The Next Step in Paediatric Remote Cochlear Implant Programming in Australia

Paula Berkley (Clinical Audiologist)
Kylie Chisholm, Rachelle Hassarati and Wai Kong Lai

CI2019 Pediatrics, Treating the Whole Child:
16th Symposium on Cochlear Implants in Children
July 11-13, 2019
Disclosures

• Financial Relationships: employee of SCIC/RIDBC
• Non-financial Relationships: nil
SCIC Cochlear Implant Program – An RIDBC Service

We are the LARGEST non-government service provider in HEARING & VISION in Australia

We support 8,000+ PEOPLE across Australia

We have 470+ STAFF

We have
RIDBC locations
RIDBC Teleschool services
RIDBC Renwick Centre students
Continuing Professional Education graduates
Longitudinal Use of Telepractice at SCIC

- 2002: Initial telepractice
- 2007: Teleschool
- 2010: CI mapping
- 2014: CI assessment & mapping
- 2018: Tablets device programming
History of Programming Hardware (Cochlear Ltd)

Clinical Programming System (CPS) [1]
Portable Programming System (PPS)
Wired Programming System
Wireless Programming System (WPP)

[1] https://www.slideshare.net/vijaymohan10/cochlear-implant-2506535
Objectives

• Does wireless help ‘the whole child’?
• Age limits?
• Improve, maintain or degrade outcomes?
• Help or hindrance in service?
The Wireless Programming Kit

- Wireless pod + tablet computer + instructions couriered to family
- Tablet contains - Skype/Polycom, Teamviewer and Custom Sound/NFS loaded with client’s mapping file
- Kit returned to clinic, CDX uploaded to database, troubleshooting
Basic Remote Mapping Components

Local Site
- Audiologist

Remote Site
- Client
- Programming Hardware
- Facilitator

Internet connection
Method

• 7 Children with Cochlear Ltd CIs were programmed remotely

• Age range: 5-18 years

• Living at distances of up to 1881 km from their nearest centre

• Audiologist-controlled remote programming system

• Verification:
  − Data logging record comparisons
  − Ling 6 sound check
  − Parent & Audiologist Questionnaires
Results: Data Logging and Verification

LING 6 Sound Test

<table>
<thead>
<tr>
<th></th>
<th>AH</th>
<th>M</th>
<th>OR</th>
<th>EE</th>
<th>OO</th>
<th>S</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Imitation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Results: Questionnaires

• Questionnaires completed by the parent and audiologist
• 16 questions detailing their experience of the wireless vs wired pod
• Quotes from families:

“I would never want to go back to the wire. It is so much easier to use from a parent perspective and my son has the freedom to move if he gets up to move around.”

“It can be a pain to start working with - (my child) was bored waiting for all the computers to work in sync.”

“There needs to be an alternative power source when the battery runs out”

“Very interesting and fun session, way too easy for both of us.”
Results: Audiologist & Parent Feedback

**Positives**

- Accessible and time-efficient
- Natural interaction when wireless
- Less irritation if child is sensory-sensitive which leads to better focus and attention
- Convenience of ‘Remote Kit’ with parent instructions

**Challenges**

- Battery life is limited
- Size/weight of PS + Battery + Wireless Pod
- No Kanso option
- Distance limit: 2.5m from pod to tablet
- Internet stability, connection and speed
- Parent needs to be tech savvy and willing to act as ‘distractor’
Next Steps - Future Directions

- Equipment Improvements (i.e. Battery life)
- Improved Internet Speeds and Stability
- Access to Interpreters
- Formal Speech Perception Testing
- Training Module for Families to Assist
- Funding Streams / Reimbursement
Summary

• Telepractice plays an important role in today’s cochlear implant service delivery

• Wireless programming pods and tablets are a valuable next step

• research and development to build on potential
Thank you