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## 1) PROGRESS AND NEWS

Dear Stakeholders,

Although it is difficult to believe, it has now been eight years since Project HIEDI was established to see the introduction of a high quality newborn hearing screening and early intervention programme in New Zealand. New Zealand had a very high age of identification for hearing losses in children, and many jurisdictions had already implemented newborn hearing screening programmes to good effect.

Like many people, our team members were delighted when the 2006 budget included an announcement of \$16M funding for establishment of a New Zealand universal newborn hearing screening and early intervention programme. This type of programme was, and still is, seen as the best way to enable universal access to early intervention services for children born with hearing impairment.

It is three and a half years since the programme began rolling out, and yet we have no information to indicate the performance of the programme to date.

It is no secret that our HIEDI team are seriously concerned with the current status of the New Zealand UNHSEI programme. It seems clear to us that a concerted effort by all stakeholders will be required next year to ensure significant issues within the programme are addressed.

Our group is attempting to find funding for HIEDI to continue through 2011. We hope to let you know early in the New Year of our plans for the next phase of our work.

We would like to thank all those stakeholders who have supported the aims of HIEDI during the past eight years, particularly all those who are working extremely hard on the ground to provide the best possible service to families.

Merry Christmas from the HIEDI Team,  
*Peter Thorne, Margaret Cooper, Dianne Webster, Bill Keith, Oriole Wilson, Janet Digby*

## 2) HIEDI Issues Papers and Australasian conference

### PROJECT HIEDI ISSUES PAPERS

Project HIEDI has been advocating for improvements to the UNHSEIP in a number of areas over the previous three years. One of the ways we have been raising areas of concern has been to distribute Issues Papers to the Implementation Advisory Group and the National Screening Unit.

Links to the documents are below: We are yet to receive a response from the National Screening Unit to any of these papers.

#### **Project HIEDI Issue Paper 1: July 2009**

[Monitoring the UNHSEIP](#)

#### **Project HIEDI Issue Paper 2: June 2009**

[Identification of false negatives in the UNHSEIP](#)

#### **Project HIEDI Issue Paper 3: April 2010**

[Identification and management of children with mild and unilateral hearing losses](#)

Please note these papers were completed out of order, hence the second paper was has a release date before the first.

### 6<sup>TH</sup> AUSTRALASIAN NEWBORN HEARING SCREENING CONFERENCE 2011

Dates: 8th and 9th of April

Location: Esplanade Hotel, Fremantle

Website: <http://www.anhsc2011wa.com/>

Earlybird Registrations Close: 31<sup>st</sup> January 2011

Janet McLean and her team have a [conference website](#) containing information about the conference and you can register online.

I am very excited to provide details for next year's 6<sup>th</sup> Australasian Newborn Hearing Screening Conference, which is being held in Fremantle in April 2011.

Speakers at the conference include Elizabeth Fitzpatrick, Dr Judith Marlowe, and Professor Gunesh Rajan. You can read further about these speakers [here](#).

In addition to the keynote speakers, there will be plenary sessions addressing the three main themes of the conference.

- Habilitation including cochlear implantation and advances in therapy.
- Supporting the health and wellbeing of parents of newly identified infants.
- Addressing challenges in rural and remote regions.

Janet Digby, the author of these updates is a member of the Australasian Newborn Hearing Screening Committee, as is Vickie Rydz (Programme Manager of NZ's UNHSEIP). You can read about the Committee [here](#).

### UPDATES

If there is anything in particular you would like me to include in future updates, please don't hesitate to get in touch. You can also sign up to receive future updates by contacting the author of these updates, Janet Digby on (09) 4456006 or by e-mail: [janet@levare.co.nz](mailto:janet@levare.co.nz)

### 3) NEW LITERATURE

#### **Is discordance in TEOAE and AABR outcomes predictable in newborns?**

**Authors:** Olusanya BO, Bamigboye BA.

**Source:** Int J Pediatr Otorhinolaryngol. 2010 Nov;74(11):1303-9. Epub 2010 Sep 15.

**OBJECTIVE:** To determine the perinatal predictors of discordant screening outcomes based on a two-stage screening protocol with transient-evoked otoacoustic emissions (TEOAE) and automated auditory brainstem response (AABR).

