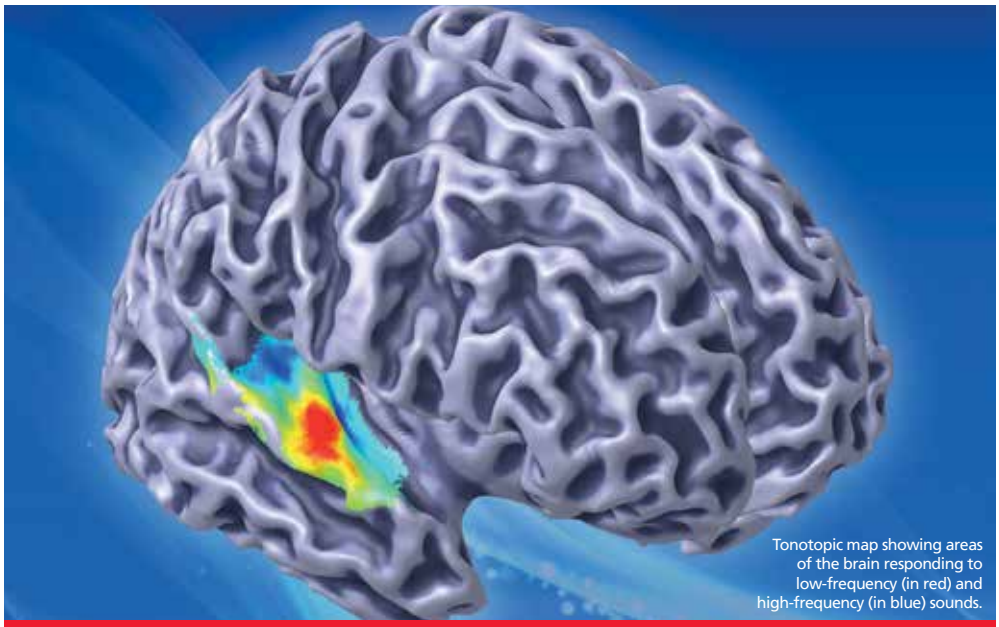
Nottingham Hearing Biomedical Research Unit

NHS National Institute for Health Research

Autumn 2014



Tonotopic map showing areas of the brain responding to low-frequency (in red) and high-frequency (in blue) sounds.

The Hearing Brain

Our ears capture sound but it is our brains which process and make sense of the sounds around us. This feature highlights our work into developing a better understanding of the hearing brain.

Our BRU features two research areas that focus on the role of the brain in hearing disorders. Our advanced imaging and translational neuroscience theme is working to improve methods of measuring hearing-related brain function, using Magnetic Resonance Imaging (MRI) and Near Infrared Spectroscopy (NIRS). The sensorineural plasticity and rehabilitation theme is using these developed methods to study brain organisation in individuals with hearing disorders.

In combination, the work from these themes is developing an understanding of how the brain adapts to hearing loss or deafness. It is also building our understanding of how changes in brain function are involved in a number of hearing-related phenomena, such as tinnitus. We recently completed a number of MRI studies into the structure and function of the brain. In close collaboration with the Nottingham-based Medical Research Council (MRC) Institute of Hearing Research, we carried out a comprehensive review of all existing MRI studies that looked at changes in brain shape and volume related to tinnitus. This review showed that there are inconsistent and even contradictory findings across studies. The presence or absence of hearing loss in tinnitus is one factor that has often not been accounted for. This may explain some of the inconsistencies. Based on the lessons we learned, we are now working towards disentangling the effects of hearing loss and tinnitus through our own experiments to resolve this issue.

Another development concerns brain function. Sound that is sent to the brain is split into parts, corresponding with frequency components or "pitches". We have recently succeeded in mapping which areas of the brain process which parts of the incoming sound (the brain's tonotopic organisation). Changes in this mapping have been implicated in high-frequency hearing loss and tinnitus. Our work will now allow us to delve further into such hearing disorders.

Dr Dave Langers, Sensorineural plasticity and rehabilitation.

Louder than Words

We are delighted to announce that we have been accredited with the national Louder than Words Charter™, demonstrating our commitment to offering the best level of service for the deaf and hard of hearing.

We were benchmarked by Action on Hearing Loss, who award the charter, against a number of standards. As a result, we have installed more induction loops and bought portable loops for use off-site. We have also put in place Text Relay, Textphone and SMS texting facilities, improved signage for visitors and information for staff.

