candidates at the time. All children showed a language delay greater than 2 years on the CELF-Preschool. Through parent report, teacher observation and formal and informal assessment results a number of factors were identified that may have contributed to this lack of progress for this group of children. These factors included; consistency of device use, speech perception ability, articulation, auditory attention, pragmatic ability, level of intellectual functioning, social competence, behaviour and temperament. By identifying these factors an assessment protocol and checklist were devised to aid in providing systematic 1:1 intensive habilitation for these children.

OR9.4

Literacy Skills for Students with Hearing Impairment Including Cochlear Implant Users

Margaret Loaney
NSW Department Of Education, Sydney, Australia

Literacy is the ability to read and use written information and to write appropriately, in a range of contexts. It is used to develop knowledge and understanding, to achieve personal growth and to function effectively in our society. (Australia=s Language and Literacy Policy, 1991) It has frequently been reported that the reading comprehension of students with hearing impairment is well below that of their hearing peers and often these students do not even attain literacy skills beyond a 9 year old level. However many of the studies quoted in the literature are outdated (e.g. Conrad, 1979). The most recent studies (Moog and Geers, 1989, Moores and Sweet, 1990 in the USA and Walker, 1991 in Victoria) found that students with a profound hearing loss in oral/aural programs have higher reading levels than those in signing programs. For the past 10 years the New South Wales Department of Education and Training (DET) has assessed the basic academic skills of students attending its schools using the basic Skills Test (BST) and the Early Language and Literacy Assessment (ELLA). The BST is administered to students in Year 3 when students are aged 7-8 years of age and again in Year 5 when they are aged 9-10 years of age. The ELLA test is administered in Year 7 when students are 12-13 years of age. These tests are designed to assess the students' skills in literacy (reading, writing and understanding) and numeracy (number, measurement and space). As a result of the BST and ELLA provision of more appropriate numeracy and literacy programs have been established. Programs such as Reading Recovery and Educational Resource Centres have been established to meet the needs of those students who are struggling to gain basic skills in literacy and numeracy. To date there is no literature available on the literacy levels of students with hearing impairment within the NSW Department of Education and Training (DET). An analysis of the results of these tests (BST and ELLA) for students with a hearing impairment would provide such information. This would enable educators to develop more appropriate strategies to improve the literacy and numeracy skills of students with a hearing impairment.

OR9.5

Supporting Children with Cochlear Implants in the Educational Environment

Diane Toe
Renwick College, University of Newcastle at the Royal Institute for Deaf and Blind Children, Australia

This presentation will explore the implications of current developments in cochlear implant technology for educational placement and decision making in educational settings. It will examine the interaction between choice of sensory device and choice of educational setting. The influence of different attitudes and perspectives of educators and other professionals upon families as they make educational decisions for and with their children will be explored. Important issues faced by children, their parents and teachers as they attempt to maximize both the benefit of a cochlear implant and educational achievement will be identified and recommendations made for the effective support of families who have chosen or may choose a cochlear implant for their child.

OR9.6

How Much Residual Hearing is Too Much?

Robert Cowan*, R Dowell, C Psarros, S Dettman, R Hollow, G Rance, G Clark
Co-operative Research Centre for Cochlear Implant and Hearing Aid Innovation, Melbourne, Australia

