Just What Do Your Pediatric Audiologists Know?

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California Department of Health Care Services
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California Infant Audiology Symposium, July 2009

- California Newborn Hearing Screening Program
- California Title V Program for Children with Special Needs
- Joint Committee on Infant Hearing (JCIH) 2007 Position Paper
  - Appropriate infant diagnostic test battery
  - Appropriate treatment for infants with hearing loss
- California Part-C Early Intervention Program
- California Speech-Language Pathology and Audiology Board Ethical Standards
- Auditory Neuropathy Spectrum Disorder and evaluation in infants
- Cochlear implant referrals
Pre and Post Test

- Questions submitted by speakers
- All multiple choice
- 25 questions total
  - 3-5 questions per topic
- Identical questions pre and post test
- Pre given at opening
- Post given after final speaker
Participants

- 74 Audiologists
- 5 “Non-audiologists”
- Demographic information included:
  - Type of Degree
    - MS, AuD, Ph.D., “other”
  - Where last degree was obtained
    - In residence CA
    - In residence other
    - Online
  - Years licensed
Participants

- Self-Measures of Pediatric Knowledge and Experience
  - Scale 1 to 7, 1 = “Very Little” and 7 = “Pediatric Specialist”
  - Same scale for knowledge and experience on pre and post test
## Results

<table>
<thead>
<tr>
<th></th>
<th>Pretest</th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average %</td>
<td>63.9%</td>
<td>80.7%</td>
</tr>
<tr>
<td>Average Score</td>
<td>16.0</td>
<td>20.2</td>
</tr>
<tr>
<td>High Score</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Low Score</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Mode</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td>Median</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>3.1</td>
<td>2.5</td>
</tr>
</tbody>
</table>
Results

- Pretest Passing Score:
  - 21/79
  - 26.6%

- Post-Test Passing Score:
  - 71/79
  - 89.9%
No one question was exposed as a problem question

Questions missed by $\frac{1}{2}$ or more in pre-test

- The national and California loss to follow-up statistics
- The appropriate follow-up for a NICU infant referring on an inpatient hearing screen
- How to report screening and diagnostic results
- Benefits of California’s Title V Program
Results

• Questions missed by ½ or more in pre-test (continued)
  • Appropriate Early Intervention referral process
  • Communication outcomes most studied in children with hearing loss
  • Signs that must be present in a patient with Auditory Neuropathy Spectrum Disorder (ANSD)
  • Contraindications to cochlear implantation and ANSD
  • Normal tympanogram indications
  • Middle ear muscle reflexes in infants
Results

- Questions missed by ½ or more in post-test
  - How to report screening and diagnostic results
  - Contraindications to cochlear implantation and ANSD
## Participant Demographics

<table>
<thead>
<tr>
<th>AuD</th>
<th>MS</th>
<th>Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>28</td>
<td>4</td>
</tr>
<tr>
<td>2 – In res. CA</td>
<td>18 – CA</td>
<td>2 – CA</td>
</tr>
<tr>
<td>4 – In res. OS</td>
<td>10 – OS</td>
<td>2 – OS</td>
</tr>
<tr>
<td>36 – Online</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Results by Degree

- The winners…
- Au.D. in residence and Ph.D.!
  - Online Au.D. and Master Degree scored near equivalent, average 16.3 on pretest and 19.9 on post-test
  - Years of licensure indicated corresponding increase in scores as experience increased
  - Au.D. outscored Ph.D. in pretest, but Ph.D. outscored everyone post-test with average 23.3
Self titled “Pediatric Audiologists”

- **Pretest**
  - 31 indicated they were “Pediatric Specialists”
  - 18 indicated maximum rating of experience with children

- **Post-test**
  - 23 indicated they were “Pediatric Specialists”
  - 44 indicated they were closer to being a Pediatric Specialist after the symposium
Results

- 52.7% of participants believed they increased their knowledge of pediatric audiology after the symposium
- 92.4% improved their test scores
- 68.4% improved their test scores by 20% or more
What now?

- Questions missed by most participants included state-specific, programmatic questions
  - While information may be available in print, providers are not trained in navigating state or federal programs
What now?

- ANSD was the least known type of hearing loss
- Tympanometry and acoustic reflex interpretation also initially presented as unknown
- Anecdotally ABR bone conduction is not used enough clinically, but respondents indicated they knew it should be used
Skewed confidence in providers
- For 1/3 of providers who rated themselves high pretest, self-measures of knowledge and experience DECREASED with presentations
- For providers who rated themselves low pretest, self-measures increased to midline
What now?

- Of the 31 that initially rated themselves as “Pediatric Specialists”, only 11 passed the pretest.
- The remaining 10 who passed the pretest rated themselves between 3-5 on experience and knowledge.
- 21 Pediatric Specialists did not change their self-measure, and only 1 still failed the post-test.
What now?

- This forum for teaching was effective in the short-term for learning
- EHDI programs need to offer specific training to providers for navigating state systems
- Further definition of “Pediatric Specialists” is necessary from national and state organizations
Questions?

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