Cochlear implant management through the use of teleaudiology

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Objectives. Clinical service delivery for cochlear implant recipients is rapidly evolving due to exponential growth of the CI population and technological advances. Expanding selection criteria, bilateral cochlear implantation and a broadening of the age ranges considered for cochlear implantation have been a strong impetus for the growth in the population of CI recipients. As a result, cochlear implant clinics must reconsider their traditional service models to ensure that they meet the needs of their ever-growing client base, while preserving a high standard of service delivery.

The aim of this current study was to develop generic guidelines for the application of teleaudiology in cochlear implant mapping. Further, identification of incidental applications of teleaudiology in cochlear implant management was captured to develop models of management for cochlear implant recipients with limited access to centralised services.

Study design. Remote mapping was conducted using commercially available products readily accessed in most cochlear implant clinics with a total of 70 cochlear implant ears. Recipients were aged between 12 months to 85 years, some with additional needs, and were at various intervals of their post-operative management, including initial activation (or ‘switch on’).

Areas evaluated included time taken to complete a session, as well as clinician and recipient satisfaction as measured by questionnaires.

Results. Remote mapping sessions were completed on 82% of occasions. Incomplete sessions were due to poor internet connectivity. Most adult recipients and parents of paediatric clients were pleased with the outcome of their remote mapping or could see the value in developing this procedure for future implementation.

The time taken and outcomes from the remote mapping was on average the same as that taken for face-to-face sessions.

Incidentally, teleaudiology was used to evaluate the integrity of the cochlear implant, troubleshoot external equipment, and to provide auditory training to maximise the integration of the signal provided by the cochlear implant.

Conclusion. While remote mapping was effective with a range of cochlear implant recipients and devices, modifications at the remote site and at the local end were required to accommodate the needs of certain clients such as children with additional needs and when using interpreters.

A series of use cases and guidelines has been developed to assist other clinics in the implementation of remote technology when managing cochlear implants recipients.