

Universal Newborn Hearing Screening *The Good Model*



Moderator: Prof. Hung THAI-VAN, France

***Ifos World Course on Hearing Rehabilitation
Ho Chi Minh city, 24 November 2019***



**Société
Française
d'Audiologie**



Panelists

- ❑ *Catherine Birman, Australia*
- ❑ *Charlotte Chiong, Philippines*
- ❑ *Stephen O'Leary, Australia*
- ❑ *Nguyen Thi Ngoc Dung, Vietnam*
- ❑ *Haruo Takahashi, Japan*
- ❑ *Thomas Nikolopoulos, Greece*
- ❑ *Seung-ha Oh, South Korea*

Is UNHS possible?

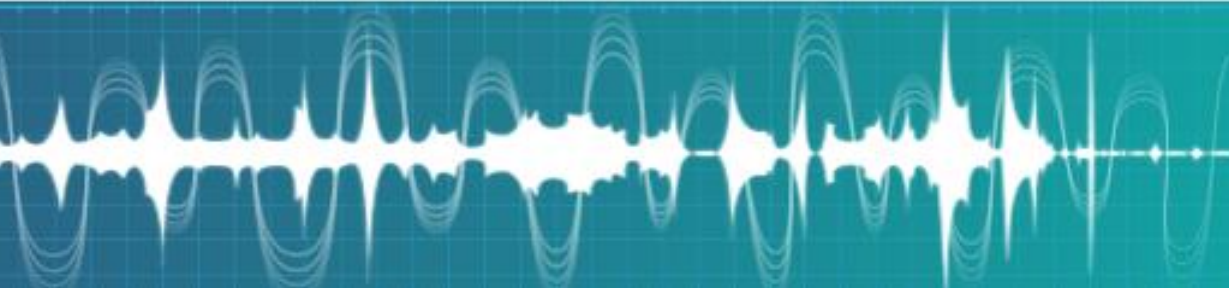
Catherine Birman	Charlotte Chiong	Stephen O'Leary	Nguyen Thi Ngoc Dung	Haruo Takahashi	Thomas Nikolopoulos	Seung-Ha Oh
?	?	?	?	?	?	?

VOTE!

Is UNHS beneficial?

Catherine Birman	Charlotte Chiong	Stephen O'Leary	Nguyen Thi Ngoc Dung	Haruo Takahashi	Thomas Nikolopoulos	Seung-Ha Oh
?	?	?	?	?	?	?

VOTE!



Year 2019 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs

Universal Newborn Hearing Screening (UNHS)



0 -1 month

3 months

6 months

UNHS

Diagnosis

Intervention

Every panelist

Check which if any of the following hearing screenings are mandated by law in your country:

- Newborns
- Later in the 1st year
- At-risk

If yes, please specify when the legislation passed: (year)

Every panelist

Give for your country a percentage of places where the screening is done from all screening places.

- Birthing facilities: ___ %
- Home: ___%
- Other outpatient places: ___%
Which place? _____

The numbers need to be 100% in sum

Every panelist

Percentage of birthing facilities in your country performing a hearing screening from all birth facilities:

....% of ... (number of birthing facilities)

Every panelist

Give for your country a percentage of professionals who perform the hearing screening from all persons who perform the hearing screening.

- Physicians: ___ %
- Audiologists/audiological staff: %
- Nurses: %
- Midwives: %
- Community health workers: ___%
- Others: ___% (please specify__)

