FY2023)

# Hearing loss is not seen as a serious medical condition

## Likelihood of prioritizing health conditions and life activities in the next 12 months - responses of very likely




**US Survey of 400 PCPs**

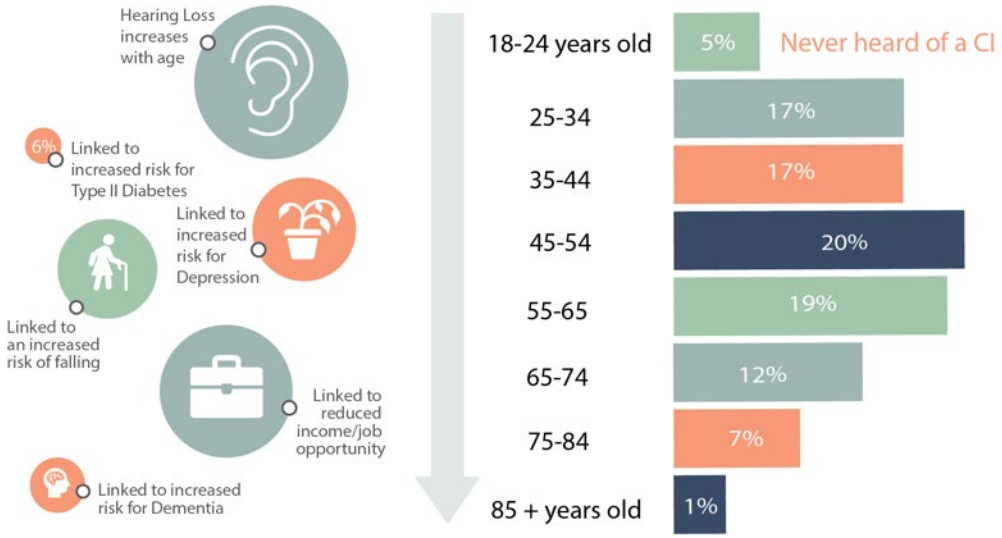

Carlsson et al ,Awareness, Perceptions, and Literacy Surrounding Hearing Loss and Hearing Rehabilitation Among the Adult Population in the United States , Otology & Neurotology, Vol. 43, No. 3, 2022

Sydlowski et al , Hearing Health Perceptions and Literacy Among Primary Healthcare Providers in the United States: A National Cross-Sectional Survey ,Otology & Neurotology, Vol. 00, No. 00, 2022

# Patients have a very low level of awareness of a cochlear implant as a potential treatment option

From a national survey of 15,138 adults in 2021

## 80% of adults with hearing difficulty reported never talking with a hearing care professional about cochlear implants (CIs)



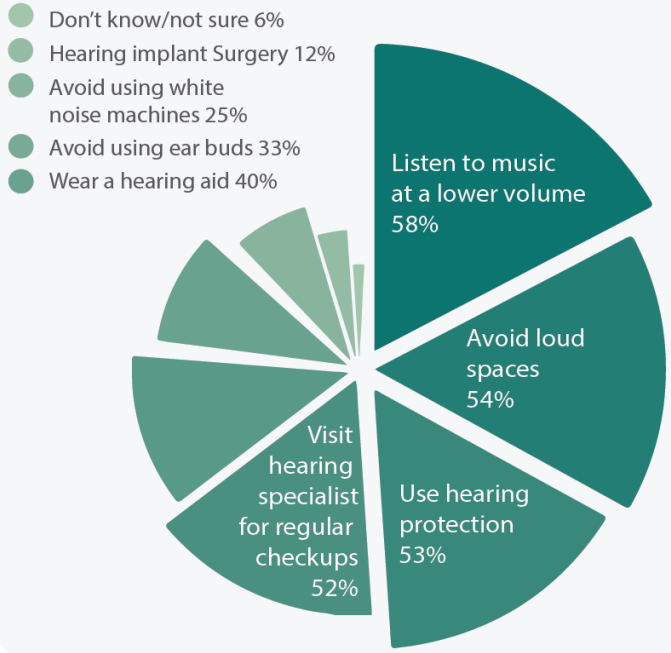

## Awareness contributes directly to underutilization of cochlear implants

CI Awareness in the US

John P. Marinelli, Sarah A. Sydlowski, Matthew L. Carlson

Hearing Health Collaborative

## Perceived steps to resolve hearing loss



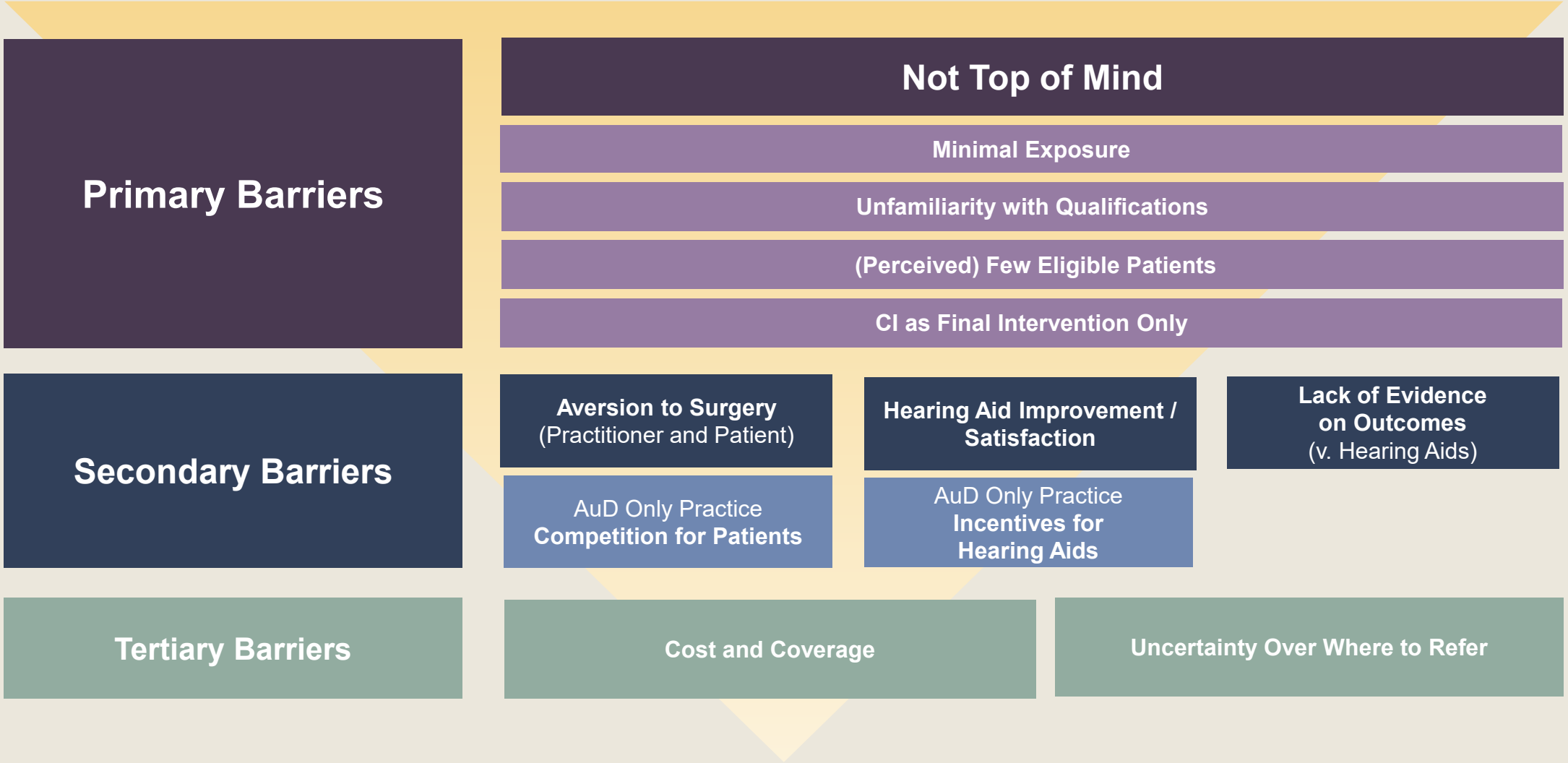

National cross-sectional survey study of adults between ages of 50 and 80

Hearing Loss Awareness and Literacy

Hearing Health Collaborative

Marinelli et al , Cochlear Implant Awareness in the United States: A National Survey of 15,138 Adults , SEMINARS IN HEARING/VOLUME 43, NUMBER 4 2022

# Professionals most commonly cite knowledge and patient-related concerns as barriers to referral; commercial concerns are important for audiology-only clinics



# Why we need a Standard of Care for cochlear implants

*"One of the challenges we have is that if the various **different professionals**, are not all giving, similar or the same and **consistent**, **messaging** around hearing healthcare then all we're doing is making it more difficult for individuals to seek treatment."*

**CI User from the Living Guidelines Taskforce**

*"There is a lack of **person-centred** and **consistent referral pathways**, which results in **inconsistent diagnosis** and **delays in referral** to CI specialists for candidates who may benefit."*

**CI Audiologist from the Living Guidelines Taskforce**

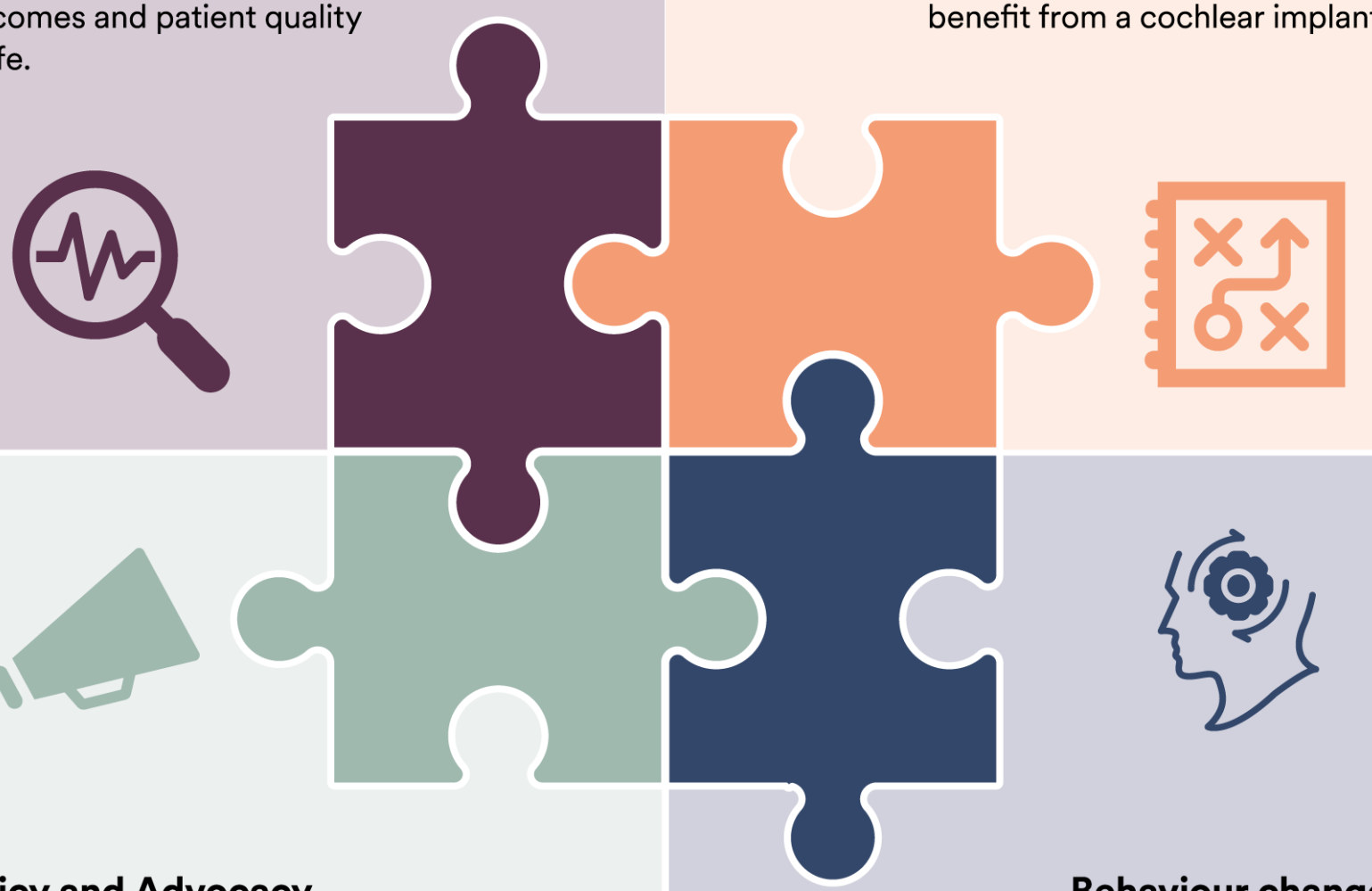
# The key elements of Standard of Care

## Creation of evidence

The continuous generation of robust clinical evidence that demonstrates improved clinical outcomes and patient quality of life.

## Living Guidelines

An evidenced based set of treatment guidelines for adults who would benefit from a cochlear implant.



