The Importance of Developing Long Range Plans for Children who are Deaf and Hard of Hearing

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Meet Ivan

- Bilateral Profound Sensorineural Hearing Loss and Auditory Neuropathy
- English is not spoken in the home
- Hearing Aids at 8 months
- One Cochlear Implant at 6 years of age

- IQ: 126 (100 + 15 is average)
Ivan: Standard Scores in Language (CELF-4)

<table>
<thead>
<tr>
<th>Year</th>
<th>Listening Comprehension</th>
<th>Oral Expression</th>
<th>Total Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>50</td>
<td>50</td>
<td>50</td>
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<tr>
<td>2008</td>
<td>50</td>
<td>50</td>
<td>50</td>
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<tr>
<td>2010</td>
<td>48</td>
<td>48</td>
<td>46</td>
</tr>
</tbody>
</table>

Standard Scores (100 ± 15 is average)
AW HECK NO.
“But I thought that...”

- Children with cochlear implants have the potential to achieve spoken language outcomes commensurate to those of their peers with typical hearing (Geers, 2006; Ganek et al, 2011; Geers & Nicholas, 2013).
- Early implantation has significant impact on a child’s success with overall skills. (Zwolan et al., 2004; Nicholas & Geers, 2007; Connor et al., 2006; Niparko et al, 2010).
However…

- Some children with cochlear implants are not demonstrating these outcomes (Niparko et al, 2010; Tobey et al 2013)

- Children implanted later than 2 years of age show poorer rates of progress and may not catch up. (Connor et al, 2006; Nicholas & Geers, 2007; Niparko et al, 2010).
Our Question

Why do some children with cochlear implants who have excellent access to sound and quality medical and audiological services continue to lag behind their peers with typical hearing upon entering school?
Most parents of children who choose cochlear implantation will say they want their child to:

1. Learn to listen and speak.
2. Participate in regular education.
3. Attend and graduate college.
4. Have employment opportunities and be an independent citizen.
Some of the Challenges

• Availability of quality services (Sorkin and Zwolan, 2004)
• Limited expertise of professionals. (Easterbrooks et al, 2008; Compton et al., 2011; Houston and Perigoe, 2012; DeMoss et al, 2012)
• Poor language foundation (Ling, 1999; Fielding, 2009)
What do we know?

“Unless the language levels of deaf children are within 1 or 2 years of the levels of those in the regular class in which they are placed, they are virtually cut off from the entire verbal input process that is basic to educational experiences.”

A. McConkey Robbins, 2000
Our Response

A plan is required that will:

1) Correlate the time of service with the amount of delay.

2) Address the deficit sub-skills

3) Create catch-up growth.
Why do we need a Long Range Plan?

Maxim 21 – Students who are behind need to make catch-up growth. Catch-up growth is annual growth plus some additional part of a year’s growth.

L. Fielding, N. Kerr, P. Rosier, 2007

“Students who are behind do not learn faster than those who are ahead.” L. Fielding
History

• In NC the concept of long range plans, or focusing on the child who is not making expected gains, has been in place for many years.

• Outgrowth of that work is now part of our strategic plan for the EC Division
  – 28 out of 115 traditional school districts
  – Database
(1) Develop assessment procedures and protocols to measure, at least annually or more frequently if specified in a child's Individualized Education Program (IEP), the acquisition of language skills necessary for literacy using linguistically and culturally appropriate assessment tools. The results of these assessments shall be used to determine whether further support and services, if any, are needed for a child.
“There is no point in testing if you don’t look at the data, don’t understand it, and don’t change.”

