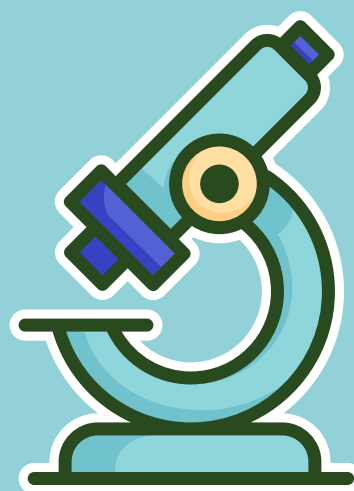
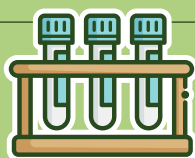




ACCELERATING THE SEARCH FOR TREATMENTS

Our biomedical research strategy 2026-2031

RN
I:D | Supporting people
who are deaf, have
hearing loss or tinnitus



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WHERE WE ARE TODAY

1 in 3 adults in the UK today have some form of hearing loss or tinnitus. For millions of people, hearing loss and tinnitus are permanent, and there is often no way to prevent it happening or stop it getting worse over time.

Today, hearing loss is largely managed using hearing aids and cochlear implants. While these devices bring tremendous benefit to people who use them, they're not perfect. They don't work well when there is a lot of background noise, and neither device restores natural hearing. They also can't delay the onset of hearing loss or the gradual decline in hearing that so many people experience.

There are currently no treatments for tinnitus, only ways to manage it, and these methods don't work for everyone. **We need to improve existing technology, and develop effective treatments to prevent hearing loss, restore hearing and silence tinnitus.** These treatments will transform the lives of people who have hearing loss or tinnitus, both now and in the future.

18 MILLION

More than 18 million people in the UK are deaf, have hearing loss or tinnitus



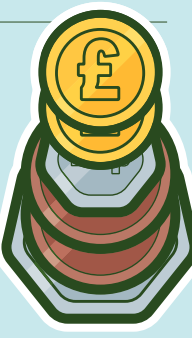
£30 MILLION

As of 2025, we have invested over £30 million into research to find treatments for hearing loss and tinnitus



£2.74

For every £1 we invest in hearing research, researchers secure an additional £2.74 of funding



RNID'S PIONEERING RESEARCH

RNID is the only UK charity dedicated to funding biomedical hearing research. We've been funding research since 1999 to bring about medical treatments that can prevent the onset of hearing loss, enable people to regain their hearing and silence tinnitus.



We're extremely proud of the life-changing impact that our research is already having. Our research has:

- led to a greater understanding of the mechanisms underlying different types of hearing loss and tinnitus, laying the foundations for future treatments
- resulted in changes to clinical candidacy guidelines for cochlear implantation meaning an estimated 890 more children and adults can now benefit from this life-changing technology on the NHS every year
- led to new diagnostic tests that are now routinely used in audiology clinics to help set up hearing aids to give the best possible outcomes
- pioneered a stem cell therapy to repair damage to the auditory nerve that will begin clinical trials very soon.

Our funding was instrumental in getting this research off the ground. It's also helping to establish a new generation of researchers, many of whom are successfully building new research teams, creating the capacity we need to discover and develop treatments faster.



Rhys has severe hearing loss and tinnitus as a result of a rare neurological condition.

"I had a cochlear implant in 2023 and it's been absolutely life changing.

I've got two cats who I've had from kittens – Smokey and Smudge – and suddenly I could hear them meow. It was the best!

It's not a replacement for natural hearing, but the implant has definitely improved my hearing. I recently had a check-up and was told my speech recognition was nearly perfect.

My implant has made it so much easier to communicate, and I feel less isolated. So I'm hoping to get a second one."



TREATMENTS ARE ON THEIR WAY

New treatments and diagnostics are now emerging for a small proportion of the 18 million people with hearing and tinnitus. Pedmarqsi has been approved to prevent hearing loss in children undergoing cisplatin-chemotherapy for some types of cancer. A pharmacogenetic test, kick-started by RNID funding, is now being used in the NHS to identify babies at high risk of hearing loss if treated with certain types of antibiotics helping to save their hearing. Gene therapy has been shown to restore hearing in children with a specific genetic form of hearing loss caused by a fault in the otoferlin gene.

There are more treatments in preclinical and clinical development for other genetic forms of deafness, sudden onset hearing loss and to prevent ototoxicity, but **for the vast majority of the 18 million people with hearing loss treatments remain limited to medical devices** (e.g. hearing aids and cochlear implants) and strategies to manage tinnitus rather than treat the underlying cause.

These devices have greatly improved over the last two decades, but they do not replicate natural hearing, and listening to conversation in the presence of background noise remains a key challenge.

MORE RESEARCH IS NEEDED

We want to see treatments to protect people's hearing from the major causes of hearing loss, such as ototoxic (ear-toxic) medicines, noise and age, or to restore lost hearing. We want to see major advances in hearing aid and cochlear implant technology so that people can experience high-quality hearing when using their devices, even in noisy situations. And we want treatments that can reduce, or even silence, tinnitus permanently.

