

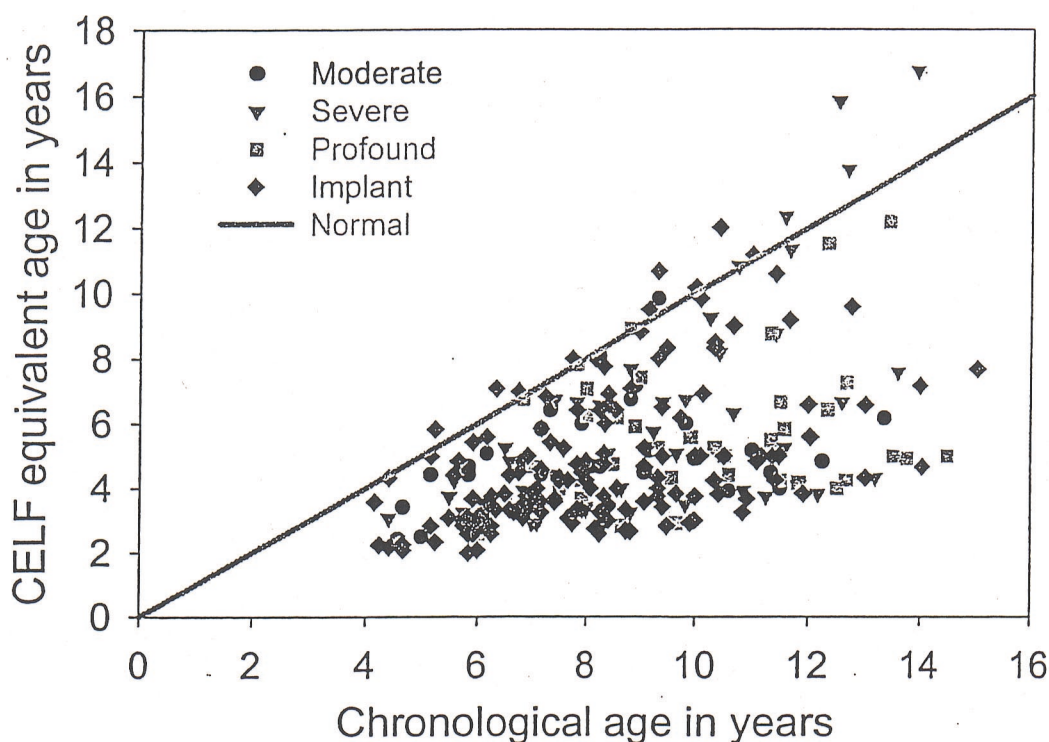
# AUSTRALIA

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Spoken Language Outcomes for Australian  
Children with Impaired Hearing: Present  
and Future Trends

Longitudinal studies of the development of speech perception, language, and speech production of primary-school children using cochlear implants and hearing aids<sup>[1,2]</sup>, and cross sectional studies of children using cochlear implants<sup>[3,4]</sup> indicate that: On average, the children are learning spoken language at 50% to 60% of the rate for children with normal hearing; 90% of the children have a language delay of one year or more; half of the children have a severe language delay (more than two standard deviations below the norms for children with normal hearing); On average, children with impaired hearing entering secondary school at age 12 or 13 will have a language level equivalent to a normally hearing seven-year-old. These results are similar to those reported elsewhere in the literature (see<sup>[5]</sup> for a summary).

Unless children are able to overcome these language delays, they will struggle to understand the subject matter presented to them at secondary school, whether it is written or spoken. They will have difficulty conversing with their peers and others. They are also likely to continue to fall



Results for 264 annual evaluations of spoken language showing that the majority of outcomes are well below the norm (straight line).

behind in their language development. It is probable that these children will end up with severe educational and social handicaps in addition to their hearing impairment. Indeed, on average, profoundly deaf children in Victoria leave school reading at a Grade 6 level<sup>[8,9]</sup>.

Although there have been great advances in technology in Australia such as cochlear implants and programmable hearing aids, hearing-impaired children are still listening through a damaged auditory system. The technology allows these children to hear speech under good conditions. It does not provide most hearing impaired children with sufficient hearing to understand spoken information and learn in less than ideal listening conditions, such as a classroom. Additional learning opportunities, including direct speech and language instruction under ideal listening condition, must be provided to these children. In order to maximize the effectiveness of the additional learning opportunities, the following are necessary:

