Telehealth: Remote Programming of Cochlear Implants

Results of a multi-center clinical trial

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ACIA 2017 San Francisco
• Cochlear Audiology Advisory Board
Background and Study Purpose

IDE study

• Determine safety
• Determine efficacy
• Establish guidelines
Remote Programming Study Timeline

- December 2015: Remote Programming IDE Approved
- January 2016: Remote Programming Multi-center Study Start Up
- March 2016: 1st Subject Enrolled
- January 2017: Enrollment Closed
- April 14, 2017: Last subject, last visit

Rocky Mountain Ear Center
Single-site independent pilot study
Demographics

- 40 subjects
- Experienced users
- Current programs

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Gender</td>
<td>F = 22 / M = 18</td>
</tr>
<tr>
<td>Age</td>
<td>Mean = 45.2yrs (12-88yrs) 13 adolescents / 27 adults</td>
</tr>
<tr>
<td>Sound Processor</td>
<td>Nucleus 5 = 17 Nucleus 6 = 23</td>
</tr>
<tr>
<td>Average mileage to clinic</td>
<td>59 mi Roundtrip (2mi – 303mi)</td>
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Methods
Speech Perception Scores  (N=39)

Group Mean CNC Scores

- Familiar: 70.5%
- Facilitated: 72.4%
- Unassisted: 72.5%

p=<.001
1. Would you choose telehealth over face to face programming?

- **Likely**: 56%
- **Neutral**: 39%
- **Not Likely**: 5%

**Age Groups**
- <18yrs  n=11
- 19-64yrs  n=16
- 65+yrs  n=12
Subject Feedback

1. Would you choose telehealth over face to face programming?

- Likely: 56%
- Neutral: 39%
- Not Likely: 5%

Roundtrip Mileage:
- <50 mi: n=28
- 50-100mi: n=6
- 100+ mi: n=5
2. Would you use telehealth if you lived >2hrs away, inclement weather, difficult to arrange transportation, evening/weekend hours?

<table>
<thead>
<tr>
<th>Likely</th>
<th>Neutral</th>
<th>Not Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>80%</td>
<td>17%</td>
<td>3%</td>
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</table>

3. Would you recommend telehealth to another CI recipient?

<table>
<thead>
<tr>
<th>Likely</th>
<th>Neutral</th>
<th>Not Likely</th>
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<tbody>
<tr>
<td>90%</td>
<td>10%</td>
<td>0%</td>
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</table>
Clinician Feedback

Communicate easily with subject

90% Agreed

- Strongly Agree
- Agree
- Neither
- Disagree

Satisfied with remote session

96% Agreed

- Strongly Agree
- Agree
- Neither
- Disagree
- Strongly Disagree
Clinician Feedback

1. What is the value of using telehealth?

- Cost savings
- Convenience
- Time savings
- Increased access to care
- Better access! Some patients are not pursuing an implant because they are worried about the cost, travel, safety convenience of follow up visits.

We have lots of families who travel very far for visits.
Clinician Tips

Remember to make sure microphone protectors are clean

High speed, reliable internet connection

Keep your younger users engaged

Good, illustrated instructions for the patient

Be patient with technology connection issues – they are resolvable
Conclusions

- Efficacy
- Safety
- Value
Acknowledgements

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- Cochlear Americas