This research strategy outlines how we will work towards these aims over the next 5 years. We developed it in consultation with people with hearing loss and tinnitus and the hearing research community, particularly in the UK. We ran a survey to help us understand what people with lived experience of hearing loss and tinnitus want from new (and existing) treatments and what they wanted us to prioritise in our research work. We also surveyed researchers to better understand the challenges they face in developing new treatments for hearing loss and tinnitus. Using their insights, we developed a strategy focused on the needs of people with



hearing loss and tinnitus that will support the hearing research community as they endeavour to meet those needs.

Together we'll create a future where losing hearing is no longer inevitable or permanent.

"It is a pivotal moment for hearing research and our communities. New treatments and diagnostics are now emerging for some types of hearing loss, giving hope and showing what is possible. Whilst these advances are life changing for a few, for the vast majority of the 18 million people with hearing loss and tinnitus, treatments remain largely unchanged. This strategy describes how we will galvanise the research community by funding bold innovative research that has the potential to unlock the next big breakthrough, supporting the next generation of researchers to focus their efforts on hearing research, and building a more connected, better resourced research ecosystem focused on tackling the most important challenges. By doing so we can drive faster progress towards the discovery and development of treatments able to protect and improve hearing for even more people."

Dr Ralph Holme, Director of Research, RNID



OUR VISION

We want to see effective medical treatments for hearing loss and tinnitus developed and made available to everyone.

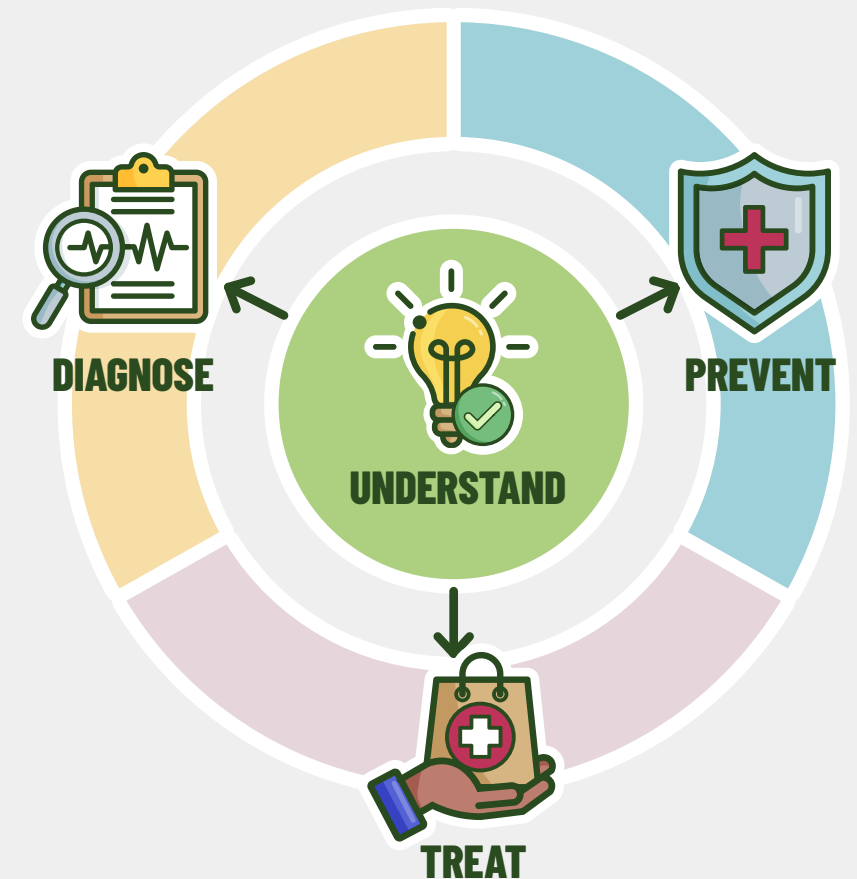
We will improve understanding of the mechanisms that underlie hearing loss and tinnitus and drive the development of better diagnostics and treatments. We will also focus on preventing hearing loss and tinnitus as a priority.

We want to see treatments for all types of hearing loss and tinnitus, but most people with hearing loss develop it as they get older. Age-related hearing loss is complex and progress towards treatments has been far slower as a result. Driving progress in this area where we can have a large impact on millions of lives is a key priority.



OUR RESEARCH PRIORITIES

To deliver this, we will focus our research efforts on four strategic priorities, acknowledging that a deeper **understanding** of the underlying mechanisms of hearing loss and tinnitus is needed for the field to be able to develop better **diagnosis, prevention** and **treatments** of hearing loss and tinnitus.