## Policy and Advocacy

Engage key stakeholders to raise the awareness and the importance of hearing health in adults and, in particular, the role of cochlear implants.

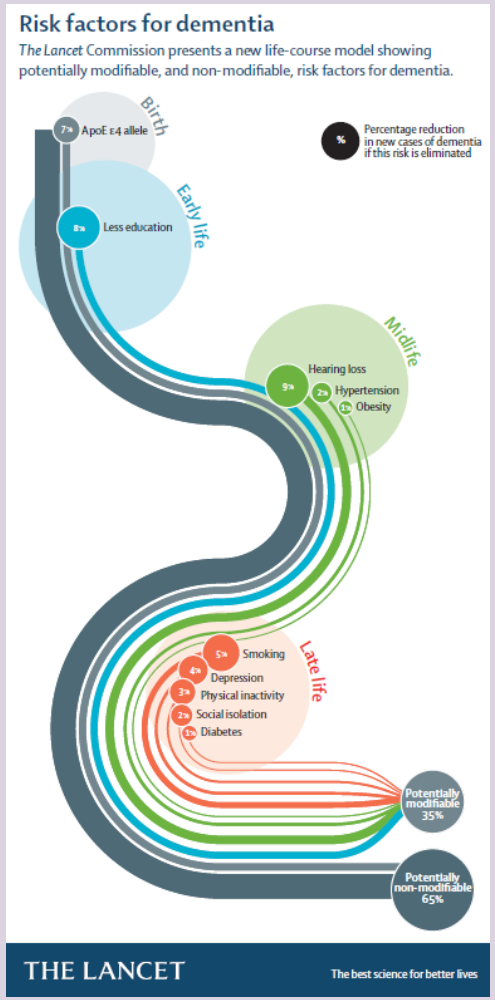
## Behaviour change

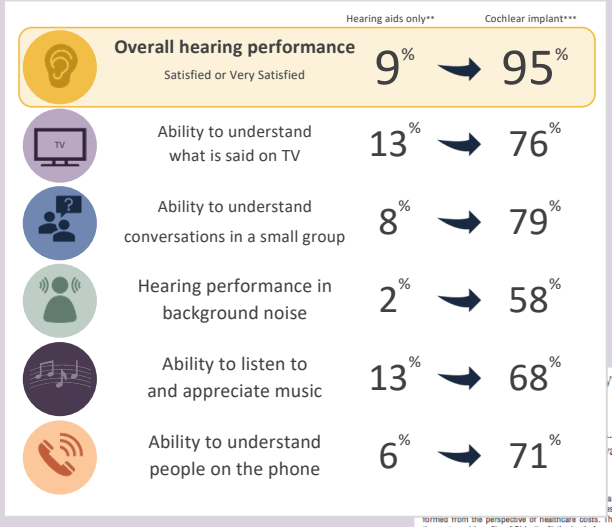
Move hearing professionals into willing and active referrers.

## Creation of evidence

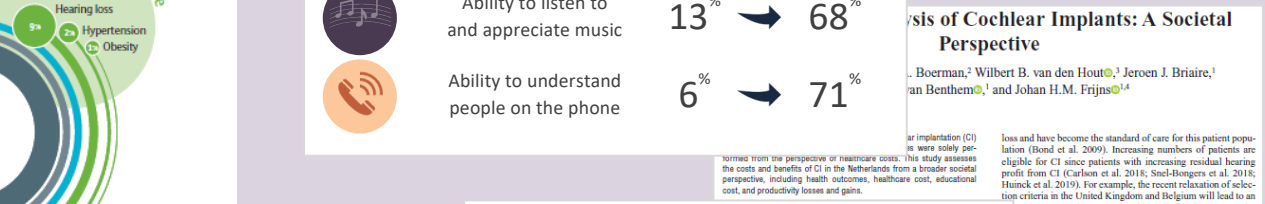
The continuous generation of robust clinical evidence that demonstrates improved clinical outcomes and patient quality of life.

**The evidence to support the role of hearing treatment in healthy ageing and its effectiveness is continuing to strengthen**




Cochlear®



sis of Cochlear Implants: A Societal Perspective

. Boerman,[2] Wilbert B. van den Hout,[3] Jeroen J. Briaire,[1] an Benthem,[1] and Johan H.M. Frijns[1,4]

The European Journal of Health Economics
https://doi.org/10.1007/s10198-021-01393-y

ORIGINAL PAPER

The cost-effectiveness of unilateral cochlear implants in UK adults

Henry Cutler[1] · Mutsa Gumbie[1] · Emma Olin[1] · Bonny Parkinson[1] · Ross Bowman[2] · Hafsa Quadri[2] · Timothy Mann[3]

Received: 8 April 2020 / Accepted: 21 October 2021
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Abstract

**Objective** The National Institute for Health and Care Excellence (NICE) updated its eligibility criteria for unilateral cochlear implants (UCIs) in 2019. NICE claimed this would not impact the cost-effectiveness results used within its 2009 technology appraisal guidance. This claim is uncertain given changed clinical practice and increased healthcare unit costs. Our objective was to estimate the cost-effectiveness estimates of UCIs in UK adults with severe to profound hearing loss within the contemporary NHS environment.

**Methods** A cost–utility analysis employing a Markov model was undertaken to compare UCIs with hearing aids or no hearing aids for people with severe to profound hearing loss. A clinical pathway was developed to estimate resource use. Health-related quality of life, potential adverse events, device upgrades and device failure were captured. Unit costs were derived mostly from the NHS data. Probabilistic sensitivity analysis further assessed the effect of uncertain model inputs.

**Results** A UCI is likely to be deemed cost-effective when compared to a hearing aid (£11,946/QALY) or no hearing aid (£10,499/QALY). A UCI has an 93.0% and 98.7% likelihood of being cost-effective within the UK adult population when compared to a hearing aid or no hearing aid, respectively. ICERs were mostly sensitive to the proportion of people eligible for cochlear implant, discount rate, surgery and device costs and processor upgrade cost.

**Conclusion** UCIs remain cost-effective despite changes to clinical practice and increased healthcare unit costs. Updating the NICE criteria to provide better access UCIs is projected to increase annual implants in adults and children by 70% and expenditure by £28.6 million within three years. This increased access to UCIs will further improve quality of life of recipients and overall social welfare.

Keywords Cost–utility · Cochlear implant · Hearing aid · Hearing loss · Economic evaluation

JEL Classification D61 · I18 · I19

Introduction

Around 11 million people in the UK live with permanent hearing loss, most of which results from age related damage to the cochlear due to environment and genetic factors [1]. A unilateral cochlear implant (UCI) can improve hearing in people with severe to profound sensorineural hearing loss. Speech recognition is better with cochlear implants compared to hearing aids for adults with post-lingual severe to profound bilateral hearing loss, regardless of age [2–8]. While pre-lingual deafened people derive significant benefits from cochlear implants, people with post-lingual severe to profound hearing loss receive the greatest improvements in speech perception [8, 9]. Gains in speech perception scores are greatest in the first few months, but performance continues to improve over time [10, 11].

Improved hearing from using a UCI also improves quality of life. People have reported improvements in the Geriatric Depression Scale [12, 13], improved mental health and social functioning in the Short Form Health Survey (SF-36) [10, 14–16], improved health-related quality of life as measured by the Health Utilities Index Mark 3 (HUI3) [11], and

Henry Cutler
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2 Health Technology Analysts, Sydney, Australia
3 Cochlear Limited, Sydney, Australia

Published online: 02 November 2021

Springer

ACHIEVE HEALTHY AGING

COACH

# Large multicentre, randomised clinical studies will support the Standard of Care in Adults

Cochlear®

COACH

**Multicentre RCT to assess whether a cochlear implant or hearing aids are better at improving speech understanding for adults with severe hearing loss.**

**Primary outcome**: measure of speech perception at 9 months post activation

- UK sites
- 130 patients
- Severe hearing loss
- Randomised to either a Hearing Aid or a Cochlear implant

**Estimated completion date** : April 2025

ACHIEVE
HEALTHY AGING

**Multicentre RCT to determine efficacy of hearing treatment in reducing cognitive decline in older adults.**

**Primary outcome**: 3-year change in global cognitive function

- US sites
- 977 patients
- Mild to moderately severe hearing loss
- Randomised to either hearing aids or health education control

**Completed**: June 2023
(funding has now been secured for a further 3 year extension)

# Increasing clinical evidence demonstrating the importance of addressing hearing health and the role of hearing loss interventions

Articles

Hearing intervention versus health education control to reduce cognitive decline in older adults with hearing loss in the USA (ACHIEVE): a multicentre, randomised controlled trial

Frank R Lin, James R Pike, Marilyn S Albert, Michelle Arnold, Sheila Burgard, Theresa Chisolm, David Couper, Jennifer A Deal, Adele M Goman, Nancy W Glynn, Theresa Gmelin, Lisa Gravens-Mueller, Kathleen M Hayden, Alison R Huang, David Knopman, Christine M Mitchell, Thomas Mosley, James S Pankow, Nicholas S Reed, Victoria Sanchez, Jennifer A Schrack, B Gwen Windham, Josef Coresh, for the ACHIEVE Collaborative Research Group*

**Summary**

**Background** Hearing loss is associated with increased cognitive decline and incident dementia in older adults. We aimed to investigate whether a hearing intervention could reduce cognitive decline in cognitively healthy older adults with hearing loss.

**Methods** The ACHIEVE study is a multicentre, parallel-group, unmasked, randomised controlled trial of adults aged 70–84 years with untreated hearing loss and without substantial cognitive impairment that took place at four community study sites across the USA. Participants were recruited from two study populations at each site: (1) older adults participating in a long-standing observational study of cardiovascular health (Atherosclerosis Risk in Communities [ARIC] study), and (2) healthy de novo community volunteers. Participants were randomly assigned (1:1) to a hearing intervention (audiological counselling and provision of hearing aids) or a control intervention of health education (individual sessions with a health educator covering topics on chronic disease prevention) and followed up every 6 months. The primary endpoint was 3-year change in a global cognition standardised factor score from a comprehensive neurocognitive battery. Analysis was by intention to treat. This trial was registered at ClinicalTrials.gov, NCT03243422.

**Findings** From Nov 9, 2017, to Oct 25, 2019, we screened 3004 participants for eligibility and randomly assigned 977 (32·5%; 238 [24%] from ARIC and 739 [76%] de novo). We randomly assigned 490 (50%) to the hearing intervention and 487 (50%) to the health education control. The cohort had a mean age of 76·8 years (SD 4·0), 523 (54%) were female, 454 (46%) were male, and most were White (n=858 [88%]). Participants from ARIC were older, had more risk factors for cognitive decline, and had lower baseline cognitive scores than those in the de novo cohort. In the primary analysis combining the ARIC and de novo cohorts, 3-year cognitive change (in SD units) was not significantly different between the hearing intervention and health education control groups (–0·200 [95% CI –0·256 to –0·144] in the hearing intervention group and –0·202 [–0·258 to –0·145] in the control group; difference 0·002 [–0·077 to 0·081]; p=0·96). However, a prespecified sensitivity analysis showed a significant difference in the effect of the hearing intervention on 3-year cognitive change between the ARIC and de novo cohorts ($p_{heterogeneity}$=0·010). Other prespecified sensitivity analyses that varied analytical parameters used in the total cohort did not change the observed results. No significant adverse events attributed to the study were reported with either the hearing intervention or health education control.

**Interpretation** The hearing intervention did not reduce 3-year cognitive decline in the primary analysis of the total cohort. However, a prespecified sensitivity analysis showed that the effect differed between the two study populations that comprised the cohort. These findings suggest that a hearing intervention might reduce cognitive change over 3 years in populations of older adults at increased risk for cognitive decline but not in populations at decreased risk for cognitive decline.