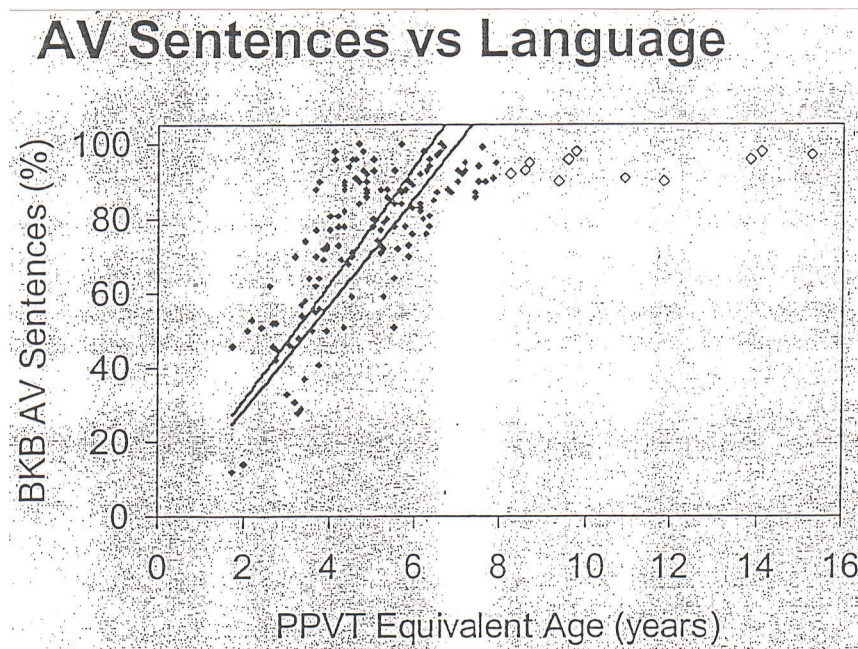
- Regular extensive, accurate and objective evaluations of every child's language skills
- Reporting of results for individual children to schools and parents to facilitate understanding of the results and formulation of new teaching goals.
- Planning of language development programs for individual children, based on evaluation results. This would ensure that all of the time spent teaching each child was devoted to their specific areas of need.
- Spoken language development should assume the highest priority. Additional time should be spent teaching children specific language targets in small groups (1,2 or 3 children) outside the integrated classroom in optimal listening conditions (up to 2 hours/day). Children should be grouped according to their immediate speech and language goals; the groupings should change as often as necessary to meet each individual's needs at all times.
- Ongoing annual assessments to monitor the effectiveness of teaching programs, provide information about progress and about children's ongoing needs.

Oral/aural education facilities for children with impaired hearing have been present in Australia and overseas for many years, and some have reported outstanding success in the development of age-appropriate speech and language in a number of children who attended the facilities. Such successes demonstrate that it is possible for children with impaired hearing to achieve normal language and educational outcomes given appropriate intervention.

As part of our research, together with the staff at Mountview Primary School in Victoria, we have studied several methods of directly teaching children with impaired hearing spoken language, instead of using the currently favoured approach of training children to listen to improve their access to information. All of the methods studied have yielded significant improvements in the speech and language of the children involved<sup>[6]</sup>, and some of these methods have already been adopted on an ongoing basis by teachers of the deaf we have worked with.

Apart from the direct evidence provided by the specific studies referred to, there is indirect evidence from the longitudinal study<sup>[1,7]</sup> that children's perception and understanding of sentences will be improved dramatically if their language skills are improved. The figure below shows that children's sentence perception scores improve as their language skills increase. Every child in the

study who achieved a language level equivalent to a normally hearing seven-year-old scored over 90% on this sentence test with hearing and lipreading together. This is a very positive outcome, indicating that once they have the language, these children will be able to access and understand much more of the information that they hear at school. This is a direct result of language learning, not just a natural improvement over time-language is critical.



Sentence scores for children with impaired hearing increase to high levels as their spoken language ability improves. Red points are for children using hearing aids and blue for cochlear implant users.

To ensure that children with impaired hearing achieve their maximum potential for spoken language during their primary schooling we are proposing the establishment of a Spoken Language Development Centre in Victoria. The Centre would work within the existing educational structures in Victoria to coordinate additional services to children across several schools to achieve the goal of normal language in hearing-impaired children by the time they enter secondary school. By coordinating the efforts of small groups of teachers working in different schools, the Centre will be able to develop and evaluate spoken language programs specifically for children with impaired hearing, provide objective reports on the progress of individual children to the classroom teachers and parents, and maintain a highly skilled and motivated teaching staff.

The specialized education required for children with impaired hearing to achieve their full potential comes at a significant short-term economic cost. However, this should be balanced with the understanding that there will be potentially greater costs involved with the longterm provision of social security payments and the loss of productivity that will occur if these children do not develop functional language and literacy during their school years. If we are able to provide the high standard of focused teaching required for these children during their early school years, the benefits will be significant savings to society as well as greatly improved quality of life for the children in the future.

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