UNDERSTAND

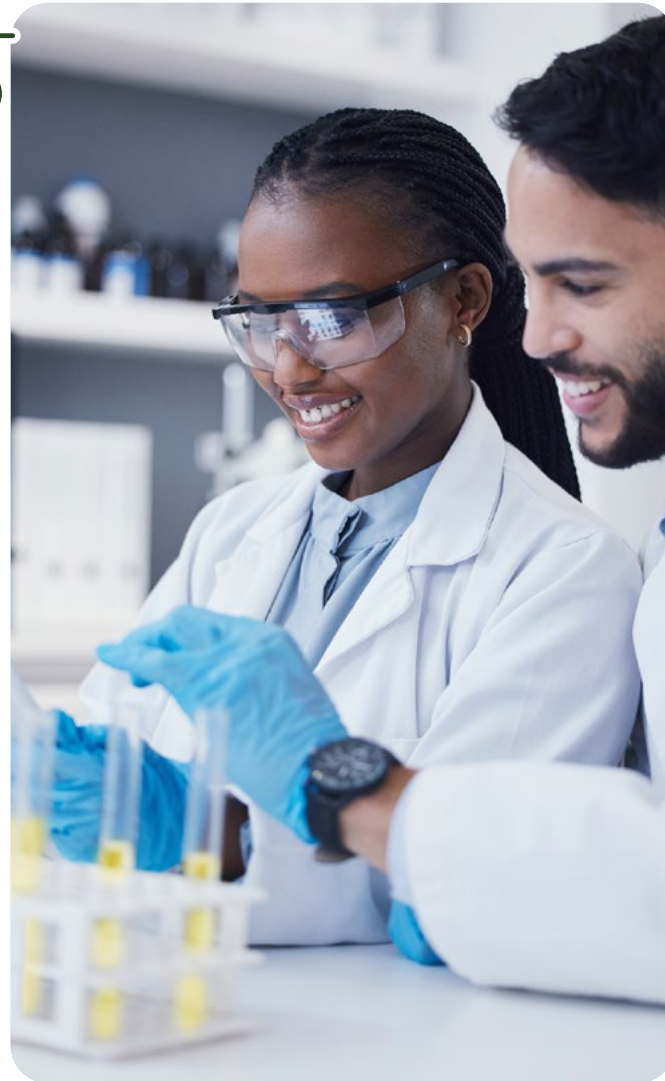


While we know many of the causes of hearing loss and tinnitus, including ageing, exposure to loud noise, genetic factors, infections, and ototoxic medicines, there is still a lot we don't know about how these factors cause damage at a cellular and molecular level, or how they affect how people hear. We also do not fully understand the biology of the ear and central auditory system, or the psychology of hearing and perception. Hearing researchers have told us that this makes developing effective treatments and diagnostic measures challenging.

We will therefore support research to identify and understand the basic mechanisms of hearing loss and tinnitus that could:

- be targeted to reduce tinnitus, prevent loss of hearing or restore auditory function
- lay the foundations for new diagnostics
- improve understanding of the link between hearing loss and dementia.

Mechanisms covered under this priority include biological, neurological, genetic, psychoacoustic, or any other relevant mechanism.



David has Alzheimer's and vascular dementia. His journey with hearing loss started years before his dementia diagnosis.

"Sometimes, I'll miss what someone's saying, and if I can't remember it after a few minutes, I have to ask again. It can be frustrating, and it feels like I'm asking the same thing over and over. If you keep missing things and not remembering, it's like the world gets further away. You can start feeling more alone. I used to be more social, but with both dementia and the hearing loss, you do tend to pull back a bit. If research can find that link for sure, then maybe they can develop treatments or earlier tests. I'd like to see more done so people know what to look out for, what to do sooner rather than later."

UNDERSTANDING THE LINK BETWEEN HEARING LOSS AND DEMENTIA

Evidence suggests that people with hearing loss that develops later in life are more likely to develop Alzheimer's disease (AD), the most common form of dementia, than those without hearing loss.

In 2024, we worked with Alzheimer's Research UK to fund Dr Fabiola Paciello at the Università Cattolica del Sacro Cuore in Italy to investigate this link, particularly whether hearing loss and dementia share disease-causing processes. She is also investigating how hearing loss impacts on and changes cognitive activity in the brain.

The researchers are studying a mouse model of Alzheimer's disease and comparing them to healthy mice as the two groups of mice age. The researchers will analyse these mice to identify damage to the auditory system that is caused by Alzheimer's disease (if any) and/or by advancing age. They will also assess changes in the brain that are involved in hearing and cognition in these mice to see if there is a link between hearing loss and dementia susceptibility.

The results from this project will shed light on the relationship between hearing loss and cognitive decline and may help to identify potential treatments for both conditions.



"Our goal is to understand why hearing loss and cognitive decline are so closely linked. By uncovering the biological pathways that connect hearing and cognition, we can move beyond treating these conditions separately and towards more integrated approaches for earlier detection, better prevention, and more effective therapies for age-related cognitive and hearing disorders."

Dr Fabiola Paciello, Università Cattolica del Sacro Cuore



DIAGNOSE



We currently lack diagnostic tests able to distinguish between types of hearing loss, tinnitus and other auditory disorders, or to identify which part of the auditory system is affected. We also lack tests that can detect the early onset of these conditions or predict someone's risk of developing them. Researchers and companies developing treatments for hearing loss and tinnitus have told us that the lack of these measures means they can't robustly assess how effective new treatments are.

