Verification of Remote Microphones paired to Implants by Audiologists Who are Hard-of-Hearing
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INTRODUCTION
An auditory listening check of a remote microphone (RM) system paired to a cochlear implant (CI) is especially important, as electroacoustic analysis cannot be performed. Because listening check protocols and features vary based on the manufacturer, audiologists must combine information across multiple sources. Furthermore, there have been limited suggestions regarding the verification process for audiologists with atypical hearing. Currently, tutorials on the American Academy of Audiology webpage review accessible ways that audiologists with hearing loss can carry out hearing aid (HA) listening checks (Students with Hearing Loss, 2020). However, there are few resources that exist regarding listening checks on RMs that are paired with CIs.

PURPOSE
1. To provide a guide that illustrates methods for Hard-of-Hearing (HoH) audiologists who are CI or HA users to successfully carry out a listening check on a RM when connected to a cochlear implant
2. For audiologists to relay this information to parents or legal guardians who are cochlear implant and or hearing aid users to use for troubleshooting their child’s wireless microphone technology.

EQUIPMENT
Research was completed using:
- Manufacturer Manuals
- Phonak Roger Configurator

Equipment used by those with atypical hearing:
- Roger Select
- Micro USB cord with 3.5 mm jack
- Phonak Audeo Paradise Hearing Aids OR MED-EL Sonnet 2 Sound Processor
- Roger (03) integrated receiver or Roger 21 receiver

Equipment used for RM Checks for three CI Manufacturers:
Cochlear
- Roger Touchscreen Mic
- Roger 20 receiver
- Cochlear Nucleus 7 (NT) CP1000 Sound Processor
- Cochlear Monitor Earphone Adaptor

Advanced Bionics (AB)
- Roger Touchscreen Mic
- Roger 17 Receiver
- AB Naida Q90 Sound Processor
- AB Listening Check Module

MED-EL
- Roger Touchscreen Mic
- Roger 21 receiver
- MED-EL Sonnet 2 EAS Sound Processor
- Microphone Test Device (MTD)
- Sonnet MTD Adaptor

RESULTS

COCHLEAR:
STEP 1:
- Roger Touchscreen Mic paired with Cochlear N7 CP 1000 processor via Roger 20 receiver

COCHLEAR:
STEP 2:
- Cochlear N7 CP 1000 with Cochlear Monitor Earphone Adaptor installed

ADVANCED BIONICS:
STEP 1:
- Roger Touchscreen Mic paired with the Advanced Bionics Naida Q90 processor via Roger 17 Receiver

ADVANCED BIONICS:
STEP 2:
- AB Naida CI with AB Listening Check Module and Roger 17 Receiver Installed

MED-EL:
STEP 1:
- Roger Touchscreen Mic paired with the MED-EL Sonnet 2 processor via the Roger 21 Receiver

MED-EL:
STEP 2:
- MED-EL Sonnet 2 CI Connected to the Microphone Test Device with the Sonnet MTD Adapter

Figure 1. Listening Check Protocol for Remote Microphones Paired to Cochlear Implant by Hard-of-Hearing Listeners

SUMMARY
Figure 1 provides a guide for individuals who are Deaf or Hard-of-Hearing to perform listening checks on Remote Microphones paired to cochlear implants. Each CI is paired to a Roger Touchscreen Mic by the appropriate receiver. Each CI is connected to the manufacturer specific listening adaptor that can be connected to headphones so that persons with typical hearing can do the listening checks. Because Roger Select has an input jack, it can be connected to a 3.5 mm cord with a micro-USB connected to the Roger Select (as shown in Figure 1, Step 2). The personal HA or CI used by the listener will need to be set to the Roger Select program. The listener will then brush on the mic of the Roger Touchscreen Mic or talk into it to verify connectivity and sound quality.

REFERENCES