CASLPA Position Paper on Universal Newborn Hearing Screening in Canada

Canadian Association of Speech-Language Pathologists and Audiologists
1 Nicholas St., Suite 1000, Ottawa, Ontario K1N 7B7

www.caslpa.ca

CASLPA POSITION PAPER ON UNIVERSAL NEWBORN HEARING SCREENING

Position:

The Canadian Association of Speech Language Pathologists and Audiologists (CASLPA) supports Universal Newborn Hearing Screening (UNHS) as a strategy for identifying children with permanent childhood hearing loss (PCHL) and initiating family-centred audiological and communication intervention. In the context of this paper, it is understood that UNHS is an integral component of early hearing detection and communication development services.

Rationale:

The importance of early identification of PCHL has been well documented in Canada and internationally (Joint Committee on Infant Hearing (JCIH), 2007; Canadian Working Group on Childhood Hearing, 2005). The overall goal of early detection is to identify PCHL and initiate intervention for auditory and communication development for these areas to develop in synchrony with overall developmental milestones. PCHL has been described by some as a "neurologic emergency" (Madell & Flexer, 2008; Berlin & Weyand, 2003) as extended periods of auditory deprivation have a significant impact on the overall brain development and sensory integration of the child. Deficits in speech, language, cognitive, academic and social/emotional development have been cited universally as an expected result of unmanaged hearing loss. Reducing the age of identification and early initiation of support for communication development produces significantly improved outcomes for the child and family (Yoshinago-Itano, 2004; Moeller, 2000; US Preventative Services Task Force (USPSTF, 2008).

While high-risk registers have historically been used as a tool for screening and identifying children with PCHL, the sole use of these registers has resulted in failure to effectively identify hearing loss in the well-baby population. UNHS identifies well babies with hearing loss who are not (or may not) be identified through risk factor assessment. Studies estimate that up to 50% of children with PCHL are missed through risk-register screening procedures (Yoshinago-Itano, 2003).

Infant screening is intended to prevent delays in the detection of hearing loss but screening alone does not ensure its early identification and intervention. Additional supports are

needed when families fail to follow up after screening due to such reasons as low priority, lack of understanding of the importance of screening results and other factors (e.g., travel in rural areas). While the earliest possible identification of hearing loss is critical to the success of screening programs, sufficient supports are also required for systematic follow-up of children at risk for progressive, late onset and acquired hearing loss. Additionally, management of hearing loss and communication development are necessary components of a comprehensive family-centred early intervention program (Canadian Working Group on Childhood Hearing, 2005).

Recommendations:

CASLPA strongly supports the establishment and maintenance of an integrated, consistent and culturally-sensitive UNHS program for all provinces and territories in Canada. The goal of these programs is for all children with PCHL to be identified and provided with comprehensive, family-centred, early intervention.

The program should include:

- Universal hearing screening (using electrophysiological methods) of all infants.
- Appropriate, accessible services for identification and provision of hearing and communication development options.
- A seamless transition for infants and families through the process of hearing screening by 1 month of age, confirmation of hearing loss by 3 months of age, and initiation of early intervention by 6 months of age (JCIH, 2007).
- Ongoing surveillance throughout infancy and early childhood of children at risk for developing hearing loss.
- Education for parents, primary caregivers and health care providers on early milestones of hearing, speech and language development and the risk factors associated with hearing loss.
- Interprofessional teams that work closely with families.
- Continuing education opportunities for interprofessional teams to achieve and maintain expertise in screening, assessment, and parent-infant habilitation strategies.
- A provincial/territorial registry for each program. This data management aspect of the system is critical to assess and monitor the quality, efficiency and effectiveness of the

> screening, evaluation and intervention processes and to ensure that the program is stable and sustainable, conforming to established program benchmarks and quality indicators (Canadian Working Group on Childhood Hearing, 2005).

In summary, CASLPA continues to support the position of an integrated system of newborn hearing screening and follow-up previously developed in collaboration with the Canadian Academy of Audiology (CASLPA & CAA, 1999). CASLPA also supports the recommendations of the Alberta College of Speech-Language Pathologists and Audiologists (ACSLPA, 2008), the American Joint Committee on Infant Hearing (JCIH, 2007), the American Academy of Pediatrics (1999) and the National Institutes of Health (NIH, 1993), in developing and maintaining UNHS programs that enable identification of hearing loss by 1 month of age, confirmation of hearing loss by 3 months of age, and enrollment in a family-centred intervention program by 6 months of age. This can only be achieved through the establishment of well-integrated and structured systems of early identification and management for all infants who have hearing loss. CASLPA supports continued research in the development of more efficient, simple, reliable and accurate methods for detecting and managing hearing loss in newborns and infants.