We will therefore support research in this area to develop:

- precision diagnostics and biomarkers able to identify the underlying cause of an individual's hearing loss or tinnitus, which will help stratify people into clinical studies and test whether a treatment is having the desired effect
- sensitive molecular, physiological or behavioural diagnostic tests able to detect early signs of hearing loss. This is particularly important for people undergoing medical treatments that may cause hearing loss (e.g. cisplatin chemotherapy)
- tests able to predict the risk of developing hearing loss or tinnitus and likely progression to guide personalised treatment



"Sensitive and precise diagnostic tools are not only critical to detecting and qualifying hearing loss, but also to enable development and validation of novel, effective treatments. We need continued investment in novel diagnostics, but also to optimize the use of current tools like pure tone audiometry and speech-in-noise testing to thoroughly cover the entire spectrum of human hearing difficulties."

Dr. Jonas Dyhrfeld-Johnsen, Chief Scientific & Chief Development Officer at Acousia Therapeutics

IMPROVING DIAGNOSIS OF AGE-RELATED HEARING LOSS

Age-related hearing loss affects more than 70% of people over the age of 70. Different parts of the inner ear can be affected, such as the hair cells, the auditory nerve cells, or the stria vascularis, a structure in the inner ear that acts as the cochlea's 'battery', providing energy for hair cells to send sound information to the brain (strial hearing loss).



We will need different ways to treat age-related hearing loss, depending on which part of the inner ear is damaged. It will also be important to have diagnostic tools which can identify which part of the inner ear is damaged, so that potential new treatments are tested on people who are likely to benefit from them, and, when those treatments become available, to ensure people receive the correct treatment for their hearing loss.

We funded research in Professor Karen Steel's lab at King's College London to develop tests that can accurately identify damage within the inner ear that underlies hearing loss. Using animal models of hearing loss that mimic hearing loss seen in people, the research team assessed hearing techniques that are already used to study hearing loss in people for their ability, alone or in combination, to pinpoint the location of damage in the inner ear.

The team developed a way to identify strial hearing loss in their animal models. If this method can be adapted for use in people, it could help to identify people with strial hearing loss who would benefit from future treatments aimed at boosting its function.



"The inner ear is often regarded as a black box, but we know that different structures within the cochlea can deteriorate leading to hearing loss. New treatments need to be targeted at specific structures, but there is no current way of diagnosing some of these sites, particularly stria vascularis dysfunction. Funding from RNID has been vital to support our development of tests that can be used in the clinic to distinguish stria dysfunction from other sites underlying hearing loss. This project is the basis for our future research aimed at assessing these new tests in people to detect strial hearing loss."

Professor Karen Steel, King's College London

PREVENT



Hearing loss and tinnitus are most often acquired during life, most often due to ageing, exposure to loud noise, genetic factors, infections or ototoxic medicines.

People with lived experience have told us that treatments that will prevent their hearing loss or tinnitus from getting worse are a high priority to them.

We will therefore support research in this area to discover and develop treatments to:

- prevent or delay the onset of acquired hearing loss or tinnitus
- stop or slow the progression of hearing loss or tinnitus.



Macauley has cystic fibrosis, a lung condition that makes him susceptible to life-threatening lung infections which are difficult to treat. He lost hearing in his left ear as a teenager after being treated with aminoglycoside antibiotics for such an infection.

“I had to choose between getting rid of the infection and having side effects such as hearing loss or keeping the infection which would have dramatically affected my health. It would have been much better not to have had to make a trade-off at all.

Biomedical research can help prevent side effects [like hearing loss], so that people can get an illness treated without facing life-altering consequences. That’s why funding for research is so important—so we can get to a point where treatments work without causing additional harm.”

PREVENTING AMINOGLYCOSIDE-LINKED HEARING LOSS

Aminoglycoside antibiotics are used worldwide to treat serious bacterial infections. However, they are ototoxic – around 1 in 5 people treated with them develop hearing loss.

In 2024, RNID awarded a Discovery Research Grant to Professor Jonathan Gale and Professor Sally Dawson at the UCL Ear Institute. Dr Jack Martin in their team is investigating whether structures inside cells called stress granules play a role in antibiotic-related hearing loss.

Stress granules form when cells are under stress, such as exposure to toxins. They help protect the cells and disperse once the stress has passed. However, abnormal stress granules can persist, and these have been linked to hearing loss.

The team want to understand how stress granules behave under chronic cellular stress and how this might contribute to antibiotic-related hearing loss. They also want to find out whether targeting them could protect hair cells. This could lead to new treatments that can prevent the development of antibiotic-related hearing loss.



“With RNID funding, we have shown that aminoglycoside antibiotics induce stress granules in cochlear hair cells. So far, they appear to be similar to typical stress granules, but we think their full protective effect is not being used.

To better understand how stress granules provide protection, we are developing a system that can activate stress granules using a particular wavelength (colour) of light rather than actual cellular stress.”

Dr Jack Martin, UCL Ear Institute



TREAT



For most people, hearing loss and tinnitus are permanent and irreversible. People with lived experience have told us that technologies and treatments that will allow them to regain lost auditory function or reduce the loudness of tinnitus are a high priority to them.