The feedback from the surveys of visitors was very welcome and included many compliments such as "It is great to be in a place which caters for deafness" and "Very effective loop and microphone". Action on Hearing Loss stated that "There are some excellent practices taking place within the organisation and many different activities have been implemented. [The] staff have a very high level of deaf awareness and will be providing an excellent level of service to deaf and hard of hearing visitors and staff."

ACTION ON HEARING LOSS


Kathryn Fackrell receiving her award from Prof Dame Sally Davies.

Researcher training camp

In July, four of our PhD students were selected to attend the fifth National Institute for Health Research (NIHR) Infrastructure Doctoral Research Training Camp at Ashridge Business School. The camp provided training and guidance on applying for research funding.

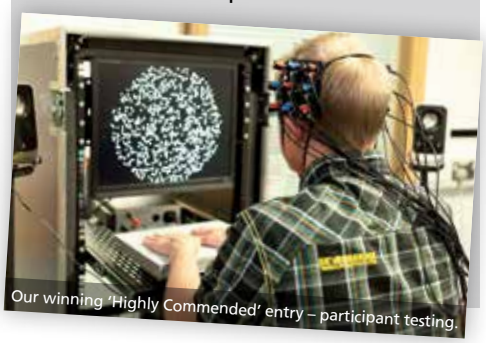
This involved presenting posters of our work and attending an informative series of workshops on topics such as how to involve patients and the public in every stage of research.

We worked in teams with students from across the UK, with a variety of different backgrounds (clinicians and non-clinical scientists), to develop a practice grant proposal. This provided a valuable opportunity to share our research experiences with others.
Eithne Heffernan's team won the award for best patient and public involvement in their research proposal. Kathryn Fackrell was privileged to receive the best poster award for her work on evaluating a new tinnitus questionnaire.

Success in photo competition

The National Institute for Health Research (NIHR) launched a photo competition under the theme 'People and research'.

The goal was to create an NIHR image library reflecting 'a day in the life of the NIHR'. This is to celebrate the work that everyone involved in the NIHR does, including patients, the public and carers. We are pleased to announce that one of our entries (shown here) received a Highly Commended Award from Prof Dame Sally Davies. Other images were also accepted into the library, which will be used in the new NIHR website and promotional material. Many thanks to all those who contributed to the photos!


Our winning 'Highly Commended' entry – participant testing.

BRU research collaboration in the top three finalists in Healthcare Innovations Awards

A team of researchers from the Habilitation for Hearing Loss theme at our unit, University of Nottingham Health and Elearning Media group, hearing aid users and audiologists from Nottingham Audiology Services have been selected as finalists in the East Midlands Innovation in Healthcare Awards.

Their innovation is an educational programme (C2Hear) that has been developed to support new hearing aid users in using their hearing aids and to help them get the most out of their hearing and communication strategies.

There were over 100 submissions from the NHS, social care, universities, charity, voluntary groups and industry, and the C2Hear team made it through to the top three finalists in the Software and Telehealth category.

The study showed C2Hear provided numerous benefits to hearing aid users and their family and friends. These included improved hearing-related knowledge and practical skills as well as improved confidence and reassurance. C2Hear is being made available to Audiology services across the country and the general public in the autumn, and represents a positive example of how research can benefit both patients and members of the public.

For more information contact the research lead Dr Mel Ferguson (melanie.ferguson@nottingham.ac.uk) or keep an eye out for news on the BRU website.

C2Hear
Getting more from your hearing just got easy


Members of the C2Hear team.

Discussing our research with tinnitus support groups

During the past year, we were invited to speak at several tinnitus support groups across the country.

These included Chesterfield and North Derbyshire, Manchester, St Helens, Aintree, West Middlesex and Cambridgeshire.

We were invited to talk about our own research, as well as other research being carried out at our unit. Meeting members of these groups has been an immensely interesting and helpful experience for us as postgraduate students. We have learnt so much about what it is like to live with tinnitus and how it can affect people's everyday lives. We have been amazed at how supportive the groups have been and how willing people with tinnitus are to be involved in research.

We also used these talks as an opportunity to gather feedback on our future research plans. This has helped make sure that our research stays focused on topics that are important to people living with tinnitus.

Kathryn Fackrell

Kate Greenwell

Sharing our research with the local community

Our unit was pleased to take part in a public event for the local community this summer. The event took place in St. Ann's, Nottingham and members of the public were free to drop in and chat with our researchers.

We provided many hands-on activities and hearing demonstrations, which proved popular with young and old alike! The event was supported by the University of Nottingham's Catalyst initiative. This encourages and supports academic staff to engage with the local community.