The value of cochlear implants as an established clinical option for profoundly hearing-impaired adults and children has been supported by significant research results over a number of years (U.S. National Institutes of Health Consensus Statement 1995). As a direct consequence of the level of benefits shown for cochlear implant users on measures of speech perception, research has focused on investigating whether severely hearing-impaired adults and children would be suitable candidates for cochlear implantation. In considering the candidacy of any individual, both medical and audiological suitability are investigated. The primary concern is to establish to what degree the patient would benefit from use of the cochlear implant. Benefit has traditionally been considered as the impact of the cochlear implant procedure on hearing, and in the case of children, on the use of that hearing to develop speech and language. Research findings have indicated that those children with good residual hearing have good outcomes as a group, including significant speech perception abilities using their implant alone. In assessing benefits however, consideration should also be given to more indirect benefits, such as reduction in the stress of listening and lipreading, improved performance at work, enhanced opportunity to maintain or in children to develop speech which is understandable to the general community, and the social effects of reducing the isolating effects of profound deafness. If consideration of these benefits is teamed with a costing study of the procedure, it is possible to evaluate the implant procedure from a cost-utility standpoint, allowing a Cost/Quality Adjusted Life Year value to be calculated. This figure can be compared with other technological procedures, including use of hearing aids, which is an important issue in recommending the benefits of cochlear implants in
The trend in the clinical application of cochlear implants to perform surgery as young as possible also introduces additional concerns for children with severe hearing-impairment. Most important is the ability to accurately establish residual hearing thresholds. Our results show that electrophysiological techniques such as the steady-state evoked potential (SSEP) techniques can provide estimates of hearing level in neonates and children with severe/profound hearing loss. In general, most children implanted in the last few years have been under the age of four, and are not able to provide reliable measures of speech perception. In an audiological sense, implant clinics have had to swing back to using aided and unaided audiometric thresholds to assess candidacy, as this is the only reliable information available. Our results show that additional factors and assessments can be useful in the predicting outcomes for very young children using implants.

OR10.6
Working with Children with Disabilities in Addition to Deafness
Maree Rennie

PAPER SESSION 11

OR11.1
Early Intervention in a Pre-School Programme

Dimity Doman

Hear and Say Centre, Queensland, Australia

Auditory-Verbal Therapy is an appropriate point of first intervention for all children with a hearing impairment. It is especially useful in preparing pre-school children who are severely or profoundly hearing impaired for cochlear implantation. The cochlear implant provides new hearing potential for these children. Following implantation, whether the child functions as a hard of hearing child or as a Deaf child will depend on the quality of the input he/she receives, as well as other factors. In an Auditory-Verbal program, the parents are trained as intervention partners, as they are the natural language teachers of their child. Through modelling and practical teaching, parents are taught to provide quality input for their pre-school aged child on a daily basis at home. Auditory-Verbal habilitation pre and post implant ensures that each child will achieve his/her hearing potential.

OR11.2
Habilitation and Management Protocol for CI Children

Maria Remine

CRC for Cochlear Implant and Hearing Aid Innovation, Melbourne, Australia

The Co-operative Research Centre for Cochlear Implant and Hearing Aid Innovation in collaboration with St. Mary's School for Children with Impaired Hearing began a pilot study to investigate the effects of providing systematic 1:1 habilitation for children with cochlear implants. Six children between the ages of five and seven participated in the study for a 12-month period. Four of these children had received cochlear implants prior to the age of 2 years of age and two children were cochlear implant candidates at the time. All children showed a language delay greater than 2 years on the CELF-Preschool. At the commencement of the program each child was assessed in the areas of; device use, listening, auditory processing, speech perception, speech production, language comprehension, language production, vocabulary, concept knowledge, intelligence, social competence, pragmatics and behaviour. In doing so, specific targets within each area could be identified and recorded on a habilitation checklist to enable systematic habilitation to occur. Comparison of ratings across these areas, using the checklist, showed that all children had progressed in targeted areas since the

PAPER SESSION 10

OR10.1
Guidelines for Working with CI Children and their Families
Julie Decker

OR10.2
Working with Children Aged 0-2 Years
Anne Fulcher

The Shepherd Centre, Sydney, Australia

OR10.3
Working with Children Aged 2-6 Years
Dimity Dorman

Hear and Say Centre, Queensland, Australia

OR10.4
Working with Children Aged 6-12 Years
Jill Duncan, Robyn Shakes

WA, Australia

OR10.5
Working with Adolescents
David Tomkinson
How much residual hearing is too much?

Cowan, R. S. C.; Dowell, R. C.; Psarros, C.; Dettman, S. J.; Rance, G.; Clark, Graeme M.

Date:
2000

Citation:

Persistent Link:
http://hdl.handle.net/11343/27059

File Description:
How much residual hearing is too much?

Terms and Conditions:
Terms and Conditions: Copyright in works deposited in Minerva Access is retained by the copyright owner. The work may not be altered without permission from the copyright owner. Readers may only download, print and save electronic copies of whole works for their own personal non-commercial use. Any use that exceeds these limits requires permission from the copyright owner. Attribution is essential when quoting or paraphrasing from these works.