management of children who continue to wear hearing aids with cochlear implants will be provided.

**OR21.4**

**Psycho-Social Outcomes in the Adult Cochlear Implant Programme**

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When compared to the general population, deafened adults report poorer health, higher unemployment, lower incomes and a contested mental health status. Following cochlear implantation, it has been assumed that the improved ability to perceive sounds and words would result in a better quality of life for deafened adults, that many of these problems would go away. How true is this assumption? Do cochlear implants really result in health and socio-economic benefits for deafened people? If so, who benefits and to what extent? Further, if such changes occur, how can such results be explained? This paper will present a snap-shot of a series of psycho-social studies, using cross-sectional and prospective methodologies, and qualitative and quantitative data, concerning the impact of cochlear implants in peoples' lives. The evidence indicates that people with cochlear implants have better overall health, including enhanced sensory perception. In addition, implantees are twice as likely as other deafened adults to be in paid work and are more likely to report higher incomes. Proportionately, older people with implants gain greater health benefits than younger adults with implants. For users of the Nucleus CI24, health related quality of life scores approach the population norm. Competence and confidence describe the change process. With significantly enhanced hearing and communication abilities, the implant user is confident in their ability to resume their adult life, and to negotiate successfully, social and work life. They are no longer wall flowers but have seized this second chance at life and are keen to get on with things. While challenges remain, implantees are optimistic about their future.

**OR21.5**

**Factors Affecting Postoperative Performance in Children using Cochlear Implants**

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Pediatric cochlear implantation has afforded severely-to-profoundly hearing impaired children the ability to derive considerable amounts of speech understanding and oral language skills. Despite the impressive benefits reported in a segment of the implanted population, there remains a broad range of reported results from minor improvements in auditory skills to maximum auditory and linguistic benefit. The wide spectrum of benefit has led to an exploration of the variables that could contribute to the differences in postoperative performance not accounted for by technology. Recently reported data have lent support to the concept that numerous preoperative variables including age at time of implantation, length of deafness, mode of communication and other handicaps are among the determinants of postoperative performance. In addition to these preoperative components, several postoperative factors including device educational prog

**Where to Now? - Impact of New Technologies on Use of Cochlear Implants**

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The history of cochlear implant use by adults and children with profound hearing loss although relatively short (20 some years), has been characterised by continual technological innovations which have enhanced the performance, packaging, and clinical use of these devices. In particular, the development of the Nucleus multiple channel cochlear implant has included a series of speech processing hardware and speech processing strategy, implemented by Cochlear Limited, and based on research findings that have resulted in an increase in mean speech perception benefits for adults and children. It is now well-established that the Nucleus device provides significant benefits to speech perception, speech production and in children to language development. Recent innovations in component miniaturisation have provided the opportunity for the first time for patients to select from a range of body-level of ear-level speech processor, and from a range of speech processing strategies, allowing the device to be best tailored for the specific individual. Innovations have also addressed the design and function of the implantable receiver-stimulator and electrode array, to enable an increase in the information provided. The net effect of these innovations has been an overall quantum improvement in the benefits available to adults or children with a profound hearing loss. As a direct consequence of these innovations, mean benefits have increased, placing pressure on clinics from adults or children with a hearing loss, their parents, and professionals to expand the candidacy requirements for cochlear implantation to include those with a severe hearing loss. Further, there has been renewed interest in investigating potential benefits available from use of two cochlear implants. To fully satisfy the demands of the severely hearing impaired market, for which a hearing aid is a viable option, it will be necessary to apply current state-of-the art micromachining and fabrication techniques to further miniaturise the devices, and to investigate further means of increasing the information provided to cochlear implant users through enhancement of the capabilities and control over the electrical stimuli delivered. The CRC has implemented a number of initiatives in the areas of electrode and receiver-stimulator design, and speech processor/speech processing, all of which may have potential impact on candidacy for cochlear implants in the future.
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Title:
Where to now? - Impact of New Technologies on use of cochlear implants

Date:
2000

Citation:

Persistent Link:
http://hdl.handle.net/11343/27060

File Description:
Where to now? - Impact of New Technologies on use of cochlear implants