Lynn Fielding
<table>
<thead>
<tr>
<th>Time period</th>
<th>HA</th>
<th>CA</th>
<th>Audition Skills</th>
<th>Language</th>
<th>Vocabulary</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-12</td>
<td>2 yr</td>
<td>10-7</td>
<td>ALG year 2</td>
<td>OWLS: L.C.: 6-1 SS: 48 O.E.: 5-10 SS: 40 CASLLS: 36-48 month Language Delay: approx. 5 yrs</td>
<td>EVT:2 SS:73 AE:5-9</td>
<td>HI: 5x wk 115 min; 85 min for math resource Speech:1x/wk 30min Interpreter full time</td>
</tr>
<tr>
<td>Consider Retention</td>
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<tr>
<td>2012-13</td>
<td>3 yr</td>
<td>11-7</td>
<td>ALG completed through year 4</td>
<td>OWLS-2: SS: 70 CASLLS: 48 months (complete SS; Start Complex Sent) Language Delay: 3.5-4</td>
<td>EVT SS: 85 Increase by 3000 words (exposure to 62/week) Ling Thesaurus complete</td>
<td>HI 2 hours per day Speech/Audition 2-3 times/30 min Hearing assistive technology (FM) PPS 2x/month Parent Education: Sign</td>
</tr>
<tr>
<td>Grade:4</td>
<td></td>
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<tr>
<td>2013-2014</td>
<td>4</td>
<td>12-7</td>
<td>Maintain auditory skills in noise; advocacy for hearing assistive technology and amplification</td>
<td>CASLLS Complex Sent level complete Language Delay : 2-3 years</td>
<td>EVT SS: 90 Increase by 3000 words (exposure to 62/week) Academic Vocabulary</td>
<td>HI resource 2 hours per day Language Facilitator Formal Reading Program Instruction Speech ?: 2xwkly/30min Parent participation session 2x per month</td>
</tr>
<tr>
<td>Grade:5</td>
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Child 1: Jessica

- Profound HL
- Non-verbal IQ average
- 1st CI - 18 months of age
- Soft failure over time
- Explant/re-implant age 6
- School for the Deaf with ASL
- Minimal language
- Long Range Plan 2011
Jessica: Standard Scores with a Long Range Plan in Place

Receptive Language
Expressive Language
Expressive Vocabulary

<table>
<thead>
<tr>
<th>Year</th>
<th>Receptive Language</th>
<th>Expressive Language</th>
<th>Expressive Vocabulary</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>60</td>
<td>48</td>
<td>64</td>
</tr>
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<td>2011</td>
<td>48</td>
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</tr>
<tr>
<td>2012</td>
<td>67</td>
<td>40</td>
<td>74</td>
</tr>
<tr>
<td>2013</td>
<td>67</td>
<td>57</td>
<td>74</td>
</tr>
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</table>
Child 2: Connor

- Peri/post-lingual hearing loss at 26 mo.
- Mild-moderate hearing loss
- Bilateral hearing aids
- Non-verbal IQ 98
Connor: Standard Scores with a Long Range Plan in Place

- Listening Comprehension
- Oral Expression
- Core Language

Year: 2009-10, 2011-12, 2012-13, 2013-14

Scores:
- 2009-10: Listening Comprehension 63, Oral Expression 61, Core Language 62
- 2011-12: Listening Comprehension 82, Core Language 62
- 2012-13: Listening Comprehension 96, Oral Expression 69, Core Language 73
- 2013-14: Listening Comprehension 108, Oral Expression 85, Core Language 91
Ivan: Standard Scores in Language Before Plan

Standard Scores (100 ± 15 is average)

Listening Comprehension
Oral Expression
Total Language

2007: 50 50 50
2008: 50 50 50
2010: 48 48 46
Ivan: Standard Scores with a Long Range Plan in Place

- Listening Comprehension
- Oral Expression
- Core Language

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<th>Year</th>
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<tr>
<td>2011</td>
<td>52</td>
<td>47</td>
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</tr>
<tr>
<td>2014</td>
<td>83</td>
<td>61</td>
<td>69</td>
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Alamance-Burlington School System
Christina Armfield MS, CCC-SLP
Ivan: Standard Scores in Vocabulary with a Long Range Plan in Place

Alamance-Burlington School System
Christina Armfield MS, CCC-SLP
Summary

• Annual evaluation of listening and spoken language is essential.

• Data from the annual evaluations should drive a long range plan to address deficit sub-skills.

• Improved outcomes as a result of long range planning
Challenges

• Administrator education.
• Fear.
• Academics or language?
Future Work

• Database in NC to collect language data necessary for literacy

• Data from the annual evaluations will result in more long range plans to address deficit sub-skills.

• Impact of long range plans on a larger number of students over time.
A GOAL WITHOUT A PLAN IS JUST... A WISH

- ANTOINE DE SAINT-EXUPÉRY
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• Tobey, EA, Thal, D, Niparko JK, Eisenberg, LS, Quittner, AL; Wang, NY; CDaCI Investigational Team (2010) Spoken language development in children following cochlear implantation. *JAMA.* Apr 21;303(15):1498-506

• Tobey, EA, Thal, D, Niparko JK, Eisenberg, LS, Quittner, AL; Wang, NY; CDaCI Investigational Team (2013). Influence of implantation age on school-age language performance in pediatric cochlear implant users. *Int J Audiol.* Apr;52(4):219-29