Need to be 100% in sum

Every panelist

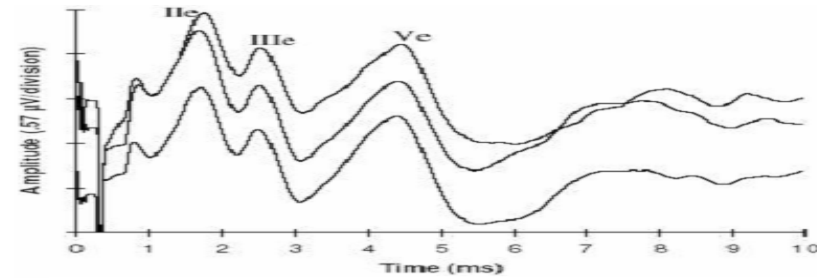
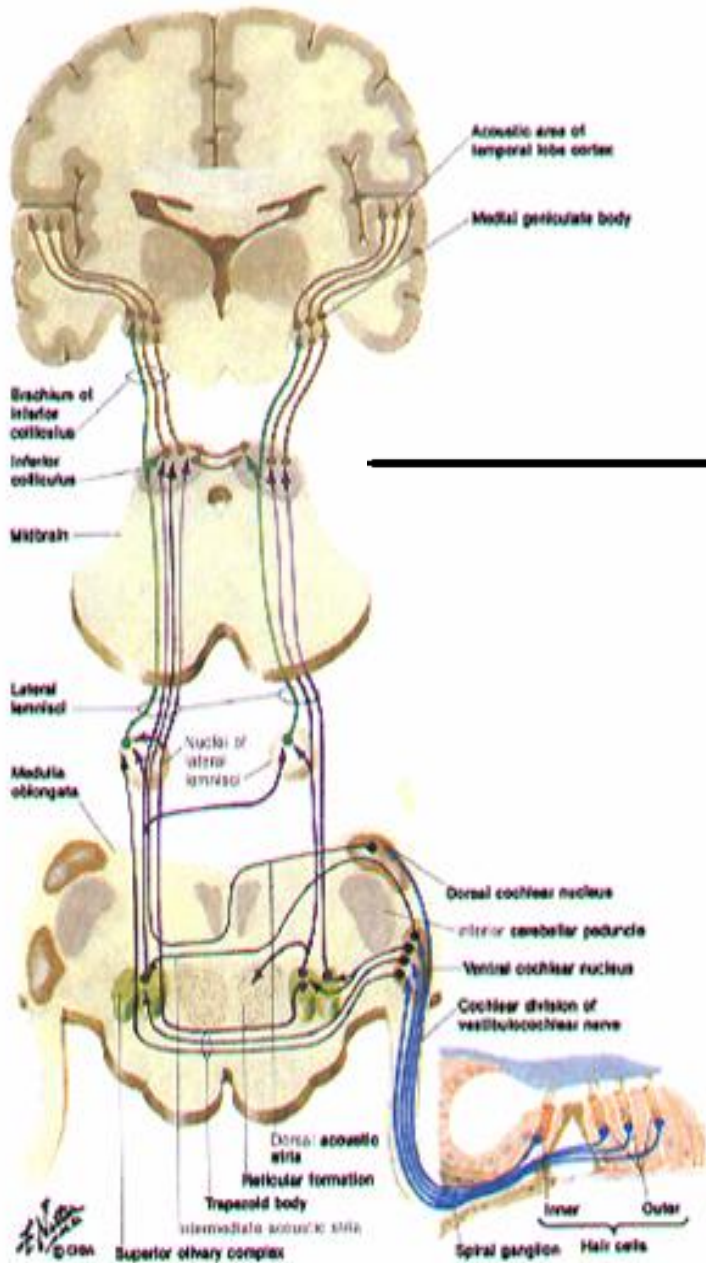
Percentage of babies or infants born in your hospital/birthing clinic last year who underwent a hearing screening

- At all ... % of ... (number of live births)
- UNHS: ... % of ... (number of live births)
- Later screening in the 1st year of life: ...%
- Targeted screening of babies at risk: ...%

Is UNHS in your country provided by public or private sector?

Catherine Birman	Charlotte Chiong	Stephen O'Leary	Nguyen Thi Ngoc Dung	Haruo Takahashi	Thomas Nikolopoulos	Seung-Ha Oh
?	?	?	?	?	?	?