We will therefore support research in this area that will:

- lead to transformative improvements to the quality of hearing gained from medical devices
- advance the discovery, development and testing of drug, genetic or cell-based therapies to restore function to any part of the auditory system to improve hearing
- advance interventions to reduce the loudness of tinnitus.
- develop methods to improve approaches to;
 - delivering therapeutics to the inner ear,
 - predicting and measuring the levels of therapeutics in the cochlea and
 - evaluating therapeutics in clinical trials
- advance in silico, in vitro and in vivo models to support the discovery and development of new treatments

Nikki has had tinnitus for over 20 years and, more recently, an ear infection left her with some hearing loss.

“Some days are better than others with my tinnitus. At the moment, I’ve got it lightly on one ear but in the other, I’ve got a constant, high-pitched humming.

On a bad tinnitus day, I have to pay more attention to people’s faces so that I can lip read. I definitely can’t look down.

When the tinnitus is at its worst, I’ll get quite dizzy.

A treatment to silence tinnitus would be amazing news. To not have to struggle to hear above it or have loud sound cause dizziness would be life changing.”



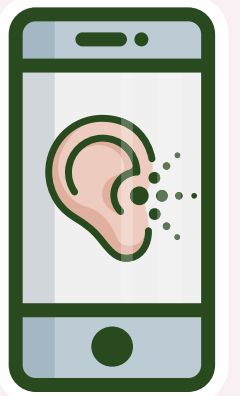
A SMARTPHONE SOUND THERAPY TREATMENT FOR TINNITUS

Tinnitus is the perception of sound, such as ringing or buzzing, when there is no external source of the sound. It affects 1 in 7 adults, and for some people, it causes serious anxiety and stress and is also linked to depression and sleep disorders.

In 2019, we funded PhD student Ekaterina Yukhnovich in Dr Will Sedley’s lab to conduct an online trial of a new sound therapy, to see if it could reduce the loudness of tinnitus. The therapy aims to change patterns of activity in the sound processing regions of the brain – activity that is a key factor believed to be a root cause of tinnitus perception.

Participants who took part in the trial were played specifically modified sounds for one hour a day for six weeks. The results showed that the sound therapy could reduce the loudness of tinnitus, and that the effects lasted for at least three weeks after the therapy ended, suggesting it could have long-term benefits.

The research team now hope to conduct further trials to improve their sound therapy, which they hope will have a stronger effect on tinnitus.



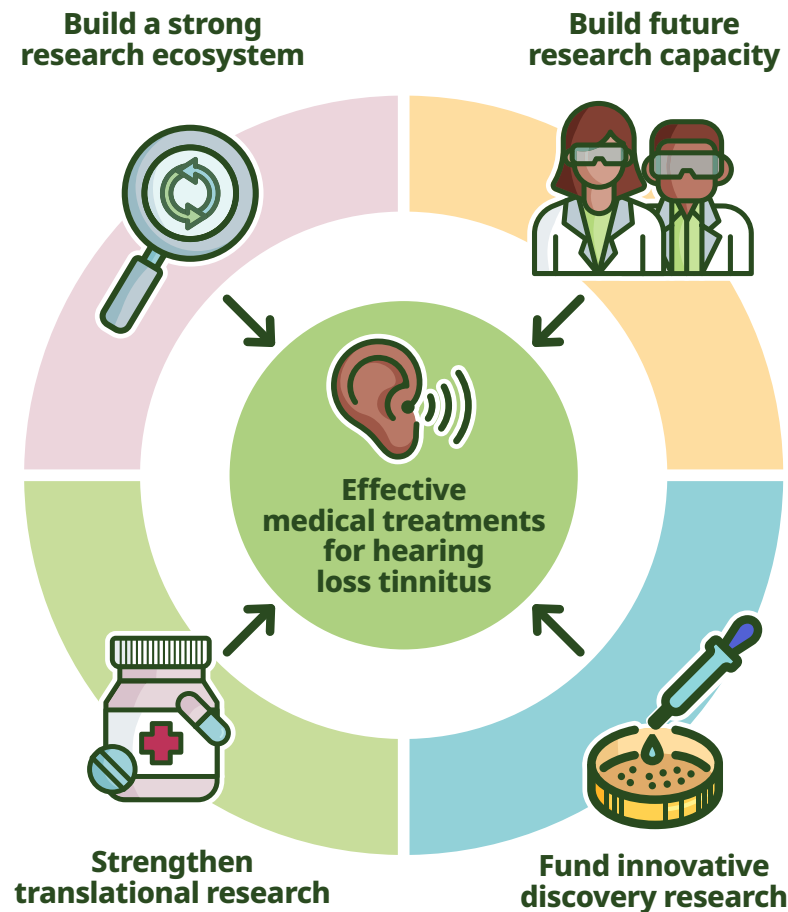
“What makes this development so promising is its potential for widespread rollout, along with its ability to treat various forms of tinnitus – not just one specific type, as is the case with some current treatments. We are really excited about our long-term goal to allow people to treat their own tinnitus just by using their own existing devices and listening to the audio content that they already enjoy.”

**Dr Will Sedley,
Newcastle University**

OUR APPROACH

We will create the research environment needed to make progress against our four research priorities and bring about a wide range of treatments to prevent hearing loss, restore or improve hearing for those who want it, and silence tinnitus. This includes funding pioneering research that will lead to the development of new treatments, building networks across the hearing research ecosystem, and connecting researchers with people who have hearing loss or tinnitus.

