

Alleviating the impact of deafness

Professor Colette McKay, Audiology and Deafness Research Group, University of Manchester

Since 1919, The University of Manchester has led efforts to improve the quality of life for deaf and hearing-impaired people. The development of paediatric audiology as a profession can be traced back to Sir Alexander and Lady Irene Ewing at Manchester (Photo 1), whose pioneering work influenced professionals throughout the world on issues pertaining to the identification and management of childhood deafness and to the education of deaf children. More recently, the Manchester Audiology and Deafness Group was instrumental in the implementation and evaluation of the UK National Newborn Hearing Screening Programme, leading to early detection and management of hearing disorders in infants, and an expectation of improved oral language development. The group was also responsible for the research and training programme that introduced digital signal processing hearing aid technology for children into the NHS. The new guidelines are now imbedded into clinical practice and are used as a quality standard by which good practice in Paediatric Audiology can be measured (Photo 2).



Photo 1. Lady Irene and Sir Alexander Ewing

The internationally leading role of the Manchester Audiology and Deafness Research Group in reducing the impact of childhood deafness continues today. Supported by the MRC, we are developing a comprehensive objective test battery that could revolutionise paediatric audiology by allowing faster and more accurate diagnosis of hearing problems and earlier targeted management (Photo 3). Also supported by the MRC, we have a new programme grant to understand the way that noise exposure can degrade hearing, even when there is no change in clinical hearing thresholds.



Photo 2.



Photo 3.

Manchester Auditory Implant Centre provides cochlear and auditory brainstem implants to over 100 children and adults every year. These are surgically implanted devices that can restore hearing to people with severely damaged ears by direct stimulation of the auditory nervous system. The Audiology and Deafness Research Group are collaborating with device manufacturers and research councils to improve the effectiveness of these devices, and to develop new ones. For example, we are collaborating in work towards an auditory midbrain implant, which bypasses the damaged lower part of the auditory system in people who are not suitable for a cochlear or brainstem implant.

A significant factor determining the effectiveness of hearing devices, such as cochlear implants and hearing aids, is how the brain adapts to hearing loss and to the partial restoration of auditory function by the devices. The group is working with international industrial partners to understand the physiological mechanisms underlying these changes, and to investigate training and habilitation strategies that may help the brain to use the hearing device more effectively (Photo 4).



Photo 4.

Hearing impairment can have a dramatic impact on learning outcomes for children. Manchester is the leading centre in the UK for research on deaf education and the training of teachers of the deaf. The success of newborn hearing screening and hearing device development have led to a need for improved delivery of audiology and educational services to families of deaf children. For example, we have shown that radio aids can assist children and infants to hear better outside of school environments. Children and adults with learning disabilities often miss out on good hearing services: our group led a hearing screening programme at the first Special Olympics and showed that a high proportion of athletes had undiagnosed hearing difficulty (Photo 5).



Photo 5.

Further information

Link to our projects - read more details

[Audiology and Deafness Research Group at University of Manchester](#)

The Facebook page of Audiology in the North West

<https://www.facebook.com/AudiologyNorthWestEngland>