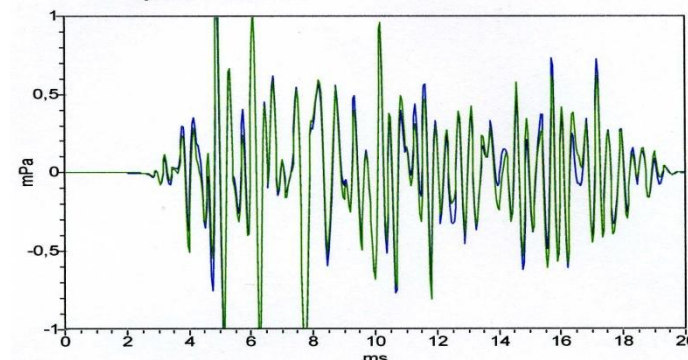
Available Screening Tools



Auditory Brainstem Responses



Otoacoustic emissions



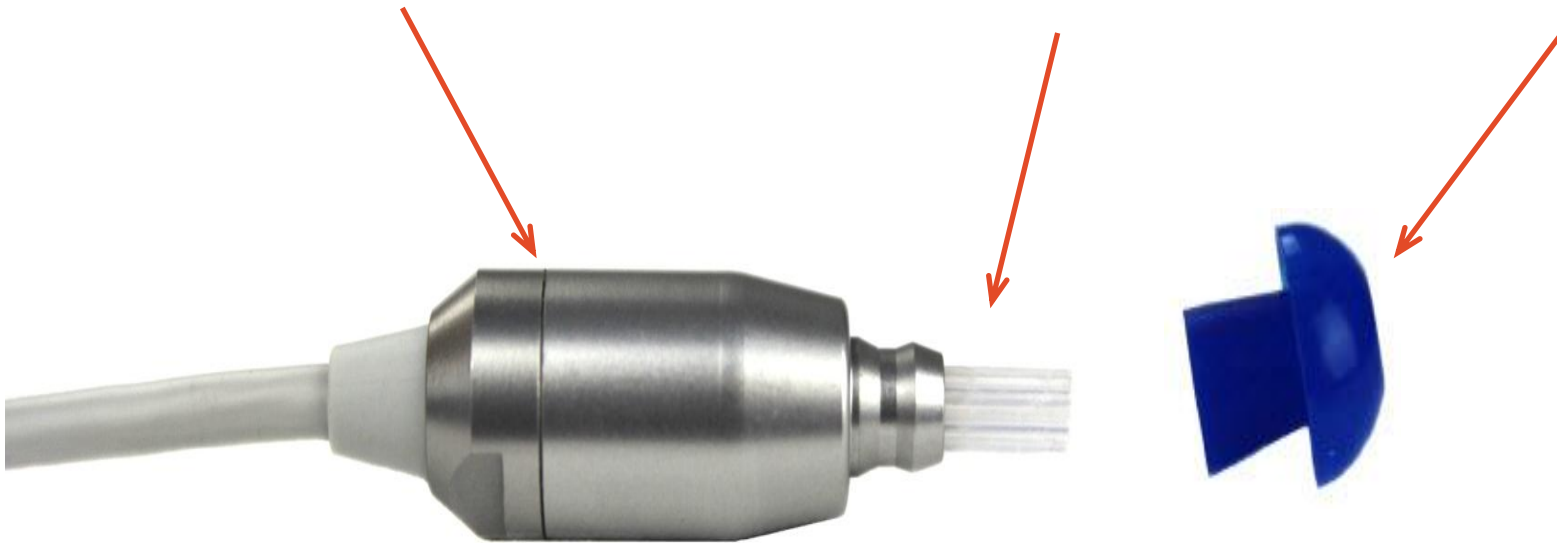
Otoacoustic Emissions : TEOAE/DPOAE



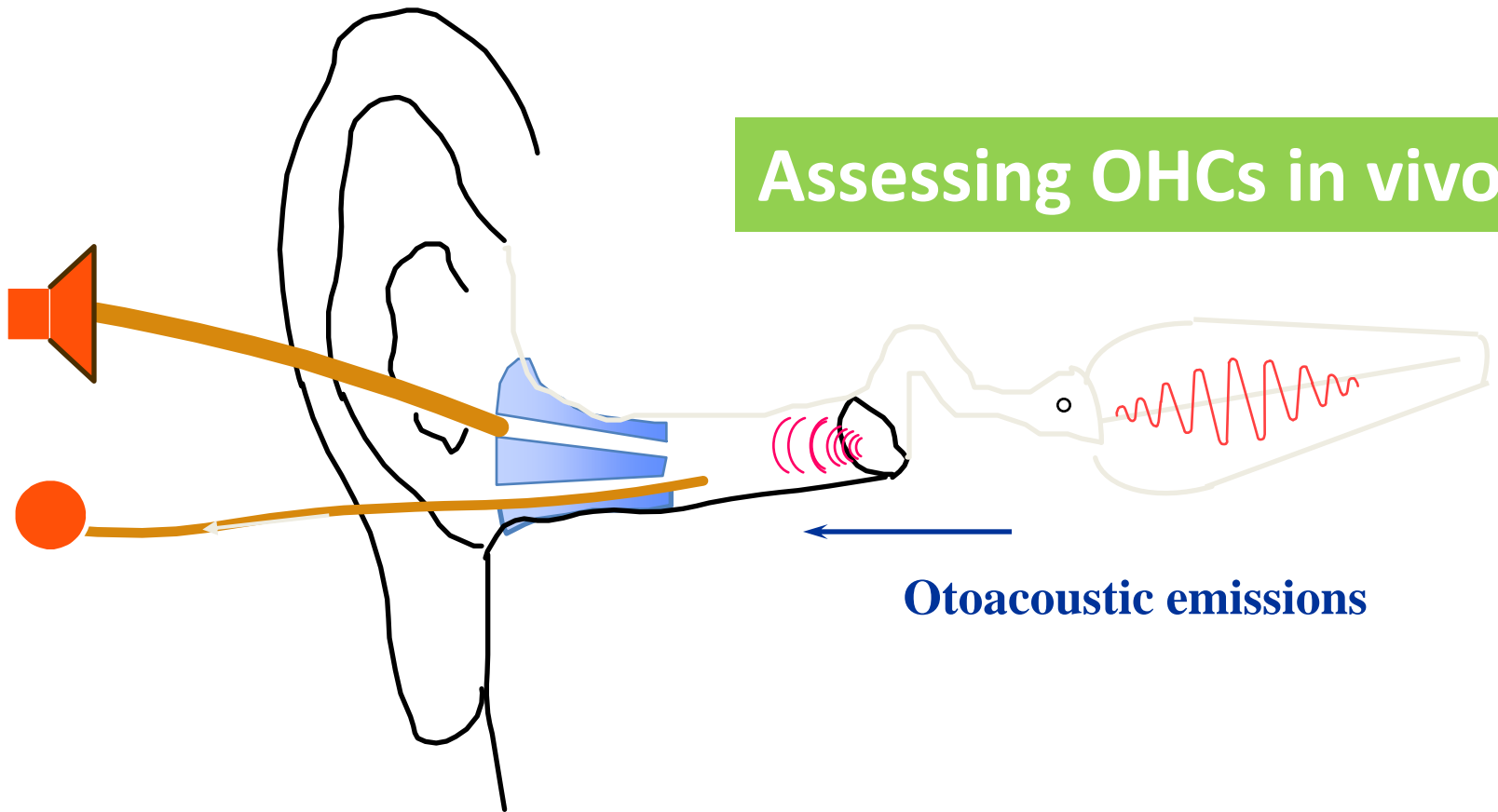
Probe

Probe Tube

Tip



Transient evoked otoacoustic emissions



Automated Auditory Brainstem Responses (AABR) with disposable recording electrodes



AABR with no consumables



Weighting the Pros and Cons

OAE

- ▶ Quick, but very sensitive to ambient noise levels
- ▶ Twice as many false positives compared to automated ABR
- ▶ Not recommended in NICU (prevalence of auditory neuropathy 1.96%)

AUTOMATED ABR

- ▶ Test for HL of cochlear and retrocochlear origin
- ▶ Cannot diagnose neural dyssynchrony (conventional ABR still needed)
- ▶ Informative about auditory system maturation

Every panelist

What method are you using to do hearing screening?