**METHODS:** A cross-sectional study of infants tested with TEOAE and AABR under a hospital-based universal newborn hearing screening program in Lagos, Nigeria. Maternal and infant factors associated with discordant TEOAE and AABR outcomes were determined with multivariable logistic regression analyses adjusting for potential confounding factors.

**RESULTS:** Of the 4718 infants enrolled under the program 1745 (36.9%) completed both TEOAE and AABR. Of this group, 1060 (60.7%) passed both TEOAE and AABR ("true-negatives"); 92 (5.3%) failed both TEOAE and AABR ("true-positive"); 571 (32.7%) failed TEOAE but passed AABR ("false-positives") while 22 (1.3%) passed TEOAE but failed AABR ("false-negatives"). Infants with false-positives were likely to be admitted into well-baby nursery ( $p=0.001$ ), belong to mothers who attended antenatal care ( $p=0.010$ ) or who delivered vaginally ( $p<0.001$ ) compared to infants with true-negatives while infants with true-positives were also more likely to be delivered vaginally ( $p=0.002$ ) or admitted into well-baby nursery ( $p=0.035$ ) compared to infants with false-negatives. Infants with true-positives were significantly more likely to be delivered vaginally ( $p<0.001$ ) and have severe hyperbilirubinemia ( $p=0.045$ ) compared with infants with true-negatives. No association was observed between false-negatives and true-negatives. Antenatal care status, mode of delivery and nursery type were useful predictors of discordant outcomes among all infants undergoing screening ( $c$ -statistic=0.73).

**CONCLUSIONS:** Given the available screening technologies, discordant TEOAE and AABR may be inevitable for some categories of hearing loss among apparently healthy newborns whose mothers received prenatal care. The potential limitations of perinatal morbidities as basis of targeted screening for such cases therefore merit further consideration.

#### **Interdisciplinary approach to design, performance, and quality management in a multicenter newborn hearing screening project. Discussion of the results of newborn hearing screening in Hamburg (part II).**

**Authors:** Rohlfs AK, Wiesner T, Drews H, Müller F, Breiffuss A, Schiller R, Hess M.

**Source:** Eur J Pediatr. 2010 Dec;169(12):1453-63. Epub 2010 Jun 11.

Previously presented results of the newborn hearing screening in Hamburg and the perspectives are subsequently discussed. Minimum standards referring a participation of 95% of the neonates and a fail rate of less than 4% hearing-impaired children at the primary screening are fulfilled in Hamburg. Systematic screening of newborn hearing by an interdisciplinary approach provides early identification and intervention for children with permanent unilateral and bilateral hearing loss. But a newborn hearing screening on a voluntary basis alone cannot be maintained in the long run. Further, an anonymous data collection is not sufficient in regard to an uninterrupted tracking of conspicuous and unscreened neonates. A lost-to-follow-up rate of 31.3% at primary screening in Hamburg is much too high and emphasizes the need for a public health approach to a population-based newborn hearing screening with an elaborate and name-based tracking system. The legislation and implementation of a nationwide newborn hearing screening program in Germany and the association of German newborn hearing screening centers are highlighting long efforts of hearing professionals. But the implementation of a newborn hearing screening only makes sense if there exists an efficient tracking system. Sad to say, we are still a long way from the implementation of such a tracking system.

## **Newborn hearing screening vs later hearing screening and developmental outcomes in children with permanent childhood hearing impairment.**

**Authors:** Korver AM, Konings S, Dekker FW, Beers M, Wever CC, Frijns JH, Oudesluys-Murphy AM; DECIBEL Collaborative Study Group.

**Source:** JAMA. 2010 Oct 20;304(15):1701-8.

**CONTEXT:** Newborn hearing screening programs have been implemented in many countries because it was thought that the earlier permanent childhood hearing impairment is detected, the less developmentally disadvantaged children would become. To date, however, no strong evidence exists for universal introduction of newborn hearing screening.

**OBJECTIVE:** To study the effect of newborn hearing screening vs distraction hearing screening, conducted at 9 months of age, on development, spoken communication, and quality of life.

**DESIGN, SETTING, AND PARTICIPANTS:** Between 2002 and 2006, all 65 regions in The Netherlands replaced distraction hearing screening with newborn hearing screening. Consequently, the type of hearing screening offered was based on availability at the place and date of birth and was independent of developmental prognoses of individual children. All children born in The Netherlands between 2003 and 2005 were included. At the age of 3 to 5 years, all children with permanent childhood hearing impairment were identified. Evaluation ended December 2009.