**Funding** US National Institutes of Health.



**Introduction**

The global burden of dementia will increase rapidly over the next 30 years because of the ageing of the world's population. More than 150 million individuals are projected to be living with dementia by 2050, with most living in low-income and middle-income countries.[1] Efforts to address this global health challenge have increasingly focused on identifying potentially modifiable

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*Members of the ACHIEVE Collaborative Research Group are listed in the appendix (p 21)

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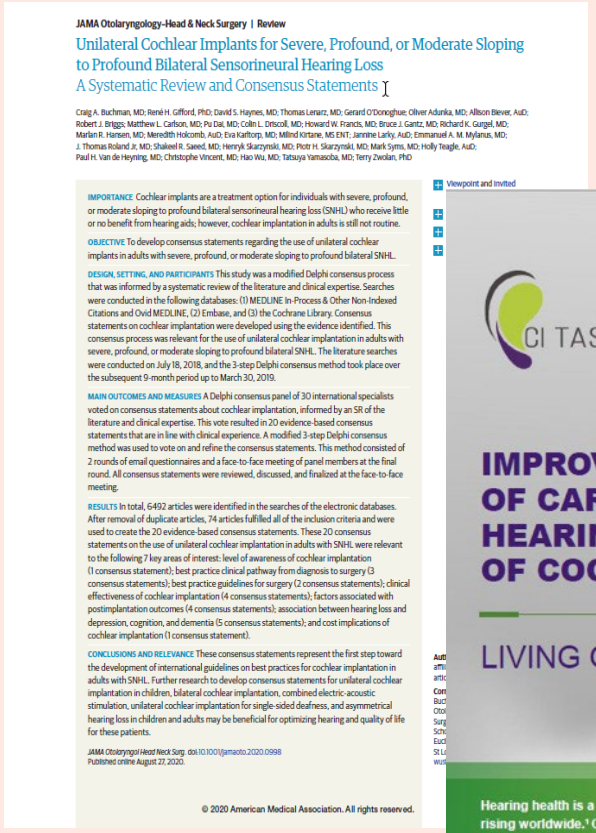
ACHIEVE HEALTHY AGING

In older adults at increased risk for cognitive decline, hearing intervention slowed down loss of thinking and memory ability by **48% over 3 years**



JAMA Otolaryngology–Head & Neck Surgery | Review

Unilateral Cochlear Implants for Severe, Profound, or Moderate Sloping to Profound Bilateral Sensorineural Hearing Loss

A Systematic Review and Consensus Statements

Craig A. Buchman, MD; René H. Gifford, PhD; David S. Haynes, MD; Thomas Lenarz, MD; Gerard O'Donoghue; Oliver Adunka, MD; Allison Biever, AuD; Robert J. Briggs; Matthew L. Carlson, MD; Pu Dai, MD; Colin L. Driscoll, MD; Howard W. Francis, MD; Bruce J. Gantz, MD; Richard K. Gurgel, MD; Marlan R. Hansen, MD; Meredith Holcomb, AuD; Eva Karltorp, MD; Millnd Kirtane, MS ENT; Jannine Larky, AuD; Emmanuel A. M. Mylanius, MD; J. Thomas Roland Jr, MD; Shakeel R. Saeed, MD; Henryk Skarzynski, MD; Piotr H. Skarzynski, MD; Mark Syms, MD; Holly Teagle, AuD; Paul H. Van de Heyning, MD; Christophe Vincent, MD; Hao Wu, MD; Tatsuya Yamasoba, MD; Terry Zwolan, PhD

**IMPORTANCE** Cochlear implants are a treatment option for individuals with severe, profound, or moderate sloping to profound bilateral sensorineural hearing loss (SNHL) who receive little or no benefit from hearing aids; however, cochlear implantation in adults is still not routine.

**OBJECTIVE** To develop consensus statements regarding the use of unilateral cochlear implants in adults with severe, profound, or moderate sloping to profound bilateral SNHL.

**DESIGN, SETTING, AND PARTICIPANTS** This study was a modified Delphi consensus process that was informed by a systematic review of the literature and clinical expertise. Searches were conducted in the following databases: (1) MEDLINE In-Process & Other Non-Indexed Citations and Ovid MEDLINE, (2) Embase, and (3) the Cochrane Library. Consensus statements on cochlear implantation were developed using the evidence identified. This consensus process was relevant for the use of unilateral cochlear implantation in adults with severe, profound, or moderate sloping to profound bilateral SNHL. The literature searches were conducted on July 18, 2018, and the 3-step Delphi consensus method took place over the subsequent 9-month period up to March 30, 2019.

**MAIN OUTCOMES AND MEASURES** A Delphi consensus panel of 30 international specialists voted on consensus statements about cochlear implantation, informed by an SR of the literature and clinical expertise. This vote resulted in 20 evidence-based consensus statements that are in line with clinical experience. A modified 3-step Delphi consensus method was used to vote on and refine the consensus statements. This method consisted of 2 rounds of email questionnaires and a face-to-face meeting of panel members at the final round. All consensus statements were reviewed, discussed, and finalized at the face-to-face meeting.

**RESULTS** In total, 6492 articles were identified in the searches of the electronic databases. After removal of duplicate articles, 74 articles fulfilled all of the inclusion criteria and were used to create the 20 evidence-based consensus statements. These 20 consensus statements on the use of unilateral cochlear implantation in adults with SNHL were relevant to the following 7 key areas of interest: level of awareness of cochlear implantation (1 consensus statement); best practice clinical pathway from diagnosis to surgery (3 consensus statements); best practice guidelines for surgery (2 consensus statements); clinical effectiveness of cochlear implantation (4 consensus statements); factors associated with postimplantation outcomes (4 consensus statements); association between hearing loss and depression, cognition, and dementia (5 consensus statements); and cost implications of cochlear implantation (1 consensus statement).

**CONCLUSIONS AND RELEVANCE** These consensus statements represent the first step toward the development of international guidelines on best practices for cochlear implantation in adults with SNHL. Further research to develop consensus statements for unilateral cochlear implantation in children, bilateral cochlear implantation, combined electric-acoustic stimulation, unilateral cochlear implantation for single-sided deafness, and asymmetrical hearing loss in children and adults may be beneficial for optimizing hearing and quality of life for these patients.

*JAMA Otolaryngol Head Neck Surg.* doi:10.1001/jamaoto.2020.0998
Published online August 27, 2020.



Viewpoint and Invited

**International Consensus Paper 2020**

CI TASK FORCE

IMPROVING THE STANDA
OF CARE FOR ADULTS W
HEARING LOSS AND THE
OF COCHLEAR IMPLANT

LIVING GUIDELINES

Hearing health is a recognised public health priority with prevalenc
rising worldwide.[1] Currently, there is a lack of awareness and incon
and managing hearing loss, especially severe to profound sensori
Guidelines with clearly defined care pathways for adult cochlear in
consistent and equitable access to hearing healthcare and treatme

An international collaboration of hearing experts, known as the CI
the effort to develop Living Guidelines that will optimise care for he
improve accessibility, and standardise treatment globally.

1. Wilson BS, Tucci DL, Merson MH, O'Donoghue GM : Global hearing health care: new findings and perspect

**Living Guidelines 2023**

**Local adaptation and implementation**

## Living Guidelines

An evidenced based set of treatment guidelines for adults who would benefit from a cochlear implant.

**Establishing a clearly defined care pathway for adult cochlear implantation will enable consistent and equitable hearing healthcare**

# Heatmap of Living Guideline activity

On track

Requires development

At risk

France ASCOLTA guidelines & WHO

Nordics promoting via CIREN (CI Referral Expert Network) and adaption in country

Interest in adaptation, Portugal, Spain and France

Japan engaged to collaborate with JP task Force members

German plan under development

ANZ HHC development of guidelines underway with proposed consumer committee (LEX) via Soundfair

Now linked to US Hearing Health Collaborative (HHC)

US continue to develop plans for Living Guidelines (LG) adaptation via Hearing Health Collaborative and referral strategy

Turkey advisory board adapting guidelines

Latin America engaged to develop translations of global version

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## Engaging key stakeholders to raise the awareness and advocate for the importance of hearing and hearing health

### Policy and Advocacy

Engage key stakeholders to raise the awareness and the importance of hearing health in adults and, in particular, the role of cochlear implants.

World Health Organization

**Partner with the World Health Organization to ensure Hearing and Hearing Health remains a public health priority and support the WHO efforts in enacting change in countries.**

CIICA
COCHLEAR IMPLANT INTERNATIONAL COMMUNITY OF ACTION. AISBL

**Helped establish a global community of advocacy groups (+ 60 countries) to amplify the patient voice in support of closing the gap in CI provision and support.**

JOHNS HOPKINS BLOOMBERG SCHOOL of PUBLIC HEALTH

MACQUARIE University

**Continue our partnership with Academic institutions to further the understanding of Hearing and Healthy Aging.**

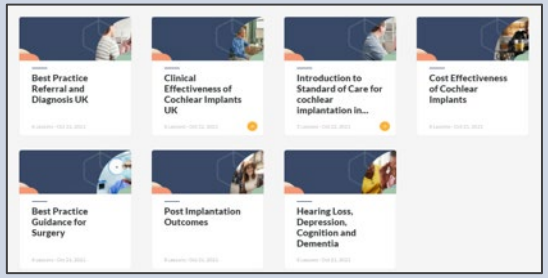

**Support collaborations that bring together multiple professional, provider and consumer organizations, that help advance good healthcare practices and public policy on hearing care in connection with healthy aging.**

## Enabling hearing professionals to identify and refer potential candidates

**US Cochlear Provider Network (CPN)**

Next Sense

Collaborate with hearing health providers to establish sustainable referral pathways for suitable candidates.



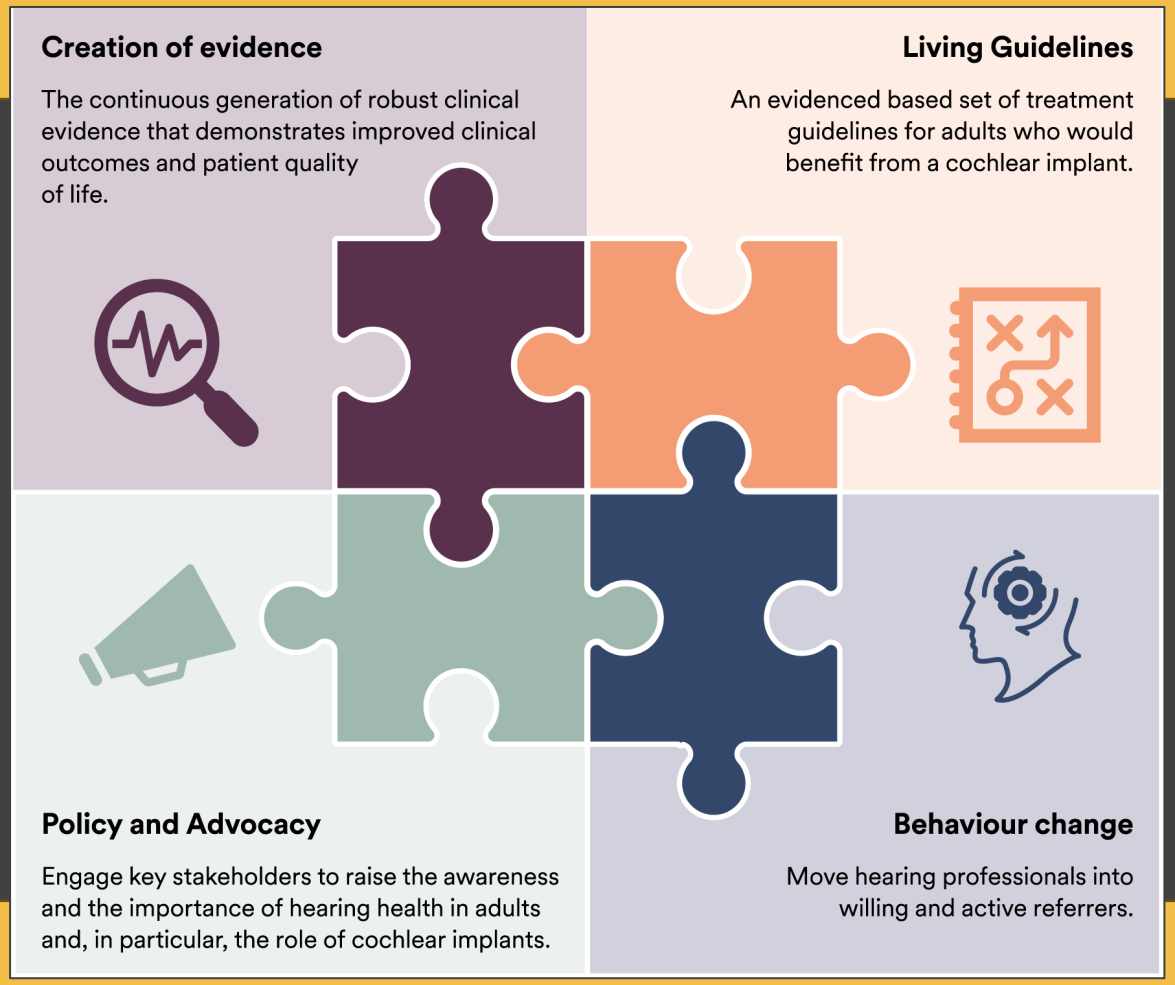

Developing and deploying cochlear implant training modules for Audiology practices to improve understanding and confidence in referring potential candidates.


Professional education platform that aims to increase awareness via the latest clinical, economic and public health evidence to reach an agreed standard of care for adults with hearing loss.

### Behaviour change

Move hearing professionals into willing and active referrers.

# The journey to a Standard of Care requires an integrated approach and a sustained effort




## Standard of Care

Establish cochlear implants as the **Standard of Care** for adults with severe to profound sensorineural hearing loss.

This includes the **proper diagnosis**, **timely referral** to an appropriate centre, **access** to cochlear implantation and **aftercare**.

Treat in a manner that best improves the individual's **quality of life** and health through optimising **hearing function** and social **participation** and **engagement**.