By doing this, we will ensure that there are more researchers working on the discovery and development of treatments, and a strong pipeline of research moving treatments into, and through, clinical trials. We'll also make sure that the research we fund addresses the priorities and meets the needs of people with hearing loss or tinnitus.



BUILDING A STRONG RESEARCH ECOSYSTEM



We will build a stronger hearing research ecosystem that is better connected, focused on the most important challenges, and adequately resourced to support the development of and access to new treatments. This will involve convening and influencing scientific experts, institutional funders, industry and investors, clinical stakeholders, regulators and people with hearing loss and tinnitus to address bottlenecks in the development of treatments and accelerate progress.

We will:

Make connections and share knowledge through our Hearing Therapeutics Network

We will continue to position ourselves as the go-to organisation at the heart of the development of therapeutics. We have established a network of members including academic, clinical and industry representatives from around the world with a shared interest in developing treatments for hearing loss and tinnitus. We will broaden the network to engage researchers working across disciplines and at all stages of the research process.

We will share the latest developments and insight through regular communications, make connections to catalyse collaboration across disciplines and sectors, and deliver events to bring the community together, such as our flagship Hearing Therapeutics Summit.



Our Hearing Therapeutics Summit

Our Hearing Therapeutics Summit brings together leading voices from research, industry, and patient communities to explore the opportunities and barriers shaping the future of the hearing therapeutics landscape.

Our 2025 summit covered topics including the exciting new developments in gene therapies to treat various types of hearing loss and updates on research into drug discovery and cell therapy development. It also included coverage of the challenges which are holding back investment into the field, such as a lack of standardised diagnostics and outcome measures, and the importance of collaboration in removing the barriers and realising the potential in the rapidly evolving hearing research field.

We host the Hearing Therapeutics Summit every two years as part of our commitment to drive forward research to speed up the development of new treatments for hearing loss and tinnitus.



“As both a hearing scientist and someone with severe hearing loss, I found the Hearing Therapeutics Summit uniquely valuable. By bringing researchers, clinicians, companies, investors and people with lived experience into the same conversation – and sustaining those connections through the Hearing Therapeutics Network – RNID creates opportunities for collaboration that would be difficult to build within any one field. I left the Summit with concrete new ideas and potential collaborations around RNA and gene therapies, AI-based cochlear analysis and clinical translation. That kind of cross-sector exchange is exactly what we need to move promising science toward meaningful treatments for hearing loss and tinnitus faster.”

Professor Uri Manor, St. Jude Children’s Research Hospital

“In a single day, the summit brought together patients, researchers, clinicians, and innovators from across the hearing therapeutics landscape, all united by a shared ambition to move the field forward.”

Dr Erik de Vrieze, Radboud University Medical Centre



Focus research effort on tackling the most important strategic challenges

We know there are key technical and scientific challenges that are holding back the development of treatments, ranging from a lack of precision diagnostics and biomarkers, preclinical models, and methods to effectively deliver therapeutics to the correct part of the ear, to outcome measures that are meaningful for people with hearing loss or tinnitus and which can be used consistently across studies. Tackling many of these challenges will require collaborative effort across different disciplines.

We will engage with the research community and our grant review panels to identify and prioritise challenges. We will host workshops to bring experts together around these challenges to spark new ideas and encourage collaboration, before launching targeted calls to support research that aims to address them. We will run these strategic calls as a ‘theme’ within our existing project grant schemes, as stand-alone calls or commissioned projects, as appropriate.

We will also seek to work in partnership with other organisations with a shared interest to maximise our impact.

Demonstrate the need for and value of new treatments to increase investment in hearing research and access to new treatments

Uncertainty around what would represent a meaningful improvement in hearing, or level of protection, for patients and healthcare regulators can deter investment in hearing therapeutics. Our insight also suggests that there is a false perception among some investors and pharmaceutical companies that existing treatments are ‘good enough’.

We will generate evidence around the unmet clinical need, and social and economic cost, of different types of hearing loss and tinnitus, that can be used to encourage other funders, industry and other investors to invest in treatments for hearing loss and tinnitus. This evidence will also support future regulatory assessments of new treatments, ensuring that regulators accurately understand the benefits they will bring.

It is also important that we continue to raise awareness of and public interest in research into treatments for hearing loss and tinnitus to support our work. We will share the outcomes and impact of our funded research, other breakthroughs in the field and stories from people with lived experience about their hopes for new treatments.



Involve people with hearing loss and tinnitus in research

The involvement of people with hearing loss and tinnitus in research is vital. It provides researchers with insights into living with hearing loss and tinnitus they may otherwise lack and helps them to understand what matters most to people with hearing difficulties. Ultimately, it ensures that future treatments are developed to meet people’s real-world needs and that clinical studies are conducted in ways that work for participants, increasing the likelihood that a trial or study is a success. This is particularly important for people with hearing loss who have additional communication needs.

Our survey of the research community shows that researchers would value our help in

recruiting people into studies and in engaging more broadly with people to better understand their needs and inform the design of studies.

