



Adult cochlear implants in New Zealand—a chronic funding issue

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In 1987, when two deafened women received New Zealand's first cochlear implants, the expectation was that the devices would be little more than an aid to lip-reading. The procedure was new and seemed expensive, but for patients no longer able to communicate with their families, nor to work, nor to interact in society in general because they had become profoundly deaf, the potential was exciting. Steadily improving digital speech processing technology and implant design has since resulted in progressively improved hearing outcomes for implanted patients.

As Bradley et al¹ confirm, adult cochlear implant patients in New Zealand are now experiencing very high levels of speech perception, often very soon after their devices are switched on. Yet large numbers of adult patients continue to languish on a long waiting list for funding for their cochlear implant.

We are in an era of steady advancement in technology, costs and patient expectations, but also one of increasing financial constraints. As clinicians, we always want the very best for our patients, and of course, patients and their relatives want the best of treatment. Demand for services will always exceed supply. In the absence of a rational and explicit system in New Zealand to measure cost-effectiveness, one cannot blame those who have felt the need to resort to emotion-laden publicity campaigns in the media, to trigger what are in effect politically-motivated funding decisions.

Cheng and Niparko² conducted a meta-analysis of 9 studies of the cost-utility of cochlear implants, resulting in an assessment of the health utility of a profoundly deaf adult without a cochlear implant at 0.54 (95%CI 0.52–0.56), on a scale of 0 (death) to 10 (perfect health). After a cochlear implant, the health utility increased to 0.8 (95%CI 0.78–0.82), an increase of 0.26, or almost 50%. At the costings of the time (1999), this resulted in a cost-utility for unilateral implantation of US\$12,787 per Quality-Adjusted Life Year (QALY), which was well within the then-currently accepted range for medical and surgical interventions.

In the United Kingdom, the National Institute for Health and Clinical Excellence (NICE) was set up in 1999 in an attempt to rationalise the assessment of the cost-effectiveness of both pharmaceuticals and of interventional procedures. The organisation also issues guidelines to the Primary Care Trusts, through which funding flows, regarding the implementation of the NICE recommendations.³ The threshold for incremental cost-effectiveness used by the NICE organisation is £20,000 per QALY. While there has been criticism^{4,5} of the use of the QALY as a measure of cost-effectiveness, it is at least rational and transparent, as well as allowing comparison between interventions from different specialties.

NICE, in January 2009, issued the results of its assessment of cochlear implants in children and adults.⁶ For unilateral implantation of deafened adults, the cost utility of

£14,200 per QALY was well under the £20,000 per QALY threshold for funding, resulting in a guideline that cochlear implantation should be made available for these patients. Furthermore, their cost-utility assessment resulted in a guideline that *bilateral* implants should be made available for all profoundly deaf children, and for deaf adults with additional disabilities such as blindness. As a result of the NICE guidelines, deaf patients in the UK now receive their cochlear implants in a timely fashion.

In most other developed countries which rely on an insurance-based health system, cochlear implants are covered by health insurance. In Australia, cochlear implants are on the government's Approved Prosthesis list,⁷ and hence have to be funded by insurers.

How does our funding compare?

The early implants in this country were funded by the New Zealand Deafness Research Foundation as a research project. When the early results were so promising, administration of the New Zealand Cochlear Implant Programme moved to the National Audiology Centre, which resulted in its funding being channelled via the Disability Support Services section of Vote Health, which funds hearing aid subsidies, walking frames, house modifications, etc for the disabled. In the intervening 23 years, implant technology has steadily improved and cochlear implantation has become a mainstream management of profound deafness internationally, yet the funding stream for adult implants remains locked into the limited Disability Support Services vote. This separates it from all other forms of surgically-treated hearing loss, where the funding is channelled through the same Personal Health vote as funds all other surgical interventions.

While in recent years, funding increases have generally allowed deaf children to receive a unilateral implant in a timely fashion, the same cannot be said of adults who have become profoundly deaf.

Patients with other forms of surgically-remediable deafness, such as that due to middle ear pathology, are allocated priority using the same Clinical Priority Access Criteria (CPAC scoring) system as is used to prioritise all other otolaryngological procedures, which is based on degree and duration of symptoms, impact on quality of life, risk of complications etc.

Under these criteria, an adult who has become bilaterally profoundly deaf would score much more highly than a patient with, for example, a patient with a moderate unilateral or even moderate bilateral conductive hearing loss due to tympanic perforation or ossicular pathology.

The latter patients (quite rightly) are eligible for surgical intervention by tympanoplasty, stapedotomy etc to alleviate their hearing disability, whereas the patient who has become bilaterally *profoundly* deaf because of inner ear pathology, and for whom a cochlear implant is the only possible way to restore their hearing, is instead assessed by a completely different set of access criteria, with a much higher threshold. This has resulted in a growing waiting list, currently numbering 92 in the two programmes combined, with base funding for 20 per annum.

Funding cochlear implants via the disability vote because it also subsidises hearing aids for those with lesser degrees of hearing loss seems no more logical than funding joint replacement surgery from the same source just because it also pays for walking sticks and frames, or cataract surgery because it subsidises spectacles for children at school. Why should the disability of loss of hearing be treated differently from that of loss of mobility or loss of vision? Why should many of the most severely deaf patients not be allowed appropriate and demonstrably cost-effective surgery when patients with relatively modest levels of hearing loss, as well as other forms of disability, are readily funded for surgery to alleviate it? Why should the CPAC-qualifying patient who has become profoundly deaf not be allowed surgery within the maximum 6 month period mandated for other elective surgery?

For those with health insurance, the situation is only slightly better. Some insurers will consider covering the cost of the surgical procedure, but not that of the prosthesis itself, which is the largest expense. Various irrational arguments have been given, such as “the need for revision” (survival curves for current implants⁸ in fact show a long-term failure/revision rate of less than 3%, well below that of routinely-funded joint replacement prostheses⁹), “the need for on-going care” (annual audiology costs are low), and so on.

Why will a private health insurer fund a joint prosthesis when a natural joint has failed, a middle ear implant when an ossicle has failed, but not a demonstrably cost-effective cochlear prosthesis when the cochlea has failed?

We *have to* do better for our severely-to-profoundly deaf adult patients in this country.

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