Hear now. And always

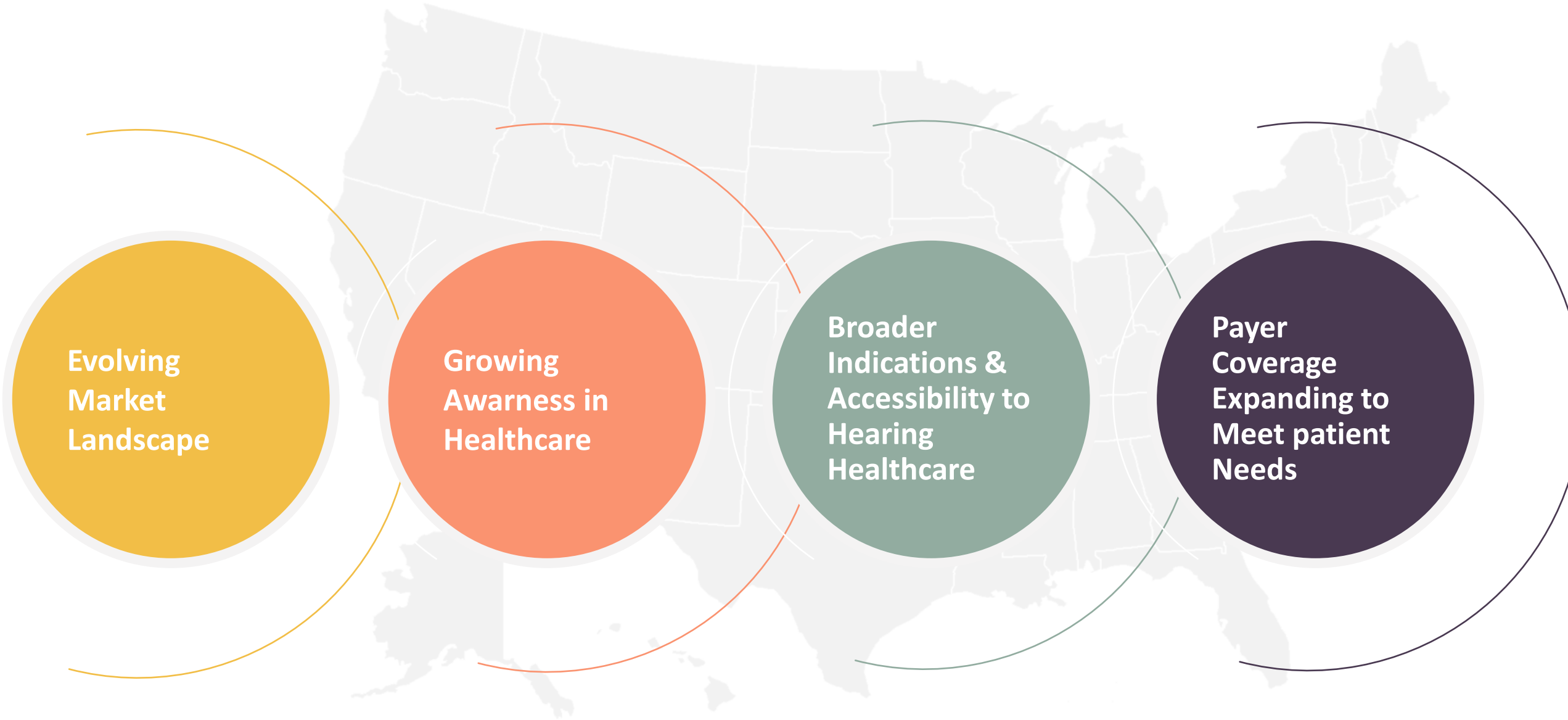
# Cochlear's US business

## Cochlear Capital Markets Day | 27 October 2023

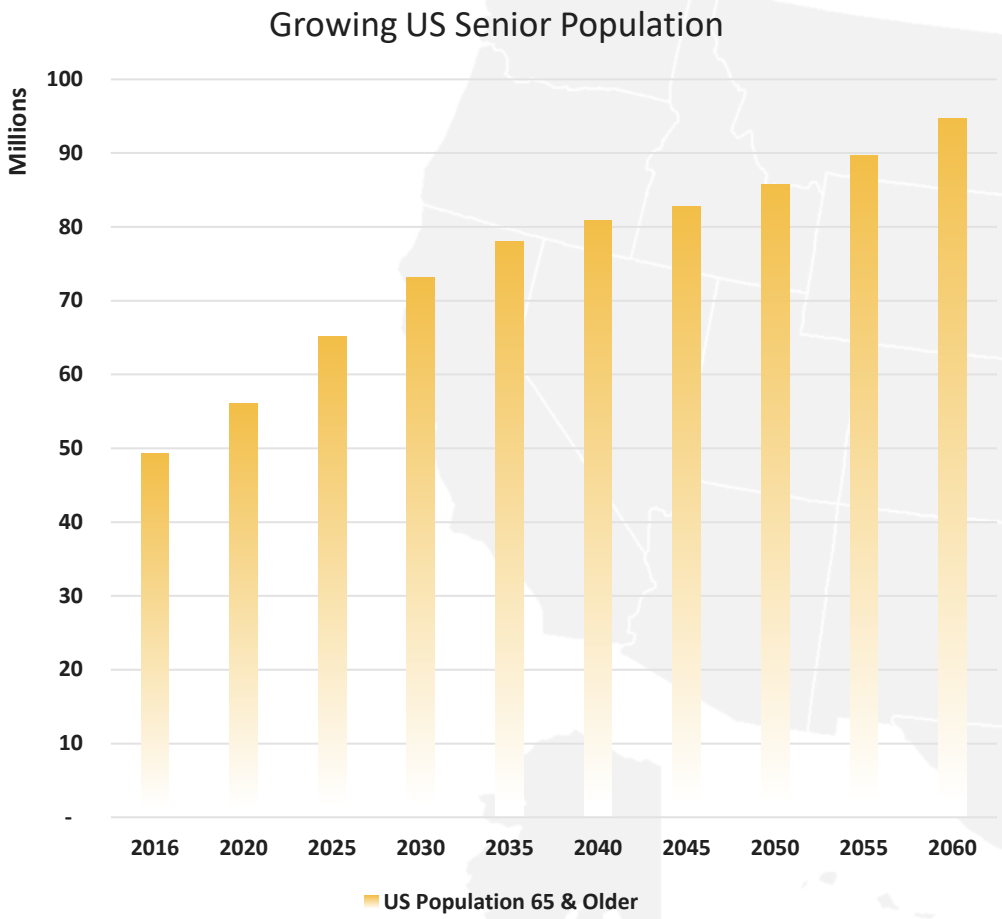
**Lisa Aubert**
**President, North America**

Population Awareness Access Reimbursement

# A perspective of hearing healthcare in the US



# A changing patient population and market landscape continues to support growth with senior population

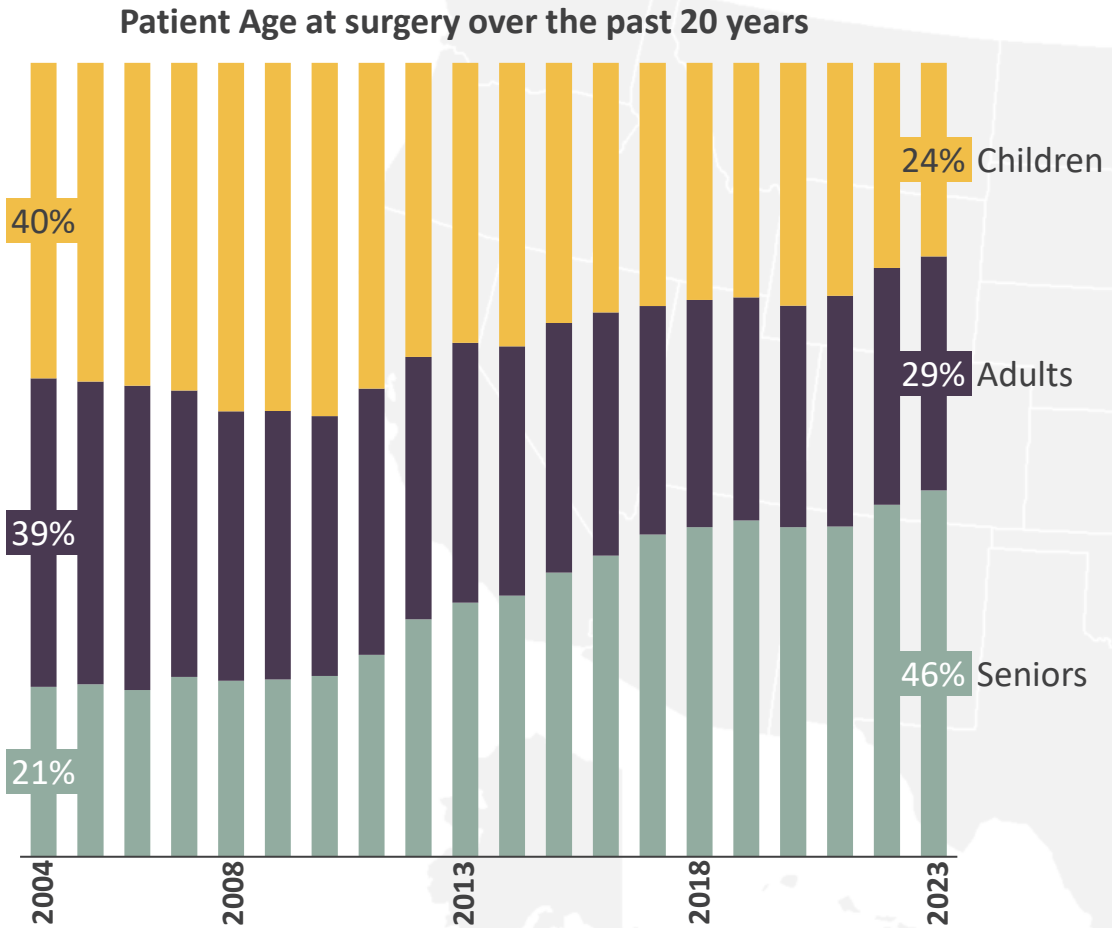



- Everyday in the US **10,000 'new' 65 year** olds join the senior segment of our population
- From 2020 to 2035 we will see accelerated growth of the senior population leading to a CAGR of **3.5x the general population growth**
- By 2060 it is forecast that seniors will account almost **¼ of the total US population**



Citation: Projected Age Groups and Sex Composition of the Population: Main Projections Series for the United States, 2017-2060. U.S. Census Bureau, Population Division: Washington, DC.

# Our patient mix over the past 20 years has continued to evolve with >75% of our recipients now being adults or seniors



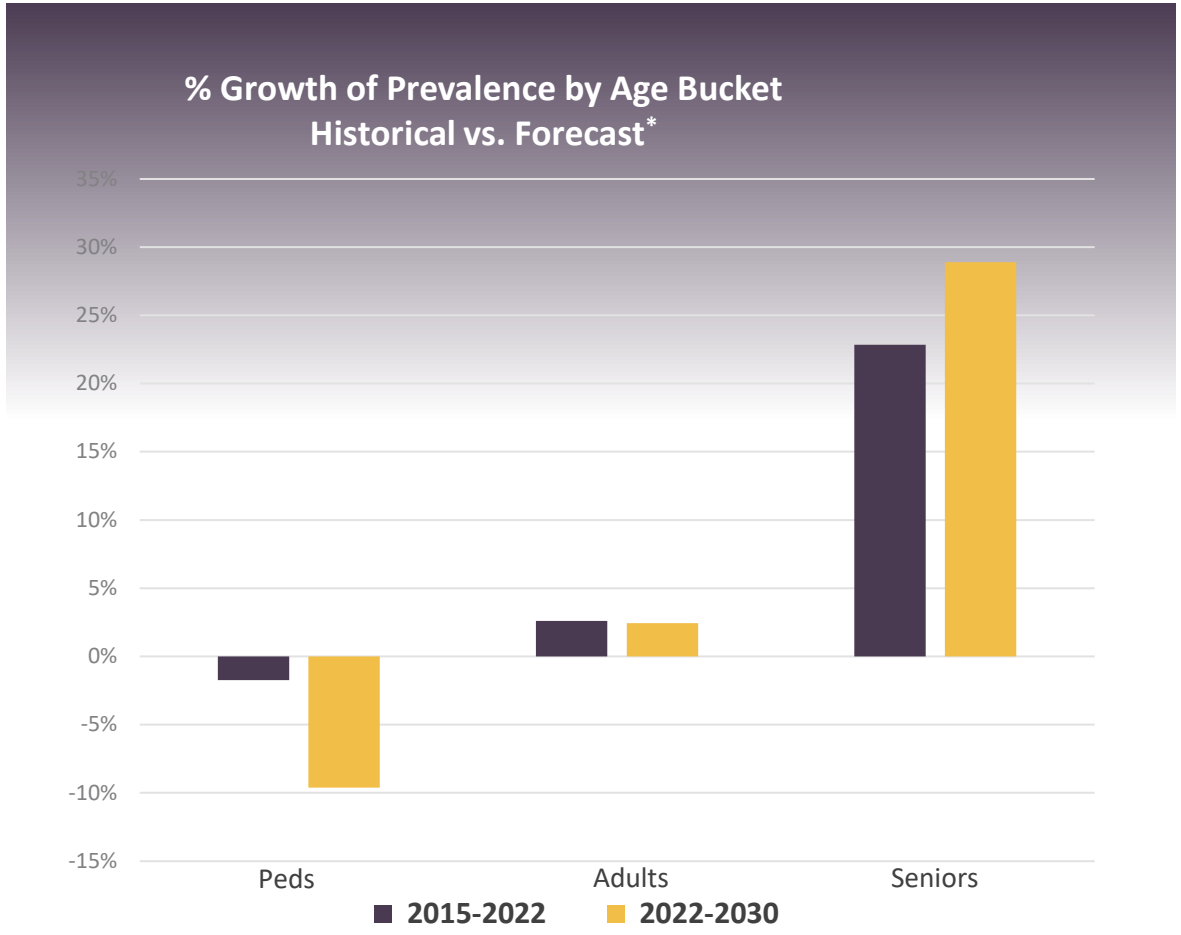

- >75% of US candidates are adults or seniors
- Over this time **pediatric incidence has remained steady** at around 1:1000 reflecting the impact of the population changes such as the aging baby boomers and decreased birth rates
- **Healthy aging** as a trend that is driving consumers to remain active and engaged