We will:

- Promote opportunities to take part in clinical studies to people with hearing loss and tinnitus
- Develop ways to help the hearing research community to gain insight from people with hearing loss and tinnitus
- Work towards a greater involvement of people with lived experience in assessing grant proposals to ensure the research we fund is relevant



BUILDING FUTURE RESEARCH CAPACITY



It is vital that we attract and retain talented scientists into hearing research who can build new research groups. This will provide increased capacity to deliver our research priorities. Because the majority of health research funding is not restricted to particular health areas, it will also result in a larger proportion of funding being pulled into hearing research.

Our current PhD and Fellowship schemes are highly valued by the UK hearing research community. Over half of the PhD students we have funded who completed their studies within the last 5 years are still currently active in hearing research, two of them holding independent fellowships and on track to become future research leaders.

Over 80% of RNID Fellows who have completed their fellowships in the last 5 years remain active in hearing research with several having achieved independence, fulfilling the scheme's objective.

We will:

- Continue to fund PhD studentships in the UK (every other year) to inspire researchers at the very start of their careers to become involved in hearing research. We will explore ways we can partner with other organisations and funders to leverage additional support.
- Continue to fund Fellowships in the UK every year to support early career researchers to progress towards independence in the hearing field. The fellowship is intended to be a springboard to larger, longer-term career development awards offered by other larger funders.
- Work to establish a UK Early Career Hearing Research Network providing peer-peer support, guidance and networking opportunities to support career development.

Our Future Leaders

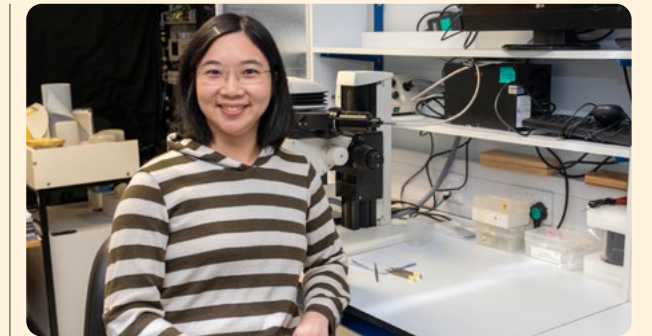
Dr Emma Kenyon and Dr Jing-Yi Jeng received RNID Fellowships to support them as they worked towards becoming independently established hearing researchers.

Dr Emma Kenyon is Lecturer in Neuroscience at Swansea University. She is currently funded by the BBSRC and Academy of Medical Sciences to study hearing and balance using zebrafish as a model system.

In 2019, she was awarded an RNID Fellowship to research how aminoglycoside antibiotics, used to treat life-threatening bacterial infections, can damage the sensory hair cells of the inner ear resulting in hearing loss and balance disorders.

"The research I do would not have been possible without my amazing collaborators, the community of hearing loss researchers and the support of RNID. The RNID fellowship demonstrates to funders, employers and yourself that you have novel fundable ideas. They also give you the resources to get pilot data for bigger grants and go to conferences and meetings where you can talk to people who are happy to help you with advice and practical solutions.

My overall career ambition is to advance our understanding of how we can mitigate hearing and balance disorders, with a particular emphasis on preserving these amazing senses."



Dr Jing-Yi Jeng is a BBSRC Research Fellow in the School of Biosciences at The University of Sheffield. She studies the causes and mechanisms of age-related hearing loss.

In 2021 she was awarded a RNID Fellowship, co-funded by Vivensa Foundation, investigating why higher frequency hearing is more vulnerable in age-related hearing loss.

"My RNID Fellowship was a crucial step towards becoming an independent researcher and fuelling my passion for helping people through science. It was invaluable for securing my current BBSRC Discovery award by allowing me to generate preliminary data and demonstrate proven management and leadership skills. I am now seeking further fellowships to establish my own lab and develop multi-disciplinary collaborations with researchers and clinicians.

My current research focuses on how hair cells in the cochlea degenerate with ageing. These hair cells amplify and transduce sound waves into electrical signals for neurons to pass on to the brain – much like how a microphone converts sound for a computer to process. Ultimately, I hope my research will find a way to prevent or treat age-related hearing loss."

FUNDING INNOVATIVE DISCOVERY RESEARCH

Discovery Research Grants



We will continue to support fundamental research through our Discovery Research Grant scheme to lay the scientific foundations needed for new diagnostics and treatments, including early-stage research that has the potential to lead to a step-change in the quality of hearing experienced through medical devices. The scheme will run every year.

We will place greater emphasis on funding bold, innovative research that has the potential to make big breakthroughs (high risk, high reward). The hearing research field is small, and we want to fund the most promising ideas, so we will continue to support research internationally through this scheme.

We expect our funding to have a multiplier effect, generating data that can be used to secure follow-on funding from larger funders. We will also seek to co-fund research with funders in allied fields (e.g. ageing, dementia) to leverage investment and broaden our reach.

The next generation of cochlear implants

We've funded Professor Rachael Richardson at the Bionics Institute of Australia through our Discovery Research Grant scheme to carry out research to develop a new type of cochlear implant which uses light to stimulate the auditory nerve, which is expected to lead to a richer, better hearing experience for people with cochlear implants.

