

# Optimizing CI programming using clinical methods for electrode deactivation

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CI2017 Pediatric:  
15<sup>th</sup> Symposium on  
Cochlear Implants in  
Children

Poster #175

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## Disclosures:

Dr. Finley is an employee of Advanced Bionics, LLC.

Dr. Warren has received funding from Advanced Bionics for an unrelated projects.

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# What can audiologists do to improve cochlear implant outcomes?

- There remains much variability in CI outcomes (Holden et al., 2013; Cosetti & Waltzman, 2012; Blamey et al., 2013).
- The electrode-neural interface is thought to contribute to that variability (Bierer & Faulkner, 2010; Pfingst et al., 2015; Goldwyn, Bierer, & Bierer, 2010).
- Most clinicians (95%) agree that deactivating an electrode may result in an increase in performance; however, electrode deactivations based on tonotopical testing rarely occur (Vaerenberg et al., 2014).

# What we did:

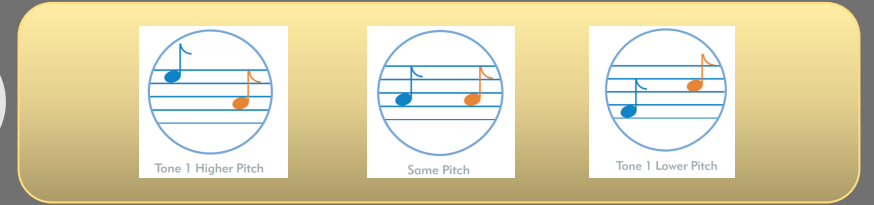
- After loudness balancing across the electrodes and brief training, the participants performed the electrode identification task.
- We deactivated electrodes based on participants' responses, specifically when there was a report of adjacent electrodes being perceived as indistinguishable or reversed.
- They then performed a blinded comparison of the programs and speech perception in both conditions.
- The participants went home for a ~6 week acclimation period and returned for repeated evaluation.

## The Electrode Identification Task

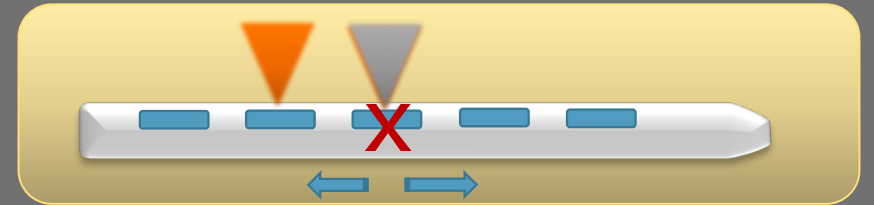
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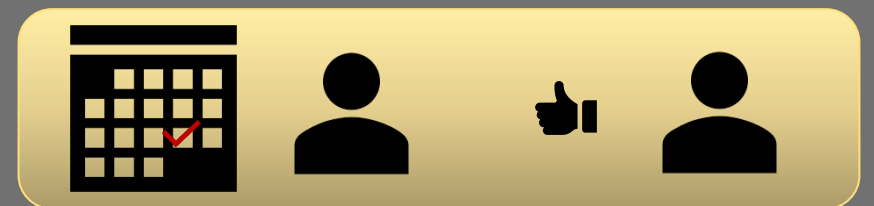
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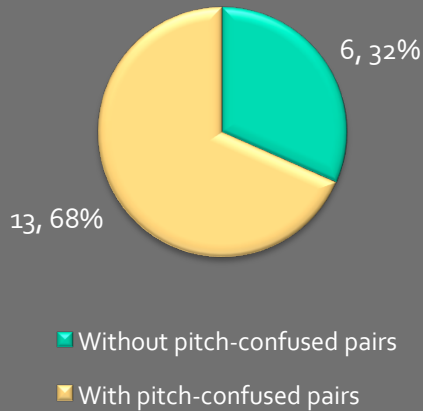


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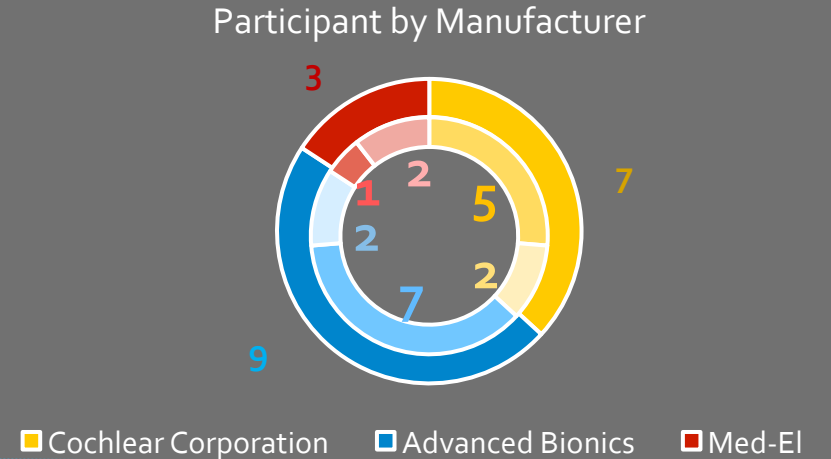


# What we found:

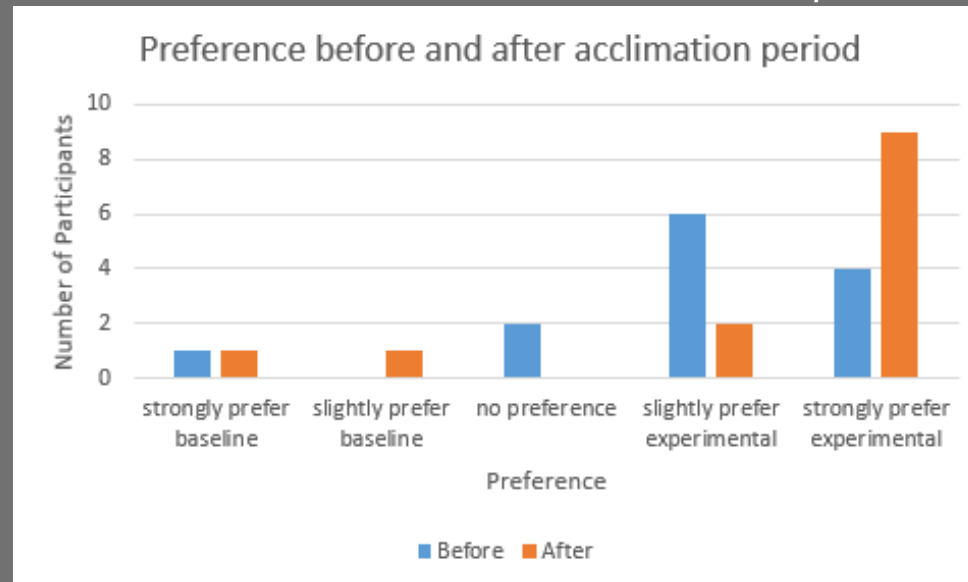
A majority of underperformers (n=19) had at least one pitch-confused electrode pair.



Pitch-confused pairs were present in all three manufacturers.



Participants strongly prefer the new program, with an increase in satisfaction after an acclimation period.



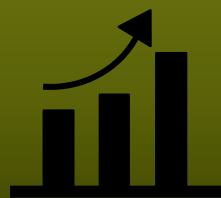
## Highlights:



Uses commercially available software



10-15 min  
to complete task



Resulted in a measurable improvement in patient outcomes