Telehealth and Cochlear Implants

Teleintervention: Praise & Pitfalls of Increased Access

UNC REACH
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UNC Ear and Hearing Center

- Local Educators
- ENT Doctor
- Other Professionals
- Audiologist
- LSL Therapist
- Child
- Parents & Family
Center for the Acquisition of Spoken language Through Listening Enrichment (CASTLE)

- **Mission:**
  - Provide a quality listening and spoken language program
    - Speech-language evaluations
    - Listening and spoken language parent sessions
    - Toddler classes & Preschool language groups
  - Empower parents as primary teachers and advocates
    - Parent Sessions
  - Professional Learning by training and coaching specialists in listening and spoken language
    - Carolina Summer Institute
    - Workshops
    - Mentoring/Coaching with Early Intervention and NC Public Schools
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UNIVERSITY OF NORTH CAROLINA
TELE-PARTICIPATION PROGRAM
Pitfalls of Tele-intervention

• Literature:
  » Access to technology and computer literacy (Saab, P et al, 2004)
  » Staff frustration with troubleshooting equipment & technical difficulties (Peddle K, 2007)

• CASTLE Staff:
  » Troubleshooting equipment
  » Staff Buy-in
  » Parent & therapist learning style
  » Incorporating goals in a naturalistic way
  » Behavior Management
Praise of Tele-intervention

- **Literature:**
  - “By it’s very nature, distance implementation lends itself to the provision of family-centered intervention services because the clinician is not physically present during the session and cannot directly interact with the child.” McDuffie et al, 2013

- **CASTLE Staff:**
  - Increased access to more families and professionals
  - Less travel
  - Less planning/ set-up/ clean-up
  - Challenge of learning something new
  - Coaching Parent in it’s purest form
REACH Early Intervention Pilot Data

- August 2012: Pilot project to study outcomes for children and parents using a tele-intervention approach
- Children enrolled between ages of birth to 3
- Original enrollment of 8 children receiving intervention through UNC REACH
  » Current data on six children
    • Average distance from center 2.8 hours
  » 1 family discontinued due to internet connection
  » 1 family discontinued due to the need for local therapy to address needs not related to hearing loss
- Enrollment of 4 children also birth to three receiving intervention through direct services at the CASTLE center
Pilot Data

- **Data Collected in Six Month Intervals**
  - Formal Speech-Language Testing
    - PLS-5
    - IEPN or Goldman Fristoe II if age/ language appropriate
Pilot Data: Speech & Language Data

- Controls

- REACH
Pilot Data

- Data Collected in Six Month Intervals
  - Parent Self-Assessment
    - 16 questions asking parents about their confidence on certain skills and the amount of time they spend addressing goals and reading with their child
    - Sample: Rate your level of agreement with: I know the sequence of normal language development for children 0-3 years of age.
Parent Self Assessment: Confidence

Baseline | 6 months | 1 year
--- | --- | ---
REACH | Controls
3.41 | 3.22 | 4.3 | 4.48 | 4.14
Parent Self Assessment: Read Aloud

- How often do you read to your child?
  » 1: Seldom
  » 2: Less than once a week
  » 3: 1 to 2 times per week
  » 4: 3 to 4 times per week
  » 5: everyday
  » 6: Several times per day
Parent Self Assessment: Read Aloud

- Baseline
  - REACH: 3.83
  - Controls: 3.75

- 6 months
  - REACH: 5.17
  - Controls: 5.0

- 1 year
  - REACH: 5.67
  - Controls: (No data provided)

Note: The graph shows the comparison between the REACH and Controls groups at different time points.
Pilot Data

» Parent Video Analysis
  • Skills and strategies identified needed to teach their child to listen and use spoken language are rated on a 4 point scale
  • All rated by the same LSLS Cert. AVT professional
  • Sample: Provides wait time for child’s processing of input

  • 1- not observed
  • 2- rarely observed (less than 50%)
  • 3- emerging (50 to 80%)
  • 4- frequently demonstrated (80+)
Parent Video Analysis

![Graph showing changes in video analysis over time for REACH and Controls.]

- **Baseline:**
  - REACH: 2.45
  - Controls: 2.6
- **6 months:**
  - REACH: 2.72
  - Controls: 3.03
- **1 year:**
  - REACH: 3.22

The graph compares the video analysis scores for REACH and Controls at baseline, 6 months, and 1 year.
REACH: A Case Study
# REACH: A Case Study

<table>
<thead>
<tr>
<th></th>
<th>PLS-5</th>
<th>Parent Self Assessment</th>
<th>Parent Video Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline</strong></td>
<td>AC: 91 EC: 101 Total Language: 96</td>
<td>Average Confidence Rating: 2.33 Average Knowledge Rating: 3.6</td>
<td>Average Competency Score: 2.67</td>
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<tr>
<td>CA: 2 Months</td>
<td></td>
<td></td>
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<tr>
<td>HA: 0 Months</td>
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<tr>
<td><strong>6 Months</strong></td>
<td>AC: 106 EC: 108 Total Language: 107</td>
<td>Average Confidence Rating: 4.44 Average Knowledge Rating: 5</td>
<td>Average Competency Score: 3.06</td>
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<tr>
<td>CA: 9 Months</td>
<td></td>
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<tr>
<td>HA: 6 Months</td>
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<tr>
<td><strong>1 Year</strong></td>
<td>AC: 128 EC: 129 Total Language: 130</td>
<td>Average Confidence Rating: 4.6 Average Knowledge Rating: 5</td>
<td>Average Competency Score: 3.5</td>
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<tr>
<td>CA: 16 Months</td>
<td></td>
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<tr>
<td>HA: 13 Months</td>
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</tbody>
</table>
REACH: A Case Study

MMMM, You gave her a kiss. Yeah.
REACH: A Case Study

MMMM, You gave her a kiss. Yeah.
REACH: A Case Study

You wanna rock the baby?
REACH: A Case Study
In Conclusion

Using teleintervention will change our practice...but ultimately increased access is proving worth it.
References


• Peddle K. Telehealth in context; socio-technical barriers to telehealth use in Labrador, Canada. *Computer Supported Cooperative Work (CSCW)* 2007; **16**(6); 595-614.

Thank You!

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