Auditory Verbal Therapy in Children with Hearing Loss: We do not have Enough Specialists

Habib Rizk MD, Don Goldberg PhD**, Ted Meyer, MD PhD

14th Annual Pediatric CI Symposium
ACIA Symposium
Nashville, TN
DECEMBER 13th, 2014

Medical University of South Carolina
Department of Otolaryngology

** College of Wooster,
Cleveland Clinic
Disclosures

• Don Goldberg: Immediate Past President of the Alexander Graham Bell Association for the Deaf and Hard of Hearing
• Ted Meyer: President-Elect AG Bell
WHAT IS A LISTENING AND SPOKEN LANGUAGE SPECIALIST (LSLS)?
• Licensed audiologists, speech-language pathologists, or educators of the deaf who have attained high-level specialty education, experience, and certification.

• LSLS work with infants and children who are deaf or hard of hearing and their families seeking a listening and spoken language outcome.

• Certification is delivered by AG Bell Academy
The LSLS Domains of Knowledge

- Auditory Functioning: 16%
- Hearing and Hearing Technology: 12%
- Spoken Language Communication: 16%
- Child Development: 9%
- Emergent Literacy: 6%
- History, Philosophy, and Professional Issues: 4%
- Emergent Literacy: 6%
- Education: 6%
- Strategies for Listening and Spoken Language Development: 18%
- Parent Guidance, Education and Support: 13%
- Education: 6%

Changing What’s Possible
Differences between Auditory-Oral and Auditory-Verbal Therapy

- Listening and Spoken Language approaches were known as Auditory-Verbal (A-V) and Auditory-Oral (AO)
- AO focuses on speech and provides the patient with visual cues
- AV focuses on listening
- Evidence-based research found these approaches have more similarities than differences
- Resulting in a single certification: the Listening and Spoken Language Specialist Certification (LSLS)
One certification, Two Designations

• The **LSLS Cert. AVT** works one-on-one with the child and family in all intervention sessions.

• The **LSLS Cert. AVEd** involves the family and also works directly with the child in individual or group/classroom settings.

*Both have similar knowledge and skills and work on behalf of the child and family.*
Who are LSLS?

* Out of 547 Certified LSLS; some of our professionals fill more than one role.
Importance of LSLS

Communication Outcomes Selected by Families

- Listening and Spoken Language: 89%
- Total Communication: 6%
- American Sign Language: 4%
- Cued Speech: 1%

Source: BEGINNINGS of North Carolina is a non-profit agency providing an impartial approach to meeting the diverse needs of families with children who are deaf or hard of hearing and the professionals who serve them.
Importance of LSLS

• Total costs for special education programs for children with hearing impairments was $11,006 per child (2000 value)

• Lifetime education cost (2007 value) of hearing loss (moderate and more severe): $115,600 per child

# Lifetime Costs of Severe to Profound Hearing Loss

<table>
<thead>
<tr>
<th>Component</th>
<th>Prelingual (0-2)</th>
<th>Prevocational (3-17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lost Productivity</td>
<td>$433,400 (42%)</td>
<td>$444,300 (48%)</td>
</tr>
<tr>
<td>Special Education</td>
<td>$504,900 (50%)</td>
<td>$401,000 (44%)</td>
</tr>
<tr>
<td>Vocational Rehabilitation</td>
<td>$11,500 (1%)</td>
<td>$12,600 (1%)</td>
</tr>
<tr>
<td>Assistive Devices, medical costs and others</td>
<td>$70,200 (7%)</td>
<td>$61,100 (7%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$1,020,000</strong></td>
<td><strong>$919,000</strong></td>
</tr>
<tr>
<td>95% confidence interval</td>
<td>$464,000 - $1,733,000</td>
<td>$401,000 - $1,623,000</td>
</tr>
</tbody>
</table>

Importance of LSLS

• Education is expensive – better technology, better rehabilitation, ...
• Earlier identification means Earlier Intervention
• Will hopefully lead to less lost revenue and more opportunities for children with hearing loss as adults
• And a cost savings in the long run
Methods

• Databases reviewed for demographic information for new born screening, prevalence of hearing impairment...:
  – CDC-Early Hearing Detection and Intervention databases
  – National Health and Nutrition Examination Surveys
  – National Health Interview Surveys
  – Gallaudet University Database

DEMOGRAPHICS OF CHILDREN WITH IMPAIRED HEARING UP TO 2012 (2013 WAS STILL BEING PROCESSED)
Methods

• AG Bell academy database was reviewed for the number of LSLS
• The incidence statistics were used as surrogates to estimate:
  – Population of preschool children and school age children needing LSLS
  – Need for LSLS per state for this population
Results

• 2012 National Early Hearing and Detection Survey *PUBLISHED September 2014*:
  – 3.8 million children screened (96.6%)
  – 6000 screened had HEARING LOSS (1.6/1000)
  – 87.6% OF HEARING IMPAIRED Children are referred to Part C EI

• Only 83.1% were eligible (STATE DEFINITIONS OF DEVELOPMENTAL DELAY)
Statistics

• National – 1 LSLs per 228 children with hearing loss <17
• States – range from 0 LSLs to 1 LSLs per about 1781 children < 17 (Louisiana)
• Missouri has the lowest ratio 1/53
• States with large populations have more LSLs than states with small populations:
  – Not always the case
## Statistics

<table>
<thead>
<tr>
<th>US State</th>
<th>2013 Population</th>
<th>GDP per capita rank</th>
<th>Number of children &lt;17 with hearing loss</th>
<th>LSLS 2014</th>
<th>Number of children with hearing loss per LSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Carolina</td>
<td>4,774,839</td>
<td>49</td>
<td>1727</td>
<td>11</td>
<td>157</td>
</tr>
<tr>
<td>Tennessee</td>
<td>6,495,978</td>
<td>38</td>
<td>2386</td>
<td>8</td>
<td>298</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>646,449</td>
<td>1</td>
<td>178</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Missouri</td>
<td>6,044,171</td>
<td>35</td>
<td>2236</td>
<td>42</td>
<td>53</td>
</tr>
</tbody>
</table>
Conclusions

• Growth of LSLS numbers over the past 5 years: *Slow? Steady? Adequate?*

• Unequal distribution between states
  – unequal distribution within counties of a state

• Need for more LSLS in all of the 50 states plus DC and territories

• Some states have tremendous needs

ADEQUATE REHABILITATION = BETTER OPPORTUNITIES FOR THE CHILDREN = LOWER ECONOMICAL BURDEN ON SOCIETY
References


References

References


References


References

• Ling, D., Novelli-Olmsted T, Rotfleisch S and Simser J. The unique principles of Auditory-Verbal Practice.
References

References
