MAPPING DIFFERENT WAYS TO USE ROGER ASSISTIVE LISTENING DEVICES WITH COCHLEAR IMPLANTS

HANNAH CALHOUN, B.S., AMANDA FROST, B.S., and LINDA THIBODEAU, PHD

The University of Texas at Dallas

RATIONALE

Children with cochlear implants (CIs) often have difficulty listening in school. Assistive listening devices (ALDs) help improve the signal-to-noise ratio. Zanin and Rance (2016) found children perform significantly better in speech recognition with the remote microphone than with just the hearing aid/CI alone.

Phonak Roger equipment is popular in school settings. Connecting students' hearing aids can be straightforward because most manufacturers provide an audio shoe connection. However, connecting CIs to Roger tends to be more involved as there is no standard configuration among the CI manufacturers, as shown in Figure 1. They all allow for use of processor-specific, integrated receivers (Roger 17, 20, and 21), as well as use of universal receivers (Roger X), but the physical connections vary widely.

Wireless technology arrangements for the three CI manufacturers were explored in depth with respect to several features that should be considered when selecting an arrangement. This guide is available to help connect Roger receivers and ensure equal access to sound for students with cochlear implants.

PURPOSE

The purpose of this study is to:

1) Provide a guide of connections, cost analysis, and accessory battery information between Roger receiver technology and CIs.
2) Illustrate that every child with a CI should be able to use some type of ALD equipment in the schools.

METHODS

Research was performed using device manuals for three implant manufacturers (MED-EL, Cochlear, and Advanced Bionics) and the Roger Configurator website.

- Roger transmitters, such as the Pen, Touchscreen, and Inspiro are not included in this guide as they can all pair with the listed receivers.

Charts were created to summarize these features and facilitate comparisons across manufacturers (see Figures 2-5).

- Cost considerations of accessories for each monaural arrangement are represented as a relative cost scale designated as dollar signs per $500.
- Battery considerations for the receiver connections include rechargeable and alkaline options.

RESULTS

Figure 1. (from left to right). a) MED-EL OPUS2 with Roger X Receiver inserted in Mini Battery Pack. b) Cochlear's Mini Mic 2+Roger X receiver inserted in euro port. c) Advanced Bionics Naida CI Q with ear-level Roger 17 receiver inserted into sound processor accessory port.

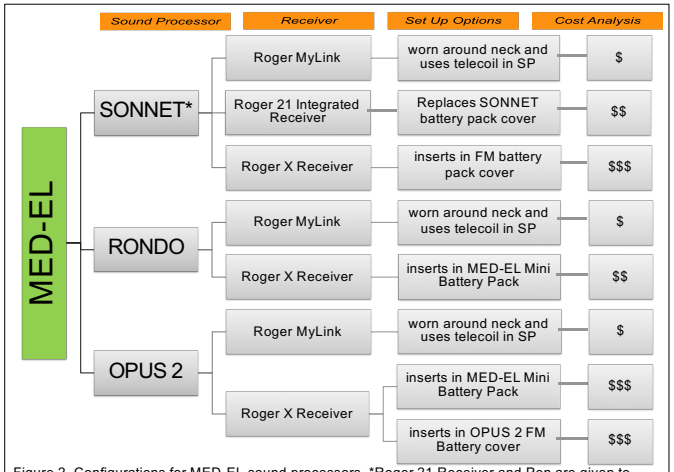

Figure 2. Configurations for MED-EL sound processors. *Roger 21 Receiver and Pen are given to each new SONNET recipient. Note: SP=sound processor; MM2+=Cochlear Mini Mic 2+

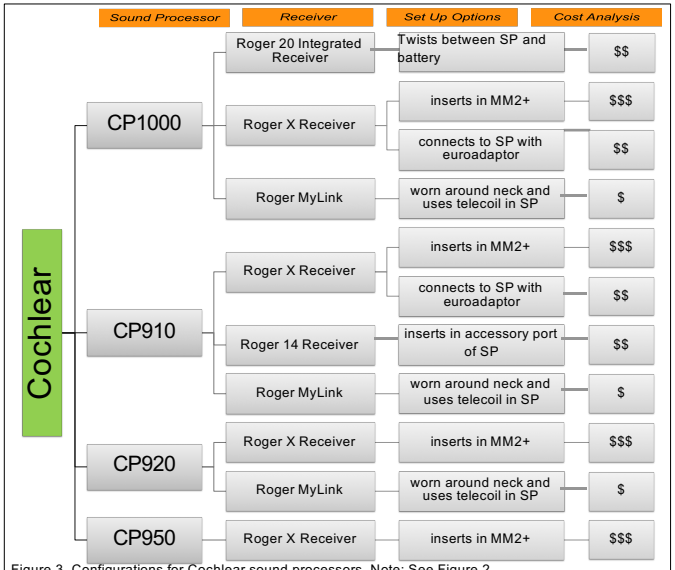

Figure 3. Configurations for Cochlear sound processors. Note: See Figure 2.

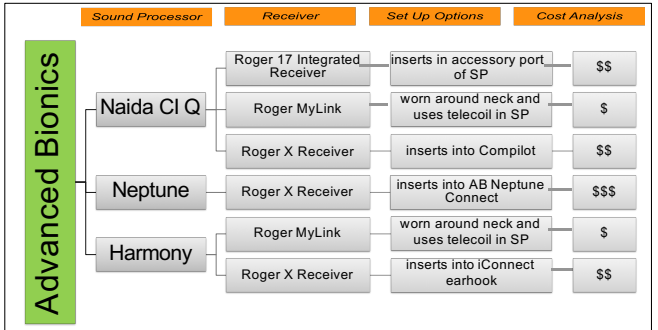

Figure 4 . Configurations for Advanced Bionics sound processors. Note: See Figure 2.

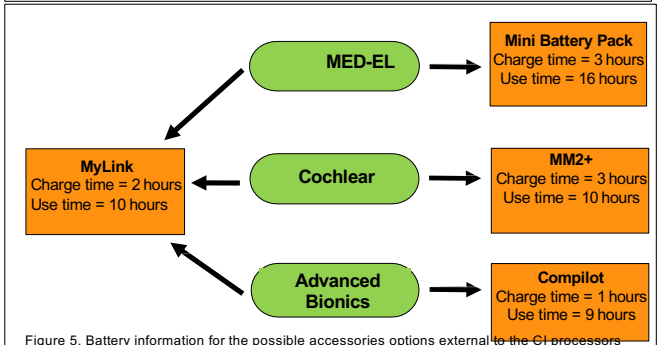

Figure 5. Battery information for the possible accessories options external to the CI processors required for wireless connections for each manufacturer.

SUMMARY

- Audiologists and deaf education programs should be knowledgeable of device use and battery life to increase user adoption rates with the Roger systems.
- The research displays least expensive use of a Roger MyLink to most expensive use of Roger X receiver with an external accessory.
- This information can be valuable for CI and educational audiologists when choosing ALD configurations for their patients.

REFERENCES

1. Advanced Bionics. Available at advancedbionics.com. Accessed October 112017.
2. Cochlear. Available at cochlear.com. Accessed October 112017.
3. MED-EL. Available at medel.com. Accessed October 112017.
4.Roger Configurator. Phonak. Available at http://www.phonakpro.com/com/b2b/en/support/roger-support-center/roger-configurator.html. Accessed October 11 2017.
5. Zanin, Julien and Rance, Gary (2016). Functional hearing in the classroom: Assistive listening devices for students with hearing impairment in a mainstream school setting, *International Journal of* Audiology. 55 (12), 723-720.