Electronic data transfer system between well baby clinic and school health system to improve hearing screening protocols

Dr Kristel Boelaert
Screening for congenital hearing loss

1. Importance of early detection of hearing loss
2. Existing Guidelines
3. Situation in Flanders
4. Electronic data transfer
1. Importance of early detecting hearing loss

“The goal of early hearing detection and intervention (EHDI) is to maximize linguistic and communicative competence and literacy development for children who are deaf or hard of hearing.

Without appropriate opportunities to learn language, these children will fall behind their hearing peers in language, cognition, and social-emotional development.

Such delays may result in lower educational and employment levels in adulthood”.

From: Executive Summary of the Joint Committee on Infant Hearing (JCIH), Principles and Guidelines for Early Hearing Detection and Intervention Programs (2007)
2. Existing guidelines

*JCIH Guidelines:*

1. **All** infants should have access to hearing screening using a physiologic measure before 1 month of age.

2. All infants who **do not pass** the initial hearing screen ..... should have appropriate audiologic and medical evaluations to confirm the presence of hearing loss before 3 months of age.

3. All infants with confirmed permanent hearing loss should receive intervention services before 6 months of age.

= Neonatal Hearing Screening Programme
2. Existing guidelines

JCIH Guidelines:

1. All infants should have access to hearing screening using a physiologic measure before 1 month of age.

2. All infants who do not pass the initial hearing screen ..... should have appropriate audiologic and medical evaluations to confirm the presence of hearing loss before 3 months of age.

3. All infants with confirmed permanent hearing loss should receive intervention services before 6 months of age.

4. Infants who pass the neonatal screening but have a risk factor should have at least 1 diagnostic audiology assessment by 24 to 30 months of age.
2. Existing guidelines

- European Consensus Statement on hearing screening for pre-school and school-age children, 2012

- Besides neonatal screening, a general hearing screening between the age of 4-7 y is recommended to detect progressive permanent hearing impairment.
3. Situation in Flanders

1. Neonatal Hearing Screening

   Started in 1998
   
   Automated Auditory Brainstem Response-test (AABR)
   
   Established protocols for screening, referral, diagnostic evaluation and revalidation
   
   Performed by Kind en Gezin (Child and Family)
   
   Flemish Governmental Agency
   
   Department Welfare, Public Health and Family
   
   Responsible for preventive healthcare 0-3 years
3. Situation in Flanders

1. Neonatal Hearing Screening
   - Consistently high coverage >95%
     But for 5% of children no neonatal hearing test
   - Registration in electronic Child Health Records (Mirage)
     Result of test
     Possible risk factors for NS hearing loss
     Child development data (Van Wiechen Onderzoek)
3. Situation in Flanders

2. Hearing screening at school age (36m)
   - Switch from \textit{universal} screening at 3y to \textit{targeted} screening at 3y of age of these children who
     - Did not have neonatal hearing test
     - Did have a neonatal hearing test but are at risk of progressive neurosensorial hearing loss
     - Children with familial early onset hearing loss
   - Test performed by CLB (Centra voor Leerlingenbegeleiding – Pupil Guidance Centres)

     Department for Education

     Responsible for preventive health children 3-18y
3. Situation in Flanders

2. Hearing screening at school age
   - Audiometry test
   - Selection of the children based on the information from parent questionnaires
     - Neonatal hearing test
     - Prematurity
     - Congenital CMV infection
     - Head trauma
     - Bacterial meningitis
     - Familial early onset hearing loss
### 3. Situation in Flanders

<table>
<thead>
<tr>
<th>Neonatal screening</th>
<th>School screening</th>
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<td>Kind en Gezin</td>
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3. Situation in Flanders

Neonatal screening

- Kind en Gezin
  - Electronic Health Records (Mirage)

School screening

- CLB
  - Electronic Health Records (LARS)
3. Situation in Flanders

Neonatal screening

Kind en Gezin

Electronic Health Records (Mirage)

Test Y/N

Risk factors

- Prematurity
- CMV
- Head trauma
- Bacterial meningitis
- Familial hearing loss

School screening

CLB

Electronic Health Records (LARS)
3. Situation in Flanders

Neonatal screening

Kind en Gezin

Electronic Health Records (Mirage)

Test Y/N

Risk factors

- Prematurity
- CMV
- Head trauma
- Bacterial meningitis
- Familial hearing loss

School screening

CLB

Electronic Health Records (LARS)
4. **Electronic data transfer**

Electronic data transfer between 2 systems

- technical aspects
  - point-to-point exchange?
  - eHealth platform?
  - data format?
  - linking individual files?

- legal aspects
  - privacy
  - data security
  - patient consent
4. **Electronic data transfer**

Electronic data transfer between K&G/Lars

First meeting: March 2015

ICT Department Kind en Gezin

IT Department LARS/CLB

Full implementation expected Autumn 2017
4. **Electronic data transfer**

Result:

- Use of existing eHealth Platform - Vitalink
- Direct transfer of dataset of 6 risk factors into LARS
- Creation of ‘Vitalink Kindrapport’–’Vitalink Child Report’
  - PDF extract from Mirage Health records
    - Growth charts
    - Van Wiechen data - development data
  - Attached to LARS health record
  - Available for online consultation by other health professionals and parents via secure eHealth platform (Vitalink)