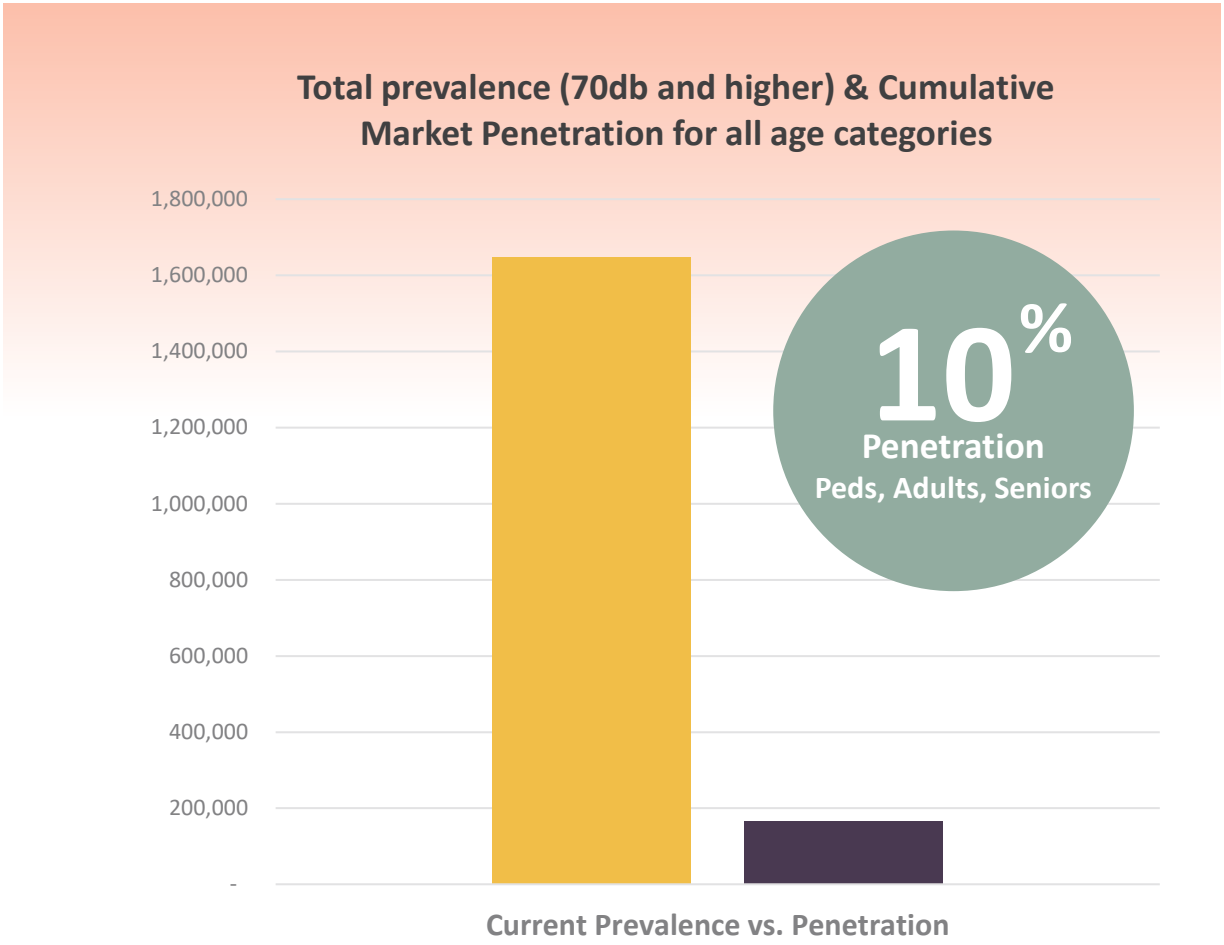
> *"The 2023 APP Pickleball Participation Report released details that **36.5 million** people have played pickleball at least once in the last year. **1/3rd of those who play eight or more times a year are the age of 65+***."*

Source Data: Cochlear internal data 2023

*Source: AARP Magazine, Rachel Simon, Published September 13, 2022 / Updated September 27, 2023

# Growth in prevalence of severe to profound hearing loss is greatest in seniors, with relative growth in pediatric prevalence declining




- *Eligible patient pop with hearing loss >70db (Sensio neural only)*
- *Penetration calculated using total unique Cochlear recipients (unilateral and bilateral) as of 2022 and applying estimates for market share and registrations to get total CI recipients in market*
- **Prevalence data - GBD 2019 Hearing Loss Collaborators. Hearing loss prevalence and years lived with disability, 1990-2019: findings from the Global Burden of Disease Study 2019. Lancet. 2021 Mar 13;397(10278):996-1009. doi: 10.1016/S0140-6736(21)00516-X. PMID: 33714390; PMCID: PMC7960691.*

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Growing Awarness in Healthcare
Consumer awareness
The emergence of the digital savvy senior
Professional collaboration & advocacy

# Despite increasing awareness of cochlear implants in North America, the urgency of treating hearing loss is often deprioritized

In partnership with AARP, the leading senior's publication in the US, we surveyed more than 600 members between the ages of 50 & 70+ in relation to hearing health.

We asked them to state whether the following statements were true or false?

| | True % | False % |
|---|---|---|
| **Cochlear implants are a viable option when hearing aids are not providing enough benefit** | **96** | **4** |
| **Cochlear implants are a proven medical treatment for hearing loss** | **94** | **6** |
| **Cochlear implants are covered by most insurance** | **83** | **17** |
| **You have to be profoundly deaf to benefit from a cochlear implant** | **15** | **85** |
| **You have to be a certain age to get a cochlear implant** | **9** | **91** |

**1 in 3**

AARP members (>12million) have had their hearing tested in the past 5yrs

**1 in 5**

Are actively working to address a hearing loss or their partner/ loved one is doing so

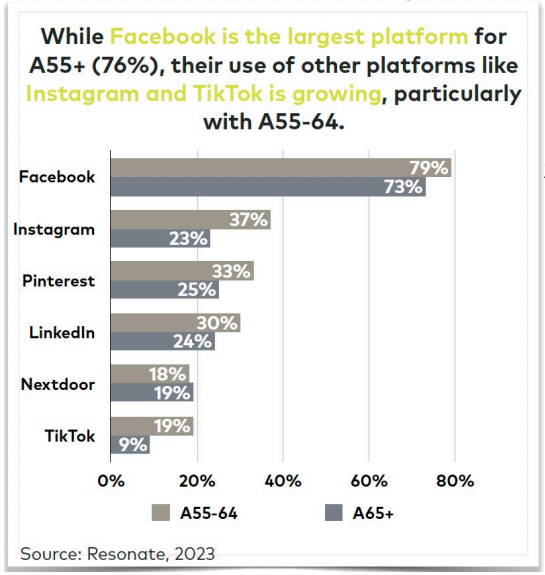
The results speak to the progress Cochlear, and the industry have made in increasing awareness around hearing health and the available treatment options.

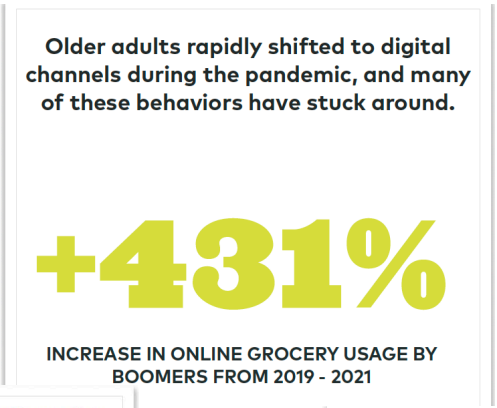


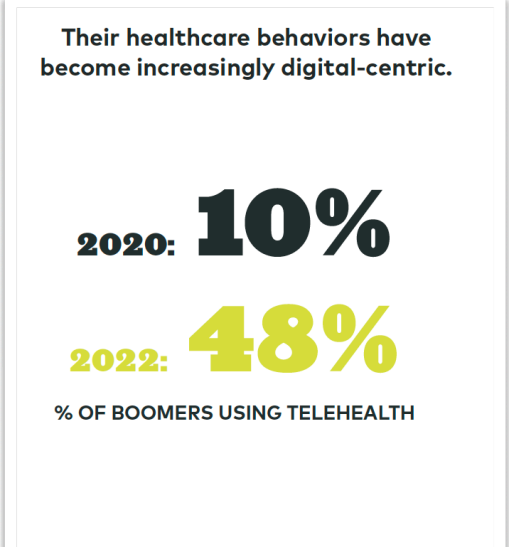
**SOURCE:** AMAN Omnibus Study (Cochlear), Q4 2022

# The ongoing emergence of the digital savvy senior has opened new communication pathways leading to increased awareness

- Our Direct to Consumer (DTC) programs continue to support our growing business
- In FY23 DTC contributed to **>25%** of surgeries
- **>70%** of our lead generation comes from digital engagement with Seniors
- Time from awareness to surgery is reducing as candidates are more informed before having discussions with their hearing care professional






Data sourced from syndicated research (Resonate and eMarketer).

# Driving a collaborative approach to establish standards for hearing health care

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## Hearing Health Collaborative

A STANDARD OF CARE INITIATIVE
FOR THE UNITED STATES OF AMERICA


HLAA Hearing Loss Association of America

ACI ALLIANCE® AMERICAN COCHLEAR IMPLANT ALLIANCE
*Research. Advocacy. Awareness.*

ASHA American Speech-Language-Hearing Association

AMERICAN ACADEMY OF AUDIOLOGY

AMERICAN ACADEMY OF OTOLARYNGOLOGY-HEAD AND NECK SURGERY®

AGS Geriatrics Healthcare Professionals

AAFP

## Focus on 3 priorities

1. A simple metric as a **vital sign** for hearing health
2. **Simple and consistent reporting** for hearing loss that defines standards of care
3. Secure evidence-based procedural changes for timely referral for clinical evaluation and treatment of hearing loss as **standard of care**

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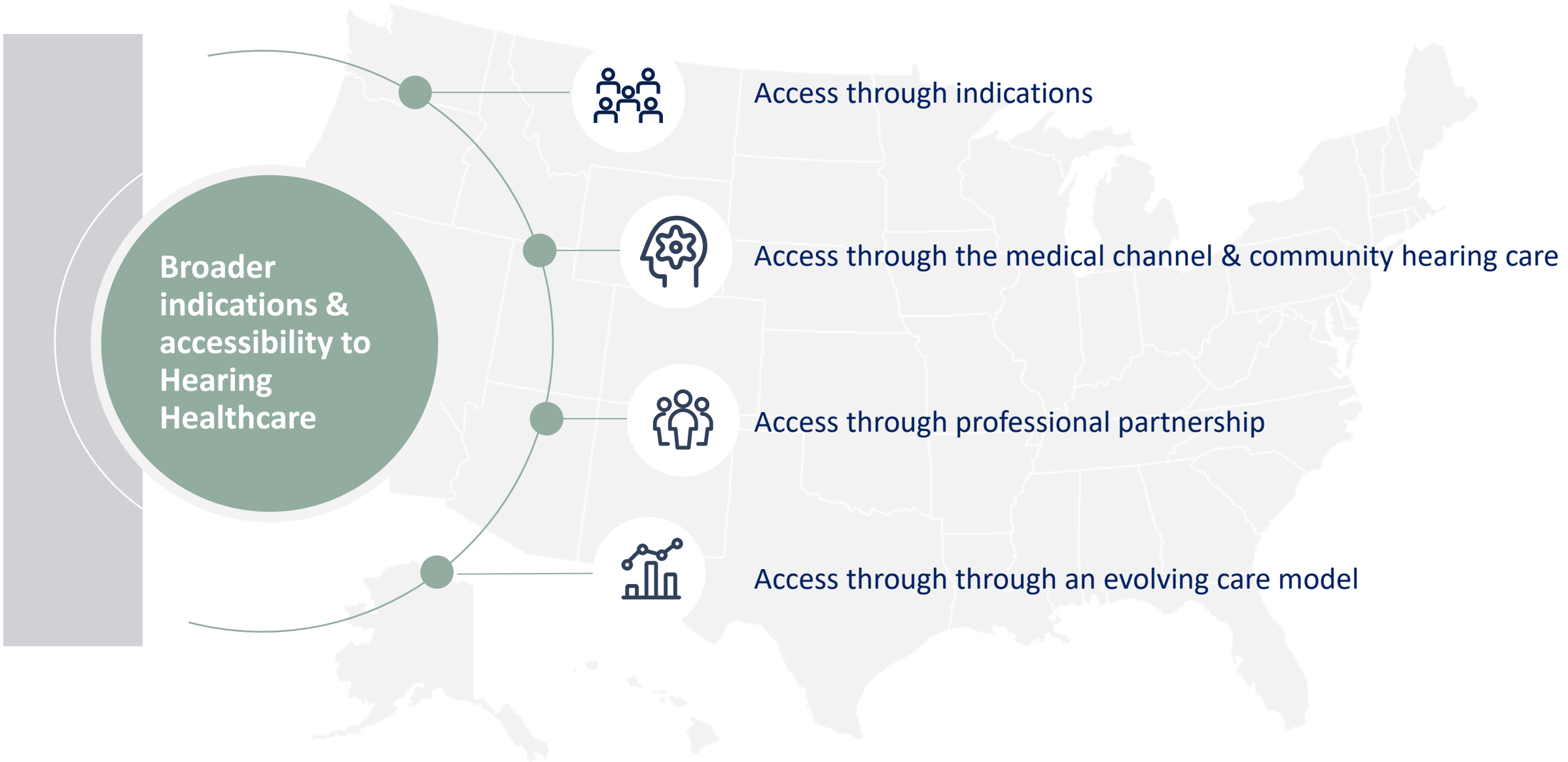

