



**Position Paper on  
Universal Newborn and  
Infant Hearing  
Screening in Canada**

Canadian Association of Speech-Language Pathology and Audiology -  
Canadian Academy of Audiology

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In 1999, the Canadian Association of Speech Language Pathologists and Audiologists (CASLPA) and the Canadian Academy of Audiology (CAA) identified newborn hearing screening as an important health priority in Canada. Both associations have lobbied and continue to lobby government agencies for the development of hearing screening programs. A network has been formed, with audiology representatives from each province and territory, to promote the development of strategies which will ensure equal access to early identification and management of all newborns and children with a permanent hearing loss in CANADA.

This position statement represents the direction CASLPA and CAA have taken on the topic of newborn hearing screening, and presents broad guidelines for this particular area of practice. As with all such statements, this position is time bound, representing the thinking at a particular point in time.

## **The Problem**

Significant hearing loss is one of the most common major conditions present at birth and occurs more frequently than any other condition requiring newborn screening (e.g. PKU, hypothyroidism) (Mehl and Thompson, 1998). The prevalence of newborn and infant hearing loss is estimated to range from 1.5 to 6.0 per 1000 live births (Watkin, Baldwin & McEnery, 1991; Parving, 1993; White & Behrens, 1993). Hearing loss in half of affected infants is of unknown etiology and is not identified by the use of the high risk register. Chronic hearing impairment in early childhood compromises the development of speech and language, cognitive and psychosocial skills and academic achievement. In a recent landmark study of language development and early intervention for hearing-impairment, Yoshinaga-Itano and colleagues (1998) found that the most significant factor in ultimate levels of language achievement is the time of intervention, and that intervention is much more effective when initiated in the first six months of life. This new evidence supports the position of the U.S. Joint Committee on Infant Hearing (1994, 2000) which advocates systematic screening of infants such that intervention is initiated before six months of age.

The support for "universal" hearing screening, early diagnosis and intervention is growing steadily. This is evidenced by the NIH Consensus Statement on Early Identification of Hearing-impairment in Infants and Young Children (1993), the European Consensus Statement (Grandori & Lutman, 1999), U.S. State Legislatures of Health Services Agencies in over 20 States, the creation of a high-level advisory group to the U.K. government (Bamford et al. 1998) and by the Task Force on Newborn and Infant Hearing of the American Academy of Pediatrics (1999). This recent activity on an international level, reflects the fact that the identification of hearing loss in newborns is possible, because of valid, reliable and cost effective technology based on the use of objective physiological measures. It is now possible to carry out an accurate and objective hearing screening test on a neonate in less than five minutes. The instrumentation is portable, simple to operate and the screening pass or fail determination is made automatically. Based on recent extensive data from the U.S., direct costs per case diagnosed are comparable to those for other screened congenital anomalies. The typically quoted cost of about C\$35 per infant screened is higher than for blood tests but because of the much higher incidence rate for hearing loss, the typical cost per case identified (C\$14,400.), is much lower than for PKU screening (C\$60,750.). In addition, the costs of screening are directly offset by reduced expenditures on special education and support programs (Mehl and Thompson, 1998). From a financial point of view, every case of unidentified hearing loss has been estimated to cost taxpayers one million dollars (Northern and Downs, 1991). Delaying diagnosis represents a cost to society, as well as to the affected children and their families. Systematic screening during the neonatal period is effective to identify congenital hearing loss.

Twenty to thirty percent of hearing-impaired infants, however, will acquire their hearing loss during childhood. Universal screening needs to be complemented by a system of ongoing surveillance throughout infancy and early childhood. (NIH, 1993, Joint Committee on Infant Hearing, 2000) to ensure that progressive, late onset and acquired hearing losses are also identified as early as possible.

## **Newborn and Infant Hearing Screening in Canada**

In Canada, the Federal-Provincial Territorial Council on Social Policy Renewal has developed the National Children's Agenda which is aimed at promoting the "ongoing well being of children from the start of their lives". Of the approximately 349,000 children born in Canada in 1997, it can be estimated that up to 2000 will have some degree of hearing loss requiring intervention or monitoring. In Canada, there is no systematic approach to early identification, diagnosis and management of hearing loss in children. There is a sparse, uncoordinated patchwork of ad hoc local initiatives covering only a fraction of newborns considered at high risk for hearing loss.

A recent survey of birthing hospitals in Canada (Brown et al. in press) indicates that of the hospitals which responded, only 10% reported some kind of hearing screening activity.

Recent data obtained with Ontario children, (Durieux-Smith and Whittingham, in press) show that children who have been systematically screened in infancy are diagnosed by six months of age. Children with a hearing loss who are not screened, are identified, on average, by two and a half years of age. These results are very similar to those reported for U.S. populations where no systematic screening programs are in place.

### **Position statement**

Since the well being of children with an undetected hearing loss is seriously compromised, CASLPA and CAA strongly support the establishment of an integrated system of newborn and infant healthcare which is tailored to the unique geographic, demographic, cultural and political features of Canada. This system would ensure that all children with a permanent bilateral or unilateral sensory or conductive hearing loss (avg. 30-40 dB HL or more in the frequency region important to speech recognition (Joint Committee, 2000)) would be identified and provided with adequate follow-up. The system should include:

- the universal screening using physiological methods of all newborns born in the provinces and territories. This system could be modular and include at its core an integrated subsystem for high-risk infants, followed by the development of a subsystem for healthy babies. The system could also be pluralistic, involving several alternative routes to identification of hearing loss, including various types of screening, surveillance and case-finding.
- a seamless transition for infants and families through the process of screening, confirmed diagnosis and early intervention. Comprehensive intervention and management programs are seen as the necessary and natural extension of a universal screening program (Seewald, 1995; Seewald, 2000).
- ongoing surveillance throughout infancy and early childhood of those children at risk for developing hearing loss.

- a strong education component for primary caregivers and health care providers, and for parents on the early signs of hearing-impairment, and on risk factors associated with a hearing loss.
- continuing education opportunities for audiologists and interventionists, who need to develop expertise in the fitting of amplification in babies and in parent-infant habilitation strategies.
- uniform provincial and territorial registries and a national information database incorporating standardized methodology, reporting and system evaluation. The data management aspect of the system is seen as critical to provide the tools to determine the degree to which each process (e.g., screening, evaluation and intervention) is stable, sustainable and conforms to established program benchmarks and quality indicators. The National database will also permit the documentation of the demographics of neonatal hearing loss including prevalence and etiology across Canada. At present, this information is not available.

In summary, CASLPA and CAA support the recommendations of the American Joint Committee on Infant Hearing (1994, 2000), the American Academy of Pediatrics (1999) and of the NIH (1993) that infants with a hearing loss should have a confirmed diagnosis by three months of age and be enrolled in a family centred intervention program by six months of age. This can only be achieved through the establishment of a well-integrated and structured system of early identification and management for all infants who have hearing loss. CASLPA and CAA also support continued research in the development of more efficient, simple, reliable and accurate methods for detecting and managing hearing loss in newborns and infants.

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