"The main outcome from my RNID Discovery grant was the development of novel cochlear implant technology that uses light rather than traditional electrical stimulation. We found that light activated the hearing nerve with much higher spatial precision compared to electrical stimulation, so much so that there was dramatically less crosstalk between each stimulating channel of the cochlear implant. We believe that this technology will significantly improve speech intelligibility and pitch discrimination particularly in the presence of background noise. This is the focus of our continuing research using this paradigm-shifting technology.



"As a direct result of RNID's early support of my research, I gained funding from the Australian government to explore precise approaches to neuromodulation that are in development for hearing and vision restoration, and even for the suppression of chronic pain! Thanks to the generosity of RNID donors, my research into precision cochlear implant technology has progressed from proof of concept to advanced level validation studies. I can't wait to see where it goes from here."

**Professor Rachael Richardson,
Bionics Institute of Australia**

Innovation Seed Fund

We will also continue to pump-prime new lines of research through our annual Innovation Seed Fund awards. These small awards are designed to help researchers around the world to generate pilot data to support larger grant applications.

We will keep the value of these awards under review to ensure they keep pace with rising research costs.



A rapid genetic test to identify babies at risk of hearing loss

In 2016, we awarded an Innovation Seed Fund grant to Professor Bill Newman at the University of Manchester to develop a prototype version of a point of care genetic test to identify babies at risk of hearing loss if treated with gentamicin.

Premature babies are vulnerable to developing life-threatening infections such as sepsis. They are usually treated with an aminoglycoside antibiotic called gentamicin, which can cause hearing loss as a side effect. Several hundred babies each year develop hearing loss as a result.

Around 1 in 500 babies have a version of a gene that makes them particularly vulnerable to hearing loss if treated with gentamicin. The new rapid genetic test can detect this version of the gene in DNA samples in 30 minutes. This means that babies at particular risk can be identified and given a different antibiotic.

As a result of our support, Bill was able to secure further funding to develop the test further, including trialling it in the clinic. The test has now been approved for use across the NHS. It could save the hearing of 200 babies in England every year.



"RNID funding acted as a catalyst to allow us to develop the prototype point of care genetic test. We worked with a small company called Genedrive to design the assay. As this type of testing was so novel, RNID's support was vital to giving other research funding organisations the confidence that we could generate a genetic result at the patient bedside within minutes to prevent antibiotic induced hearing loss. This was key to us securing the money that has allowed us to implement the test into routine care of babies on neonatal units across the UK and globally."

Professor Bill Newman, University of Manchester



STRENGTHENING
TRANSLATIONAL RESEARCH

Translational Research Grants

Translational research is focused on moving a promising new treatment or diagnostic from the lab towards the clinic. We will focus our efforts on supporting the translation of diagnostics, drug, genetic and cell therapies towards clinical trials where we can make a bigger difference. This scheme will continue to exclude translational research into medical hearing devices, as there is already an established hearing aid and cochlear implant sector well placed to exploit these advances.

We will build on our existing Translational Research Grant scheme to grow the pipeline of opportunities. We will reposition the scheme to also support earlier stage proof of concept studies, helping researchers to make the first

step towards developing a new treatment. This will also bridge the gap to our Discovery Research Grant scheme which is focused on understanding the mechanisms of hearing loss and tinnitus.

Hearing researchers told us that they often lack the experience and know-how to translate their research, so we will support them to access relevant expertise and potential future investors to help them build robust, commercially attractive development plans that will deliver the data funders expect.

We will provide flexible funding to support pivotal studies to unlock onward investment, supporting both academic groups and small companies around the world, keeping the value of these awards under review to ensure they keep pace with rising research costs. The scheme will run every year.

OVERVIEW OF OUR APPROACH



PROJECTS



PEOPLE



SUPPORT



WHERE WE'LL BE IN 2031



By 2031 we will have:

- Invested over £7.5 million into supporting research into treatments for hearing loss and tinnitus
- Tackled some of the biggest bottlenecks to accelerate progress
- Worked with at least one national funder to boost investment into hearing research
- Delivered two Hearing Therapeutic Summits, bringing the international research community together
- Inspired the public around hearing research and enabled people to take part in research

It is hard to predict where the next breakthrough will come from but some of the major milestones we expect to see because of our research include:

- The discovery of new biological mechanisms that can be targeted to prevent hearing loss caused by certain medicines used to treat cancer and infections, and to halt or slow the onset of age-related hearing loss
- Improvements in cochlear implant and hearing aid technology which make it easier for people using them to understand speech when there is background noise
- Non-invasive brain stimulation treatments to help reduce the loudness of tinnitus
- New precision diagnostics able to pinpoint the underlying cause of an individual's hearing loss
- A broad range of gene therapies able to restore hearing for a wide range of people
- The first stem cell treatment to repair damage to the auditory nerve progressing through clinical trials
- And our big ambition, the first treatment for age-related hearing loss available by 2050.



**RN
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Supporting people
who are deaf, have
hearing loss or tinnitus



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