Broader indications & accessibility to Hearing Healthcare
Access through indications
Access through the medical channel & community hearing care
Access through professional partnership
Access through through an evolving care model

# Expansion of indications increases the addressable adult & seniors population

**1m**
**Adults**
**>65db SNHL**

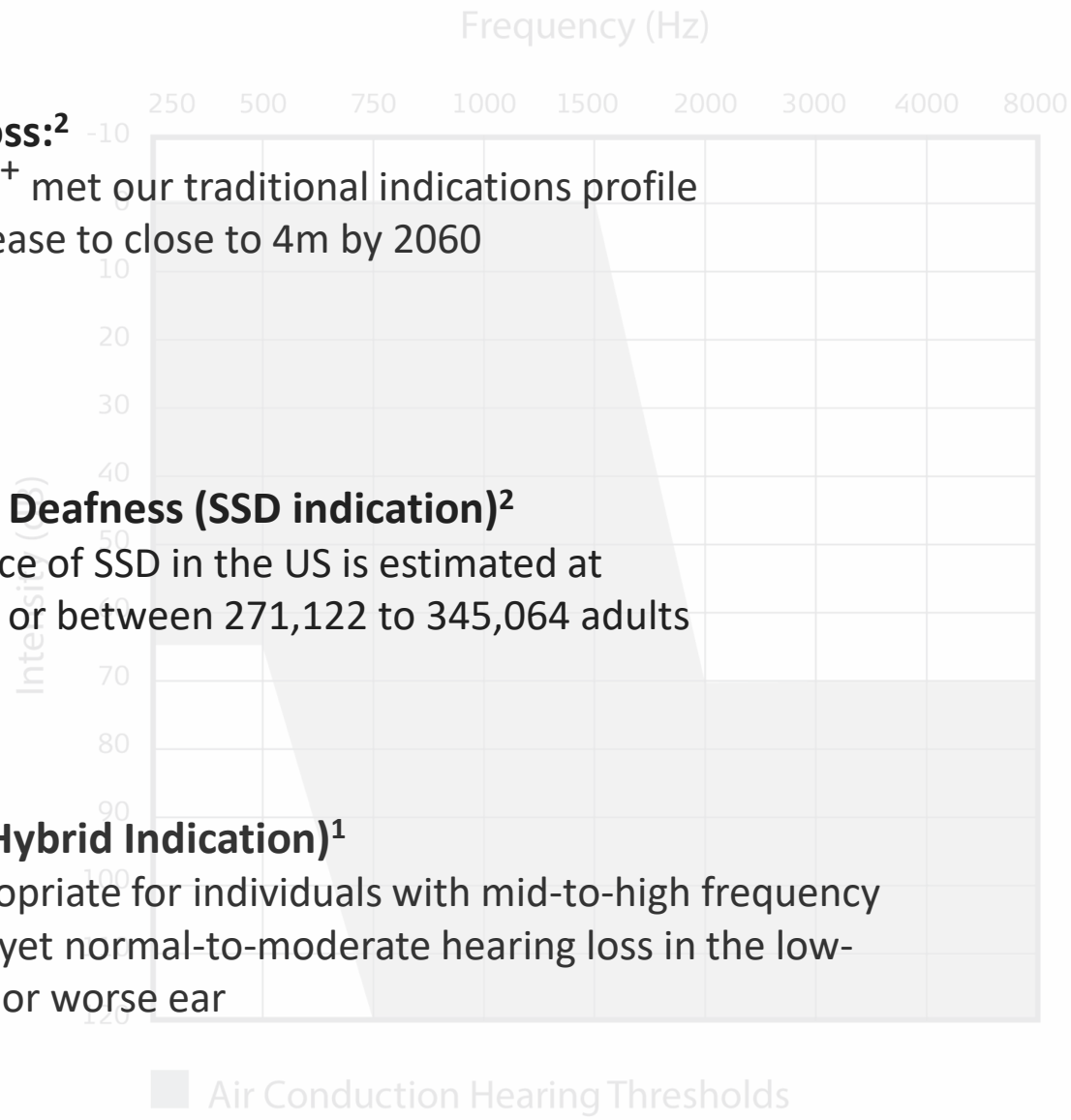
**Severe to Profound Hearing loss:**[2]
An estimated 1m adults aged 60+ met our traditional indications profile in 2020 and is estimated to increase to close to 4m by 2060

**300k**
**Adults**
**Single Sided Deafness**

**Single Sided Deafness (SSD indication)**[2]
The prevalence of SSD in the US is estimated at 0.11%-0.14% or between 271,122 to 345,064 adults

**>1.5m**
**Adults**
**High Frequency hearing loss**

**High Frequency Hearing Loss (Hybrid Indication)**[1]
A hybrid cochlear implant is appropriate for individuals with mid-to-high frequency severe-to-profound hearing loss, yet normal-to-moderate hearing loss in the low-frequencies in either their better or worse ear




1. Goman, Adele M. Ph.D.; Dunn, Camille C. Ph.D.; Gantz, Bruce J. M.D.; Lin, Frank R.. PREVALENCE OF POTENTIAL HYBRID AND CONVENTIONAL COCHLEAR IMPLANT CANDIDATES BASED ON AUDIOMETRIC PROFILE. Otology & Neurotology 39(4):p 515-517, April 2018. | DOI: 10.1097/MAO.0000000000001728

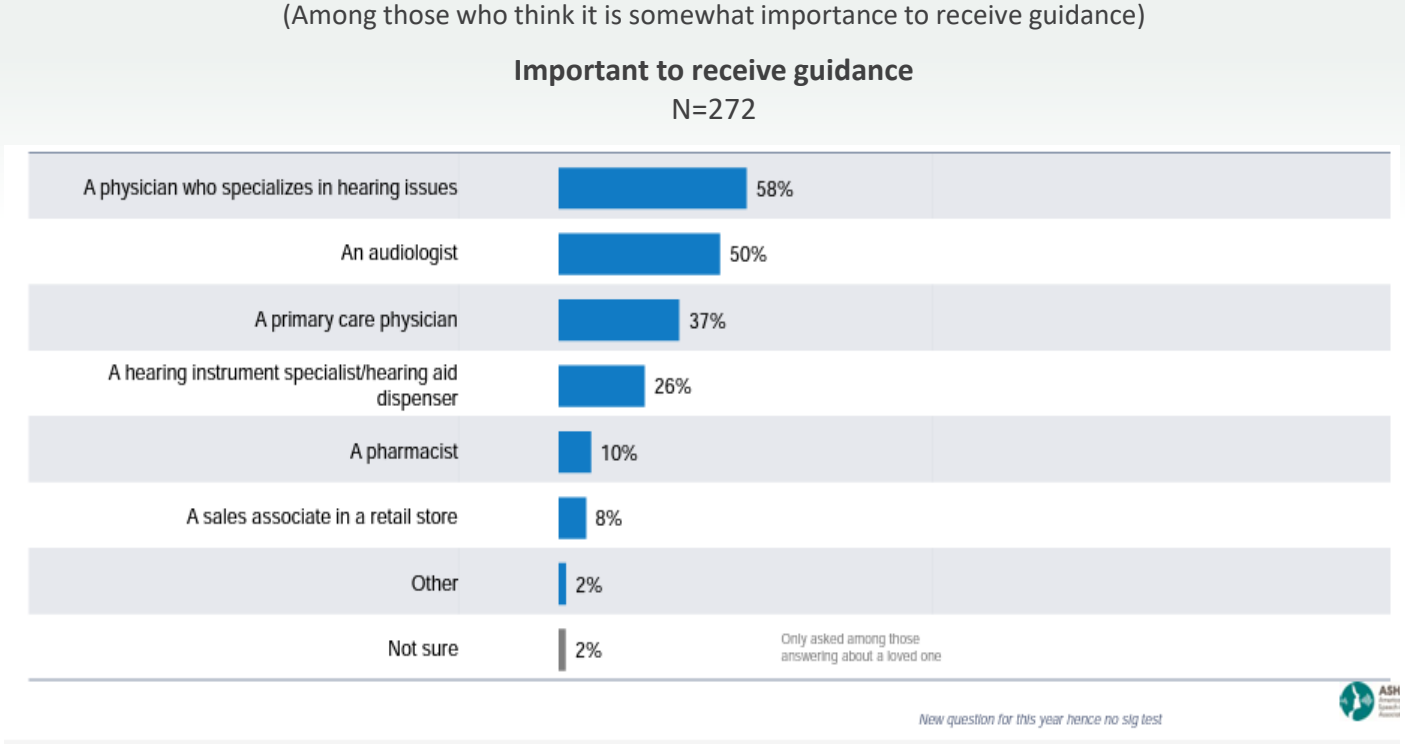
2. Kay-Rivest E, Irace AL, Golub JS, Svirsky MA. Prevalence of Single-Sided Deafness in the United States. Laryngoscope. 2022 Aug;132(8):1652-1656. doi: 10.1002/lary.29941. Epub 2021 Nov 10. PMID: 34757636; PMCID: PMC9085960.

# Patients desiring hearing care guidance are most likely to enter the medical channel[1]

**Physicians who specialize in hearing issues are the top choice, followed by audiologists and then PCPs**

Comfortable seeking guidance from

(Among those who think it is somewhat importance to receive guidance)




- **Referral** for audiological assessment comes from multiple channels spanning retail, primary care and ENT (medical)
- Cochlear works with **partners** across all areas of the professional referral pathway to support greater access to hearing
- Patients view the **trusted source** of specialized care coming from the **medical channel**

1. ASHA OTC Hearing Aid Survey September 2023

# Greater access to more implanting centers and the emergence of ‘newer in practice’ surgeons continues to support growth in the US