Background:

Permanent hearing loss is one of the most common congenital conditions and occurs more frequently than any other condition (e.g., phenylketonuria) for which screening programs already exist (Mehl & Thompson, 2002). The prevalence of hearing loss in newborns and infants ranges from 1 to 3 per 1000 live births depending on the threshold of permanent hearing loss used (Dalzell et al., 2000; Mehl & Thompson, 2002; Thompson et al., 2001), which translates to 1100-1200 new cases per year in Canada (Hyde, 2005). In children with high-risk factors such as prematurity, admission to neo-natal intensive care units, severe hyperbilirubinemia or congenital craniofacial defects, the prevalence of hearing loss can be as high as 10 per 1000 live births (JCIH, 2007; Vohr et al., 2001).

Hearing loss affects a child's understanding and use of language, as well as cognitive, psychosocial and academic development. Historically, communication outcomes in children with

all degrees of hearing loss have lagged behind the developmental trajectory of children with normal hearing. There is evidence-based consensus that early identification of hearing loss can significantly reduce the negative consequences of hearing loss for the child, the family and society (Kennedy et al., 2006; Moeller, 2000; Sininger, Grimes, & Christensen, 2010; Yoshinaga-Itano, Sedley, Coulter, & Mehl, 1998).

Research on neuroplasticity has suggested that early auditory stimulation is necessary for developing a child's auditory potential (Gordon & Harrison, 2005; Sharma, Dorman, & Spahr, 2002). Age of identification of hearing loss is therefore considered to be a critical factor in the development of a child's speech, language, cognitive and psychosocial abilities and is the underlying premise of infant hearing screening initiatives (Yoshinaga-Itano & Gravel, 2001). In the absence of systematic screening, late identification (ranging from 20-42 months of age) is common for the 40-50% of babies with hearing loss presenting with no risk factors (Durieux-Smith, Fitzpatrick, & Whittingham, 2008). Furthermore, without newborn screening, severity of hearing loss is the primary determinant of age of identification and children with mild to moderate hearing loss are identified later (Durieux-Smith, et al., 2008; Durieux-Smith & Whittingham, 2000). Studies have shown that UNHS results in a median age of diagnosis of hearing loss of 3-6 months regardless of degree of loss (Canadian Working Group on Childhood Hearing, 2005; Thompson, et al., 2001). There is a growing body of evidence documenting positive relationships between UNHS and development of communication skills in early and later childhood (Kennedy, et al., 2006; Sininger, et al., 2010; Yoshinaga-Itano, 2003). Coupled with advances in hearing aids and cochlear implants, UNHS has improved the outcomes for communication development for children with all degrees of hearing loss. In addition to improved speech and language skills, UNHS provides children with access to resources that promote optimal development (Fitzpatrick, Graham, Durieux-Smith, Angus, & Coyle, 2007).

Technological advances in physiological hearing screening techniques that enable easier and more cost-effective identification, combined with evidence of the benefits of early intervention for hearing loss, have resulted in UNHS as a standard of care in many developed countries including the United States (Prieve & Stevens, 2000), the United Kingdom (Bamford, Uus, & Davis, 2005) and most of Canada (Hyde, 2005). In Canada, Ontario and New Brunswick first introduced provincially mandated universal newborn hearing screening in 2002 and since

then, there has been steady growth in the number of programs throughout the country. Despite this growth, UNHS is not yet available to all of Canada's children.

Several key organizations represented by the Joint Committee on Infant Hearing in the United States recommend screening by 1 month of age, hearing loss confirmation by 3 months of age with appropriate intervention initiated by 6 months of age (Joint Committee on Infant Hearing, 2007). Screening, as the path to earlier identification, is the first step in the process to improve developmental outcomes in children with hearing loss but it is widely recognized that the effectiveness of UNHS is dependent on appropriate diagnostic and rehabilitative services (Canadian Working Group on Childhood Hearing, 2005; Jerger, Roeser, & Tobey, 2001).

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Committee members:

1. Elizabeth Fitzpatrick (Aud, ON) Co-chair
2. Vickie Hlady-MacDonald (S-LP-AVT, ON)
3. Sharen Ritterman (Aud, MB)
4. Christine Santilli (Aud, NS) Co-chair
5. Rita Vis Dubé (S-LP, AB)
6. Brenda Ward (Supportive Personnel, BC)

CASLPA staff support: Chantal Kealey, Director of Audiology and Supportive Personnel

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