Telehealth for Teens: Remote Programming Benefits in the Adolescent Population

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Disclaimers

• Off-label use
• Clinical trial sponsored by Cochlear Americas
• Dr. Teagle serves on the Cochlear advisory board
Telemedicine

- Bringing clinical care to the patient.
- Significant patient savings in lost wages and travel costs.
- Being used successfully in primary care and other disciplines (Uscher-Pines, et al., 2014; Darkins, et al., 2013; Mashima & Doarn, 2008).

Studies in cochlear implant telehealth are suggesting:
- Remote and in person programming yield similar outcomes (Eikelboom, 2014; McElveen, 2010; Ramos, 2009; Rodriguez, 2014; Samuel, 2014; Wesarg, 2010).
- Patients are satisfied with remote care (Hughes, 2012; Goehring, 2012).

- Clinical validation is important.
Telehealth for Cochlear Implants at UNC

• 2007 – Began remote testing of devices in the operating room.
• 2012 – UNC REACH Program begins offering teletherapy services to patients.
• 2016 – Remote programming of cochlear implants study.
Study Outline

• Multi-center study investigating safety and efficacy of remote programming.

• Presenting our subset of patients.
  • N=9
    • Age 12-21 (mean = 15.03 years)
    • 7 CI24RE and 2 CI512
    • 5 N5 processors, 4 N6 processors
    • All ears implanted for 7 years or more.
      • All bilateral users
      • Chose one ear to use for the study
Study Outline

• Visit 1
  • Screening
  • CNC Words
  • Training

• Visit 2
  • Within 1 month of Visit 1.
  • Programming remotely using Surface Pro and GoTo Meeting
    • Facilitated

• Visit 3
  • 2-4 weeks after Visit 2
  • CNC Words in the clinic
  • Survey

• Visit 4
  • 2-4 weeks after Visit 3
  • Programming remotely using Surface Pro and GoTo Meeting
    • Not facilitated

• Visit 5
  • 2-4 weeks after Visit 4
  • CNC Words in the clinic
  • Survey
Results: Satisfaction Survey

Q1a (Video)
Q1b (Audio)
Q1c (Type Chat)
Q2 (Clear Instructions)
Q3 (Set-up Comfort)
Q4 (Care Comfort)
Q5 (Programming Comfort)
Q6 (Internet Connectivity)
Q7 (Session Issues)

Facilitated
Self Reliant

Strongly Disagree Disagree Neither Agree Strongly Agree
Results: Satisfaction Survey

• “Audio was sounding weird so we closed out and reopened.”
• “... we restarted the computer.”
• “We just had to figure out how to share screens and then we were good to go!”
• “In the beginning we couldn't get logged [on] by later we done it.”
• “Just sometimes with the cam. Sometimes the cam would go away when you showing your stuff.”
• “The screen froze.”
• “Yes but easily fixed. Made a new go to meeting.”
• “Sometimes when it lags it's sometimes hard to understand them.”
Results: SSQ-C

Speech and Hearing
Spatial
Sound Quality
Average

Poorer
Better

Self Reliant
Facilitated
Results: “How likely would you be to…”

- Choose remote over in person
- Choose remote if at home
- Choose remote if 2 hours away
- Choose remote if bad weather
- Choose remote if evening and weekend
- Choose remote if transportation difficulties
- Recommend remote to others
Comments: “How likely would you be to...”

• “We are very close by our clinic, but if we were not, we'd definitely consider teleaudiology.”

• “I would do it so we didn't have to drive so far as well as for other clients that drive even farther.”
Results: Audiologists’ experience

Satisfied with the session

Able to communicate easily
Comments from Audiologists

• “Forgot to import CDX file to tablet so I had to get it from the processor and all information wasn't available for map parameters.”

• “Patient's processor did not connect well at first; was found to have a loose connection with the programming cable.”

• “The programming screen on the tablet looked doubled on top of itself and I couldn’t click where I thought I was clicking. GoTo Meeting alerted me to an internet issue on my end. I just restarted the meeting and it was fine.”

• “Pt. had tried to open Cochlear Software and she had to close before I could take control.”

• “Screen froze in Cochlear software and had to reboot.”

• “Slight signal delay that did not impact the session. Mumbly soft spoken teen was a bit of an issue.”
Results: CNC Word Scores

Subject	Clinic Map	Facilitated Map	Self Map

Mean
Hey Gen! Aren’t you so excited to get started with this?

Gen Zee (to All):

nope.
What We’ve Noted

• Ease of use
  • Learning curve, but not difficult to implement.
• Training is a breeze
• Reaching lower SES and rural families not as easy as we thought.
  • Recommend use of hot spots
What We’ve Learned

• Keep younger teens focused.
  • Put down the cell phone!

• Use all the tools available (sign, speech, web chat)

• Sending tablet to teachers or therapists

• Have alternate contact methods (texting works well).
Applications

• Teens and young adults away at college.
• Quick visits where a need for testing in the soundbooth is not anticipated.
• A different method of programming.
• Children with special needs.
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CI2020 Host Center
Thank You