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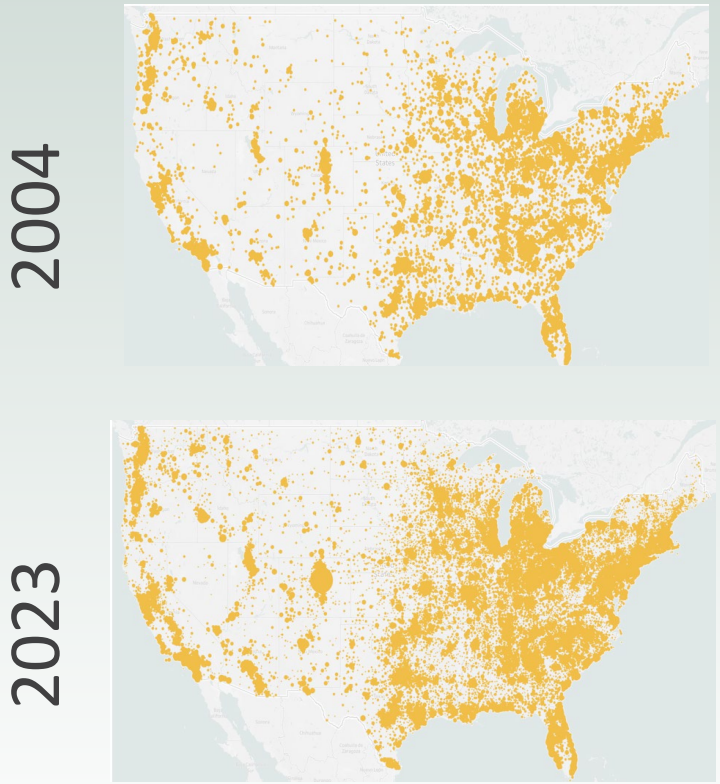
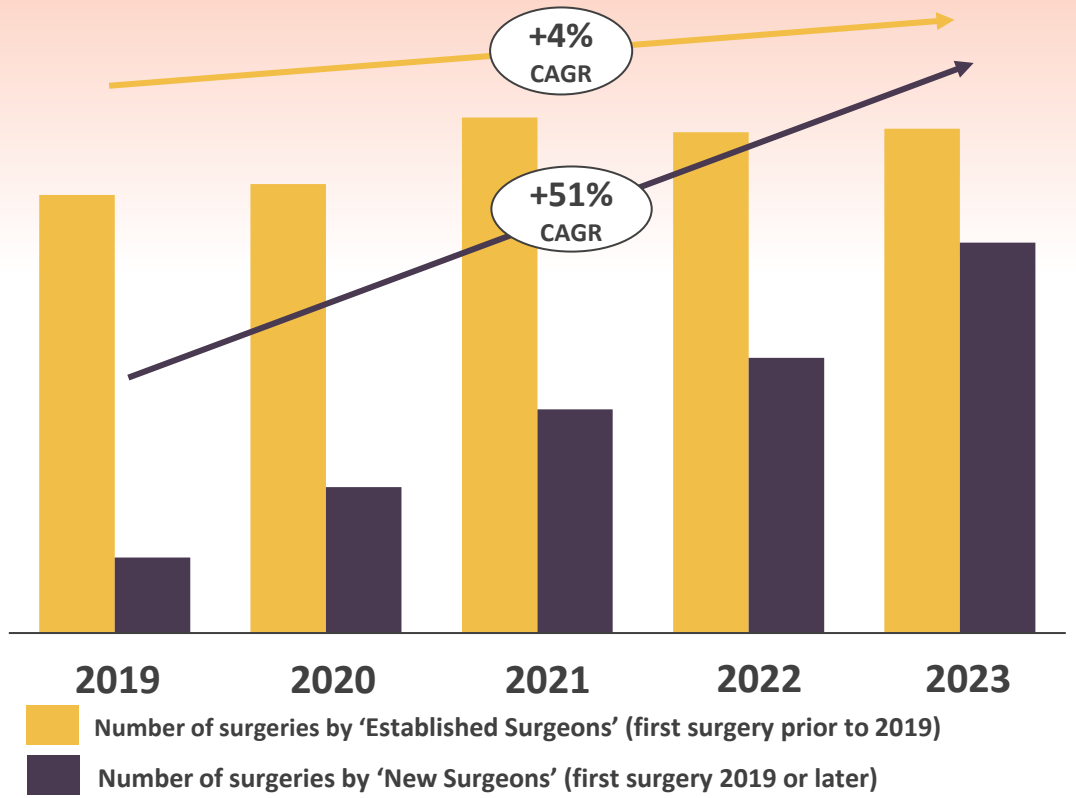
## Comparison of Cochlear recipient numbers in North America between 2004 v 2023




Recipient numbers continue to grow across the US as access to hearing care grows

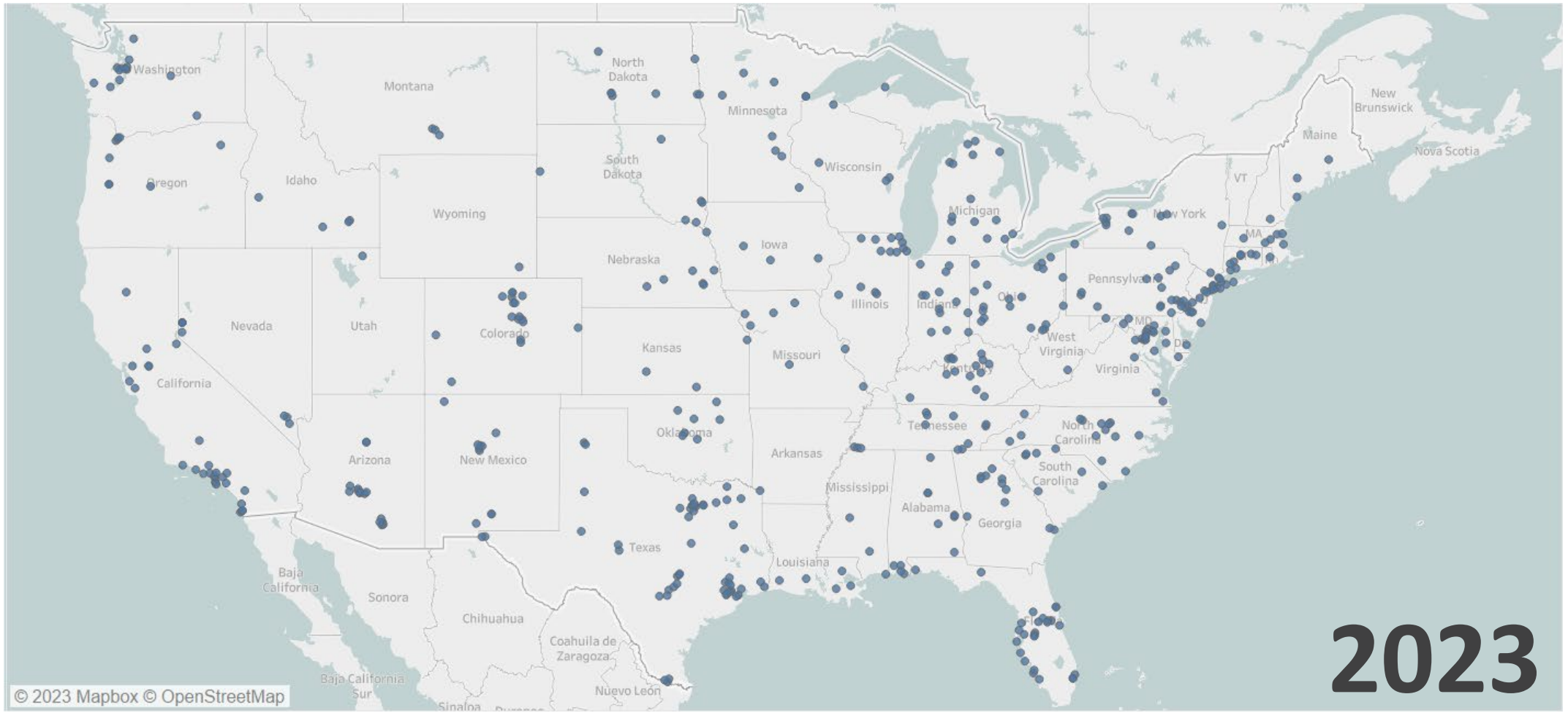
## Comparing the average number of CI surgeries on an annual basis between established surgeons and new surgeons




Newer surgeons are growing surgeries on average at rates faster than established surgeons

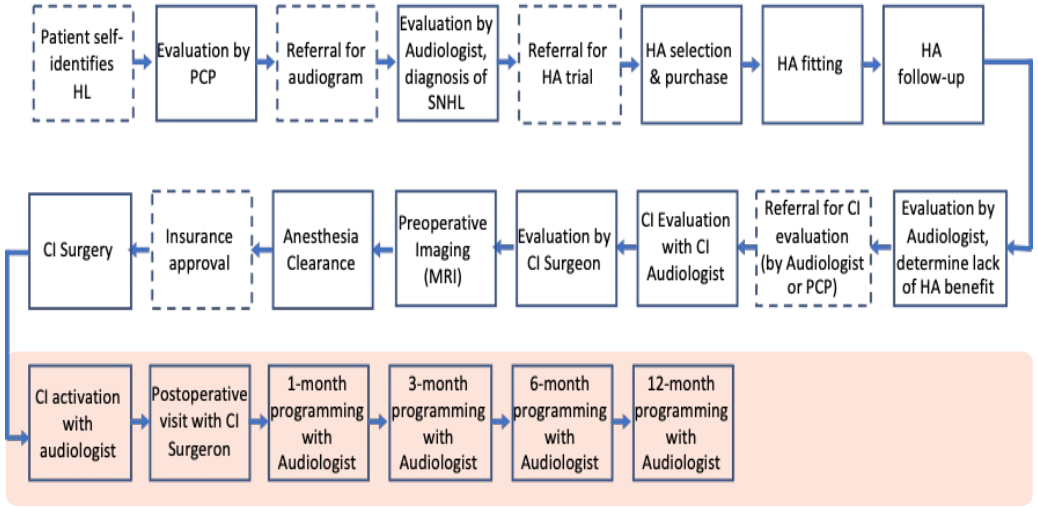
# The Cochlear Provider Network (CPN)

The CPN program over the past 10 years has played a significant role in enabling patients to **receive care** where and when they need it. It has also provided candidates with **greater accessibility to audiometric assessments and counselling** on implantable hearing solutions. Today **increasing numbers of patients are referred** through the CPN program for evaluation.



# To meet a growing patient base, the clinical protocol and patient pathway needs to continuously evolve

## Established Clinical Pathway




## Established CI Follow Up Protocol


## New CI Follow Up Protocol


**10 WEEKS**

Immediate capacity created for new CI appointments



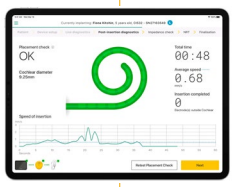
Nassiri, Marinelli, Sorkin, Carlson. Barriers to adult cochlear implant care in the US: an analysis of health care delivery. *Semin Hear*. 2021.

# A patient centric journey, supported by effective tools, enables continued high standards of patient care for a growing patient base

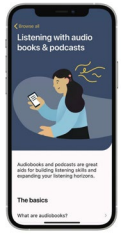
## Candidate Journey

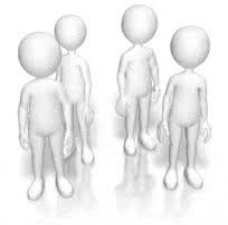
## Recipient Journey

Awareness → Counseling & Candidacy → Surgery → Activate → Optimize → Maintain → Upgrades



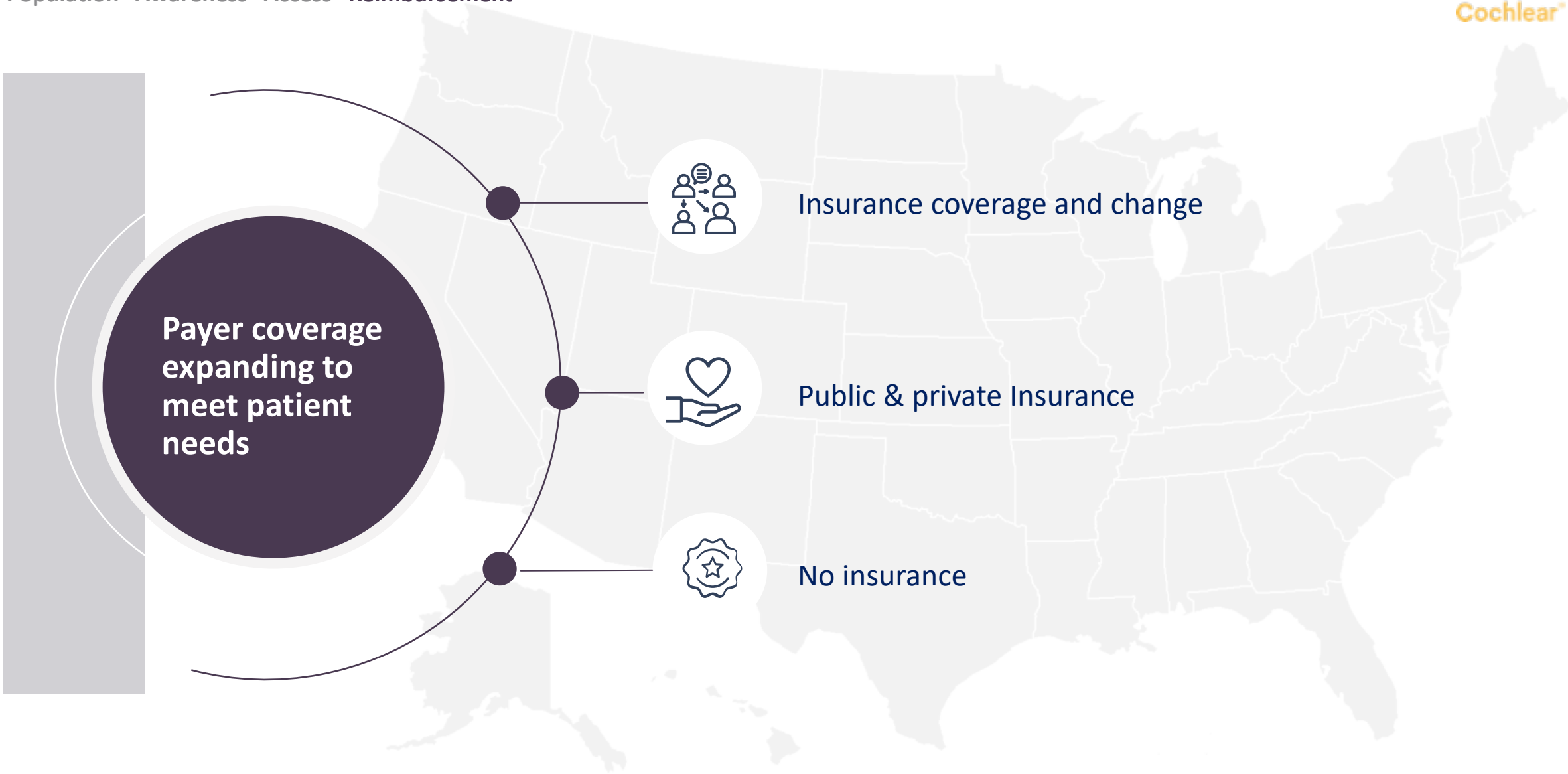




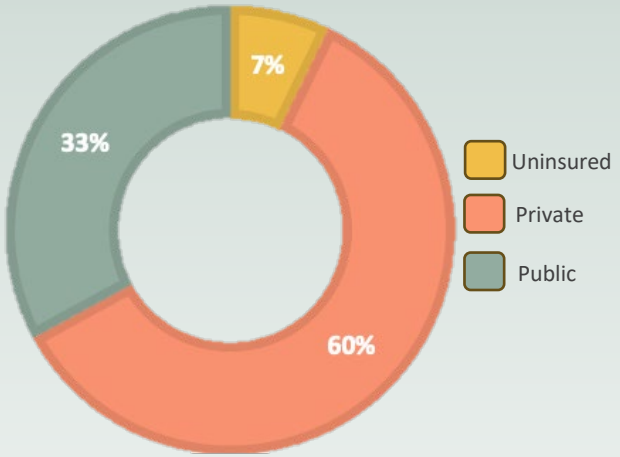
DTC | Concierge Service | SmartNav | Remote Check | Remote Assist | Co-Pilot | Next Gen Processor