We were very kindly hosted by IntoUniversity (http://intouniversity.org/), a national charity which supports young people from disadvantaged backgrounds to attain a higher education and raise their aspirations.

The event was run in partnership with the Medical Research Council's Institute of Hearing Research, Nottingham University Hospitals NHS Trust, the NIHR Nottingham Digestive Diseases Biomedical Research Unit and the Nottingham Respiratory Research Unit.

For details of future public events please check the news section on our website or our Facebook page.

What helps or stops children with hearing loss take part in sport?

Participation in sport has been linked to better mental and physical health. Playing sport helps children to develop their communication and social skills.

Children with hearing loss can face barriers when wanting to play sport. These include difficulties in communication and use of technology. This project investigates what helps or stops children with hearing loss take part in sport and we need your help.

Are you a PE teacher or sports coach of hearing children and children with hearing loss? Or are you a parent of a child with hearing loss?

If so we would like to hear from you! We need lots of people to take part in interviews and you can do this face to face, via telephone or via skype.

For more information contact Sarah Somerset (PhD student) on msxsw2@nottingham.ac.uk or 0115 823 2640.

Sarah Somerset

British Society of Audiology annual conference

Many staff and students from our unit took part in the recent British Society of Audiology (BSA) annual conference. It was a great opportunity to discuss the latest research and to exchange ideas.

I presented my research on the impact of hearing loss on everyday life and got some very helpful feedback from the audience. Sarah Somerset, a fellow PhD student, presented her research about children with hearing loss taking part in sport. Senior Research Fellow Pádraig Kitterick presented on how people can combine information from one ear that has a cochlear implant with information from one ear that has some useful hearing remaining. Many posters about our unit's work were also on display.

Keele Hall - host to the BSA conference. CC alexanderward12

I found the conference very informative and enjoyed meeting audiology professionals from around the country.

Eithne Heffernan

Sharing methods in statistics across the globe


Boston skyline

"This summer's conference season saw me present at two statistics conferences; one in Sheffield, UK and the other in Boston, USA. Both provided excellent forums for exchanging ideas and learning of new developments in analytical methods.

The Sheffield meeting of the Royal Statistical Society was big, including a key note session from Tim Harford of The Economist and BBC's More or Less.

The American Statistical Association's JSM in Boston was huge in a conference centre the size of a small town and with dozens of parallel sessions!

Both were great sources of inspiration for future work."

Mark Edmondson-Jones

Poster award for tinnitus self-help programme research

PhD student Kate Greenwell has won an award for her poster about her research.

As the first part of her PhD, Kate is identifying and summarising the published research literature on self-help programmes for people with tinnitus.

She is interested in whether self-help programmes work and what psychological techniques (e.g. providing information, practicing relaxation) are important for their success. Her award was received at the annual Division of Health Psychology Conference in York (10-12th September). It was attended by researchers, health professionals and students from the UK and abroad with a specialist interest in health psychology.

Funding success for new study on counselling for tinnitus

We have been successful in achieving funding for developing a set of counselling tools for people who have tinnitus.

Led by Dr Derek Hoare, the project received £260,000 from the Research for Patient Benefit scheme which is funded by the National Institute for Health Research (NIHR). The first year of the 2-year project will involve working with patients and audiologists to find out what aspects of counselling are most important. This will lead to the creation of a care manual for audiologists to work with.

The second year of the project will see the testing of the care manual in a small clinical trial at a number of NHS audiology departments. The project will start early next year.

See us on television!

The Welsh television channel S4C has broadcast a series on the senses. We contributed to the episode on hearing.

The episode is available to view on S4C's catch up site (http://www.s4c.co.uk/clic/) until 17th October.

The series is called Corff Cymru and English subtitles are available.

The hearing episode was broadcast on 17th September at 7.30pm.


The anechoic chamber features in the TV episode.

Stay in touch/ get involved

Are you interested in helping us develop our research?

Around 900 people now on our database have expressed an interest in taking part in our hearing research. We match eligible people and their interests to relevant, ethically approved studies. All participation is voluntary, and all participants are given time and the information they need to decide whether a particular study is for them. If you would like to:

- volunteer for our projects
- receive the newsletter regularly and express your views
- volunteer to join our research review panel

We would be delighted to hear from you. Contact Sandra on sandra.smith@nottingham.ac.uk for more information.

If you are on our database, please let us know if you have experienced any recent changes to your hearing, so we can continue to match you with the most relevant studies.

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