Global Screening of Hearing in Newborns.
Update from Portugal

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Global Screening of Hearing
Universal Newborn Hearing Screening

- Means: at least 95% of all newborns are successfully screened, through all the stages, until a definite diagnosis can be achieved*
  (Only 5% of the children may be lost)

* Task Force on Newborn and Infant Hearing Guidelines
Improving the rate of missed to follow-up children

A strategy for minimizing the rate of “false positive” results should be used:

1. Choosing the more appropriate equipment (OAE vs ABR) for each screening model to improve sensitivity and specificity.
2. Provide formal and periodic training for the involved professionals.
3. Work as a team, committed to a mission (motivation of the professionals).

Improving the rate of missed to follow-up children

- Screening is more effective when the child is at the maternity.
- Children who “fail” the first stage should be referred to a second stage within a short period of time, so the parents are still motivated to bring the child back to the hospital.
Improving the rate of missed to follow-up children

- Improving the demographic data registers (correct address, one or two phone numbers), so the child can be easily found after discharged
- Perform periodic audits, so someone from the team (a clerical staff member?) can track the family of the missed to follow-up child

- Provide simple and clear information to the parents about the importance of early diagnosis and intervention (patient information handouts)
- Allow easy access of the parents to someone responsible for the screening (clearly identified in the written information)
Improving the rate of missed to follow-up children

- Special groups of families should be identified (immigrants, minorities), so an appropriate language must be used by the professionals involved, should a second screening stage or a diagnostic test be needed.

Improving the rate of missed to follow-up children

- Hospital Dona Estefânia has a Universal Screening program since the maternity ward reopened in May 2002.

- Automatic OAE based screening started at the maternity.
H. Dona Estefânia
UNHS-Well-baby Nursery

Maternity (24h-48h) AOAЕ

Pass
Information
Family
Pediatrician

Refer

2nd stage
(Maternity) AOAЕ
1 week

Pass
Information
Family
Pediatrician

Refer

3rd Stage
ENT Service
Impedance
ABR
(<2 months)

Normal Hearing
Hearing Loss
Early Intervention
(<6 months)

H Estefânia - High Risk Babies (Target) Screening
(Started September 2004)

NICU

AABR
AOAE
(Previously to Discharge)

Pass
Refer

ENT
ABR
(Before 6 Months)

ENT
ABR
(After Discharge,
Before 6 Months)

ENT
Audiologic testing
(Every 6 months till 2 Years)
Universal Screening
Well-Baby Nursery
May 2002-October 2004

- Newborns-4274
- Tested-92.2%
- Referred to 2nd Stage-7.4%
- 2nd Stage-5.6%
- Referred to Diagnosis-0.6%
- Diagnosis-0.6%
- Not Tested-8.4%
- Total Lost-10.6%

![Graph showing newborn hearing screening results from May 2002 to October 2004.](image-url)
Present Situation in Portugal

- In Portugal, universal screening is not mandatory, nor common
- Target Screening (high risk register) is a rule
- A “Task Force” is designated to implement Universal Newborn Hearing Screening
<table>
<thead>
<tr>
<th>Region</th>
<th>Inhabitants</th>
<th>Newborns 2002</th>
<th>Audiology Technicians</th>
<th>Newborns / 1000 Newborns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portugal</td>
<td>10,356,117</td>
<td>114,456</td>
<td>68</td>
<td>0,59</td>
</tr>
<tr>
<td>Mainland</td>
<td>9,869,343</td>
<td>108,273</td>
<td>63</td>
<td>0,58</td>
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<tr>
<td>North</td>
<td>3,687,293</td>
<td>41,667</td>
<td>21</td>
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<tr>
<td>Center</td>
<td>2,348,397</td>
<td>16,951</td>
<td>11</td>
<td>0,64</td>
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<tr>
<td>Lisboa</td>
<td>2,661,850</td>
<td>40,546</td>
<td>28</td>
<td>0,69</td>
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<tr>
<td>Alentejo</td>
<td>776,585</td>
<td>4,543</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Algarve</td>
<td>395,218</td>
<td>4,543</td>
<td>3</td>
<td>0,66</td>
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<tr>
<td>Azores Islands</td>
<td>241,763</td>
<td>3,064</td>
<td>3</td>
<td>0,97</td>
</tr>
<tr>
<td>Madeira Island</td>
<td>245,011</td>
<td>3,117</td>
<td>2</td>
<td>0,64</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Region</th>
<th>Newborns Submitted to Universal Screening</th>
<th>Number of Audiology Technicians</th>
<th>Newborns / 1000 Newborns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portugal</td>
<td>14,624 (12.77%)</td>
<td>68</td>
<td>0,59</td>
</tr>
<tr>
<td>Mainland</td>
<td>9,830 (9.08%)</td>
<td>63</td>
<td>0,58</td>
</tr>
<tr>
<td>North</td>
<td>0</td>
<td>21</td>
<td>0,50</td>
</tr>
<tr>
<td>Center</td>
<td>0</td>
<td>11</td>
<td>0,64</td>
</tr>
<tr>
<td>Lisboa</td>
<td>7,000 (17.3%)</td>
<td>28</td>
<td>0,69</td>
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<tr>
<td>Alentejo</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Algarve</td>
<td>2,830 (62.3%)</td>
<td>3</td>
<td>0,66</td>
</tr>
<tr>
<td>Azores Islands</td>
<td>1,924 (62.8%)</td>
<td>3</td>
<td>0,97</td>
</tr>
<tr>
<td>Madeira Island</td>
<td>2,870 (92.1%)</td>
<td>2</td>
<td>0,64</td>
</tr>
</tbody>
</table>

TOTAL Newborns (2002): 114,456
• We wish to thank the Ronald McDonald Foundation for the donation of the screening and diagnostic equipment that made possible the Newborn Hearing Screening at H. Dona Estefânia Hospital