Cochlear


Payer coverage expanding to meet patient needs
Insurance coverage and change
Public & private Insurance
No insurance

# Favorable insurance coverage for the majority of Americans

**Insurance coverage for Americans with SNHL hearing loss**




- Bilateral hearing loss has insurance coverage across all providers both private and public for adults and peds**
- Single-sided deafness (SSD) has growing coverage, with >50% of private insurance plans covering adults and children. Limited coverage for Medicaid and no coverage with Medicare **

**99%***

of private employer health insurance plans and managed care organizations provide coverage benefits for the cost of cochlear implant (CI) surgery and related services for bilateral indicated hearing loss

**100%***

of state Medicaid programs provide CI coverage for children 21 years of age and younger with bilateral indicated hearing loss

Medicaid coverage of adults is an optional service and varies by state and indication

Plans offered by Affordable Care Act Marketplace Plans generally cover CI

**100%***

of Medicare, TRICARE, the Veteran's Administration and other federal health plans provide coverage for CI

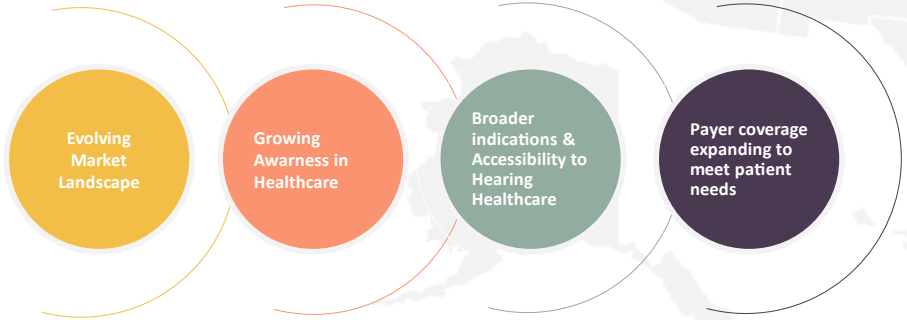
In 2022, the Centers for Medicare & Medicaid Services (CMS) expanded coverage for cochlear implants, broadening the patient criteria to individuals with hearing test scores of **>40% and ≤60%**

**Nurn The on to mayo on coralary promotion, exis to an he or lamoro than aya f health nsurance. at <https://www2.census.gov/programs-surveys/cps/techdocs/cpsmar23.pdf>.
Source: U.S. Census Bureau, Current Population Survey, 2022 and 2023 Annual Social and Economic Supplements (CPS ASEC).

*About 60.0 million people are enrolled in Medicare Parts A and B in 2023. SOURCE: KFF analysis of CMS Medicare Advantage Enrollment Files, 2010-2023; Medicare Chronic Conditions (CCW) Data Warehouse from 5 K FF percent of beneficiaries, 2010-2016; CCW data from 20 percent of beneficiaries, 2017-2020; and Medicare Enrollment Dashboard 2021-2023. •

# Hearing healthcare in the US

- The next 15-20 years continues to see a **growing senior population** who have a higher predisposition to hearing loss, however we have work to do in serving them
- Seniors' **understanding & awareness** around hearing loss, and its contribution to healthy aging, continues to grow with the rise of the digital savvy senior
- The **referral pathway** continues to be a key focus for Cochlear as indications expand, and we have a growing patient base that need to navigate the care pathway
- As patients move from the hearing aid channel to the **medical channel for treatment**, we are working with Healthcare professionals to **expand access to points of care** in both the surgical and audiological settings
- Payer coverage continues to expand to meet patients needs



Hear now. And always

# Global supply chain overview

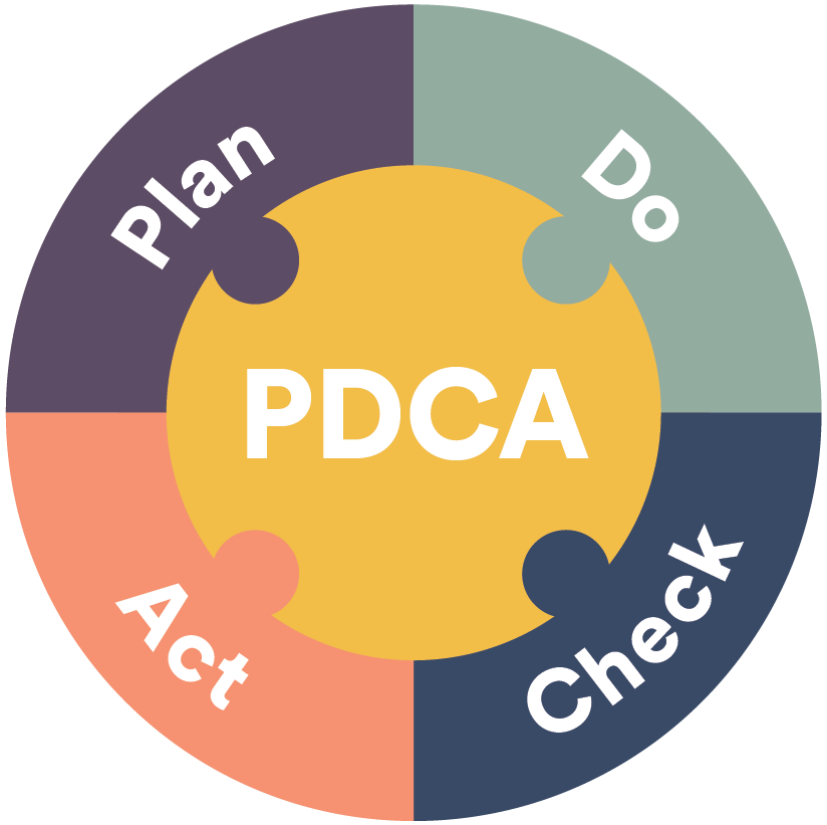
## Cochlear Capital Markets Day | 27 October 2023

**Greg Bodkin**
**SVP Global Supply Chain**

# Cochlear's key internal supply chain locations

# The philosophy that underpins our supply chain

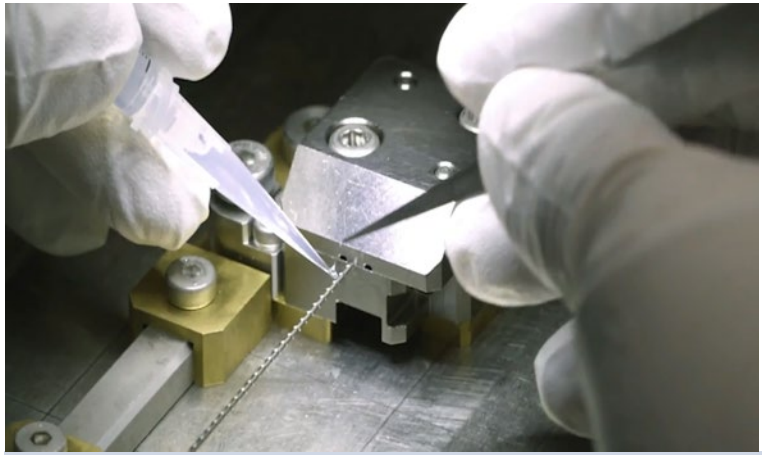
- Tight integration and co-location with R&D:
  - Improves quality
  - Speed to market
- We own and vertically integrate key manufacturing process steps that are critical to quality or managing supply risk
- Lean methodology to drive efficiency and continuous improvement
- Progressively introduce automation as scale and technology allow
- Deep 3rd party supplier relationships
- Strategic use inventory to buffer supply chain risks



# Rigorous supply chain management is a core driver of implant reliability


## People / Quality

- Team member selection, on boarding, training and assessment is a critical part of manufacturing management
- 3 months to have a production team member at basic proficiency
- Process / Quality controls and a compliant Quality Management System are foundational to ensuring we produce safe and effective products



## Process

- Implant manufacture is complex: over 181 process steps, 12 tests and 41 inspections to make a cochlear implant. There are also 16 destructive tests as part of our Manufacturing Quality Plan
- We have deep and extensive process knowledge from performing these steps in higher volume and over a longer period than any other company
- Manufacturing Process IP is a key competitive advantage in the manufacture of implants and sound processors

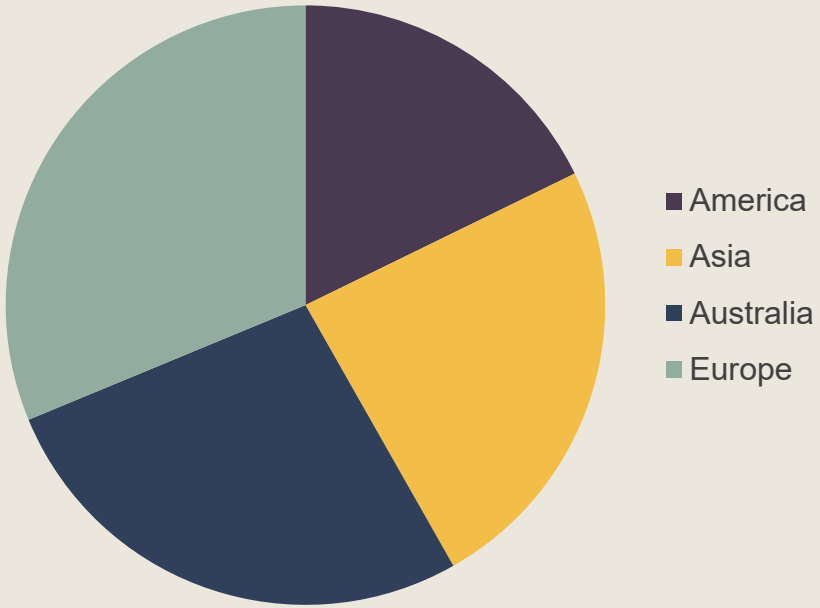
## Capacity

- We continue to invest capex to align with our growth ambitions
- Our Global Manufacturing Network also allows us to scale our capacity to meet demand and manage risk

# Deep 3rd party supplier relationships

- 565 suppliers from across the world
- Segment suppliers based on customisation requirements and impact on product quality
- Long standing relationships with key suppliers – many over 20 years – scale and experience are important
- Focus is on quality and reliability of supply and the sustainability of the supplier:
  - Financial – ensuring price covers appropriate quality controls
  - Ethical – modern slavery compliance
  - Environmental – increasing focus on environmental footprint and mitigation actions
  - Governance – strong supplier audit program to ensure compliance of 3rd party suppliers

## Geographical split of suppliers




| Key categories |
|---|
| Batteries |
| Contract Mfg (Finished Goods) |
| Electronics: EA (Assemblies) |
| Parts: Plastic Moulded |
| Electronics |
| Electronics: ICs |
| Precious Metals |
| Acoustic |
| Electronics: PCBs |
| Manufacturing Consumables |

# Inventory is used to reduce supply risks

- Supply risk results from long product life – product life cycle can be longer than component lifecycle requiring lifetime buys of components to support recipients
- Inventory is used to buffer supply risk for single source suppliers – often lower cost to hold stock than develop a second supplier to the appropriate quality standard
- The cost of a lost sale is far greater than the cost of holding strategic inventory

# Notes and references

**Forward looking statements**

Cochlear advises that this document contains forward-looking statements which may be subject to significant uncertainties outside of Cochlear's control. No representation is made as to the accuracy or reliability of forward-looking statements or the assumptions on which they are based. Actual future events may vary from these forward-looking statements and it is cautioned that undue reliance is not placed on any forward-looking statements.

**Growth opportunity**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2. Market penetration estimate based on Cochlear sourced data.

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**Key market segments**


1. WHO 2021 World Report on Hearing (https://www.who.int/activities/highlighting-priorities-for-ear-and-hearing-care).

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