**MAIN OUTCOME MEASURES:** Performance (education and spoken and signed communication), development (general and language), and quality of life.

**RESULTS:** During the study period, 335,560 children were born in a newborn hearing screening region and 234,826 children in a distraction hearing screening region. At follow-up, 263 children in newborn hearing screening regions (0.78 per 1000 children) and 171 children in distraction hearing screening regions (0.73 per 1000 children) had been diagnosed with permanent childhood hearing impairment. Three hundred one children (69.4%) participated in analysis of general performance measures. There was no difference between groups in the primary mode of communication or type of education. Analysis of extensive developmental outcomes included 80 children born in newborn hearing screening regions and 70 in distraction hearing screening regions. Multivariate analysis of variance showed that overall, children in newborn hearing screening regions had higher developmental outcome scores compared with children in distraction hearing screening regions (Wilks  $\lambda = 0.79$ ;  $F(12) = 2.705$ ;  $P = .003$ ). For social development, the mean between-group difference in quotient points was 8.8 (95% CI, 0.8 to 16.7) and for gross motor development, 9.1 (95% CI, 1.1 to 17.1). For quality of life, the mean between-group difference was 5.3 (95% CI, 1.7 to 8.9), also in favor of children in newborn hearing screening regions.

**CONCLUSION:** Compared with distraction hearing screening, a newborn hearing screening program was associated with better developmental outcomes at age 3 to 5 years among children with permanent childhood hearing impairment.

## **Status of newborn hearing screening program in India.**

**Authors:** Kumar S, Mohapatra B. DECIBEL Collaborative Study Group.

**Source:** Int J Pediatr Otorhinolaryngol. 2010 Nov 9. [Epub ahead of print]

**OBJECTIVES:** The present study is aimed at figuring out the status of new-born hearing screening program being conducted in India, estimate the use of different screening instruments used and tests practiced, study the role of various professionals involved and document the current practices of audiologists in the country.

**METHOD:** A questionnaire on "Newborn Hearing Screening Survey" was sent to 185 institutions (165 medical colleges and 20 Speech and hearing centers) all over India and the information gathered was subjected to appropriate analyses.

**RESULTS:** On a 16.75% return rate of the questionnaire, almost half of the colleges have their annual birthing census more than 2000. The majority of sites (57.13%) report an average length of stay for a vaginal delivery to be more than 24 hours with 78.94% also reporting of a NICU of Level II/III type. Only 38.09% of the medical

colleges have a universal Newborn Hearing screening program (NBHS) in comparison to 80% of the Speech and Hearing centers. Again 43.8% of the medical colleges who conduct NBHS program have an audiologist and majority of them work towards screening. Almost 63% of the speech and hearing centers use physiological tests like ABR, OAE or their combination to screen newborns. Both medical and speech and hearing organizations prefer that the audiologist inform and even give a written material regarding the results of the tests to the parents. Only 62.65% of the institutions refer less than 11% of their clients for further testing at the time of discharge. In 50% of the medical colleges the results of a test are reported to the parents and primary care physicians/doctors and in 37.5% of the speech and hearing centers the results are informed to the parents.

**CONCLUSIONS:** While keeping in mind the incidence of hearing impairment in the neonatal population of India, the results of this survey warrant the need for an urgent implementation of universal neonatal hearing screening in all the health care facilities in the country, at large.

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## **PROJECT HIEDI**

Project HIEDI is managed by an independent group established in 2002 to see the introduction of a national newborn hearing screening and early intervention programme in New Zealand.

It has a Steering Team of volunteers, and a part-time Project Manager. The Steering Team is: Professor Peter Thorne (Project Leader), Dr Bill Keith, Dr Dianne Webster, Oriole Wilson, Margaret Cooper and Janet Digby (Project Manager).

For further information about Project HIEDI you can contact the Project Manager for HIEDI and author of these updates, Janet Digby by phoning (09) 445 6006 or e-mailing [janet@levare.co.nz](mailto:janet@levare.co.nz). You can also visit the Project HIEDI webpage on the [National Foundation for the Deaf website](#).

## **ACKNOWLEDGEMENTS**

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