- OAE alone: % of(number of screened babies)
- AABR alone: ... %
- 2-stage OAE-AABR screening: ... %

Please be aware: 2-stage means that you at first screen with one method (most often TEOAE), and only in case of a failed screening with another one (most often AABR). If you have such a screening for let's say 100 percent of babies and 90 pass an OAE screening and do not need an AABR, and the remaining 10% babies undergo an additional AABR-screening, you have a 100% 2-stage OAE-AABR screening and 0% OAE alone screening (and not a 90% OAE alone screening and a 10% 2-stage OAE-AABR screening)

What test protocol would you recommend for UNHS?

Catherine Birman	Charlotte Chiong	Stephen O'Leary	Nguyen Thi Ngoc Dung	Haruo Takahashi	Thomas Nikolopoulos	Seung-Ha Oh
?	?	?	?	?	?	?

Every panelist

Proportion of infants born last year (or the reporting year) in your country who were identified with a Permanent Childhood Hearing Loss (PCHL)* from all born babies including late identified cases (=prevalence for a one year cohort):

... per 1000 of (number of born babies)

* *PCHL includes unilateral or bilateral permanent hearing loss, which has been confirmed through a battery of audiometric tests that result in hearing loss detection at the better ear and averaged over frequencies 0.5, 1, 2, and 4 kHz greater than 20 dB HL*

Universal Newborn Hearing Screening (UNHS)

Epidemiological data

Sensorineural hearing loss is the most frequent sensory deficit in humans

- Moderate to profound HL: 0.8% of people
- Mild to profound HL: 1.2% of people
- HL: Moderate 57%, Severe 17%, Profound 26%

Fortum et al., 2001

Every panelist

Percentage of infants with a permanent childhood hearing loss (PCHL) born last year (or in the reporting year) in your country who received intervention* from all babies diagnosed with PCHL:

___ % of _____ (number of babies with PCHL)

* ***Intervention may include (but is not limited to) fitting with hearing devices, speech-language therapy, early intervention programming by a parent-infant specialist, medical or surgical treatment, etc. In cases where it is unclear whether treatment is required, further monitoring also counts as intervention***

Every panelist

Percentage of infants with PHCL born last year (or in the reporting year) in your country who received intervention before 6 months of age from all babies receiving intervention:

____% of ____ (number of babies who received intervention))

* ***Intervention may include (but is not limited to) fitting with hearing devices, speech-language therapy, early intervention programming by a parent-infant specialist, medical or surgical treatment, etc. In cases where it is unclear whether treatment is required, further monitoring also counts as intervention***

What is the proportion of diagnosed babies receiving early intervention?

Catherine Birman	Charlotte Chiong	Stephen O'Leary	Nguyen Thi Ngoc Dung	Haruo Takahashi	Thomas Nikolopoulos	Seung-Ha Oh
?	?	?	?	?	?	?

Do you have enough resources to manage all diagnosed babies?

Catherine Birman	Charlotte Chiong	Stephen O'Leary	Nguyen Thi Ngoc Dung	Haruo Takahashi	Thomas Nikolopoulos	Seung-Ha Oh
?	?	?	?	?	?	?

To what extent UNHS has changed the age at cochlear implantation for profoundly deaf children?

Catherine Birman	Charlotte Chiong	Stephen O'Leary	Nguyen Thi Ngoc Dung	Haruo Takahashi	Thomas Nikolopoulos	Seung-Ha Oh
?	?	?	?	?	?	?

Thank you!



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