Strategic inclusion of psychological variables in a pediatric cochlear implant database

Sarah Schoffstall, PhD, Ava Atri, BA, Amanda Griffin, AuD, PhD, Amy Szarkowski, PhD, Peter Isquith, PhD, Terrell Clark, PhD

Department of Otolaryngology and Communication Enhancement

Boston Children's Hospital

HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

Background

- The Cochlear Implant (CI) Team at Boston Children's Hospital (BCH) takes a multi-disciplinary approach to its care for children undergoing CI surgeries
- CI Team Psychologists assess candidacy and readiness for surgery by collecting important clinical information
- To capture this clinical data, the Department of Otolaryngology and Communication Enhancement invested in creating a pediatric CI database through Research Electronic Data Capture (REDCap)
- CI Team Psychologists collaboratively determined which patient characteristics, family factors, and interdisciplinary psychological assessment data were most critical for inclusion in REDCap

Patient Characteristics

Current Functioning
- Cognitive
- Neuropsychological
- Adaptive
- Executive Functioning/Behavior
- Academic Achievement

Language/ Communication
- Previous Exposure(s)
- Expressive Modality/ies Used
- Receptive Modality/ies Used
- Current Expressive Functioning
- Current Receptive Functioning

Social-Emotional Functioning
- Formal Diagnoses
- Suspected Conditions
- Specialist Providers Invested in Care
- Adverse Childhood Experiences (ACES)
- Treatment History
- Other Concerns

Family Factors
- Mental Health History
- Learning Disability History
- Post-Partum Adjustment
- Maternal Sensitivity

Methods

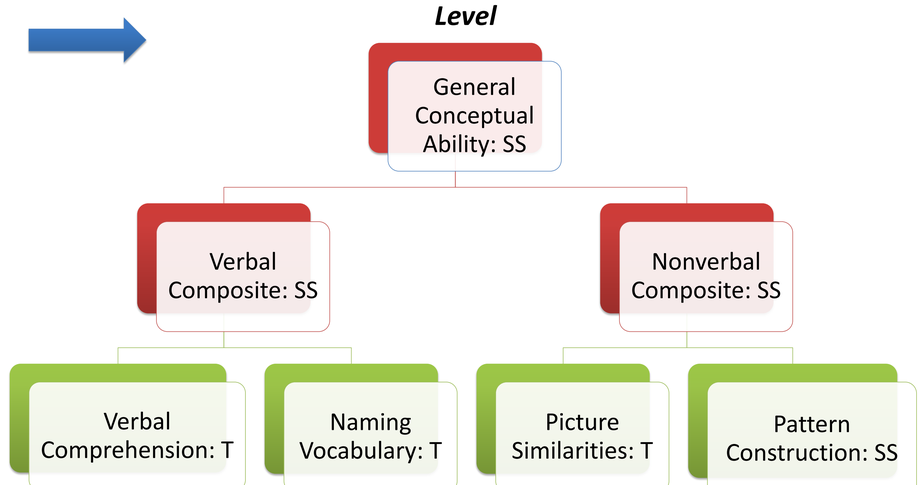
Step 1: Tests organized by designated age range

Cognitive Measures

0-12 Months	13-37 Months	38- 60 Months	60+ Months
• Bayley-III	• Bayley-III • DAS-2, Early Years, Lower Level • PTONI • RIAS-2 • WPPSI- IV, 2:6-3:11	• Bayley-III • DAS-2, Early Years, Lower Level • DAS-2, Early Years, Upper Level • PTONI • RIAS-2 • WNV, 4:0-7:11 • WPPSI-IV, 2:6-3:11 • WPPSI-IV, 4:0-7:11	• C-TONI-2 • DAS-2, Early Years, Upper Level • DAS-2, School Age • RIAS-2 • WAIS-IV • WISC-V • WNV, 4:0-7:11 • WNV, 8:0-21:11 • WPPSI-IV, 4:0-7:7

Step 2: Documentation of test structure: composites, subtests, and associated scores.

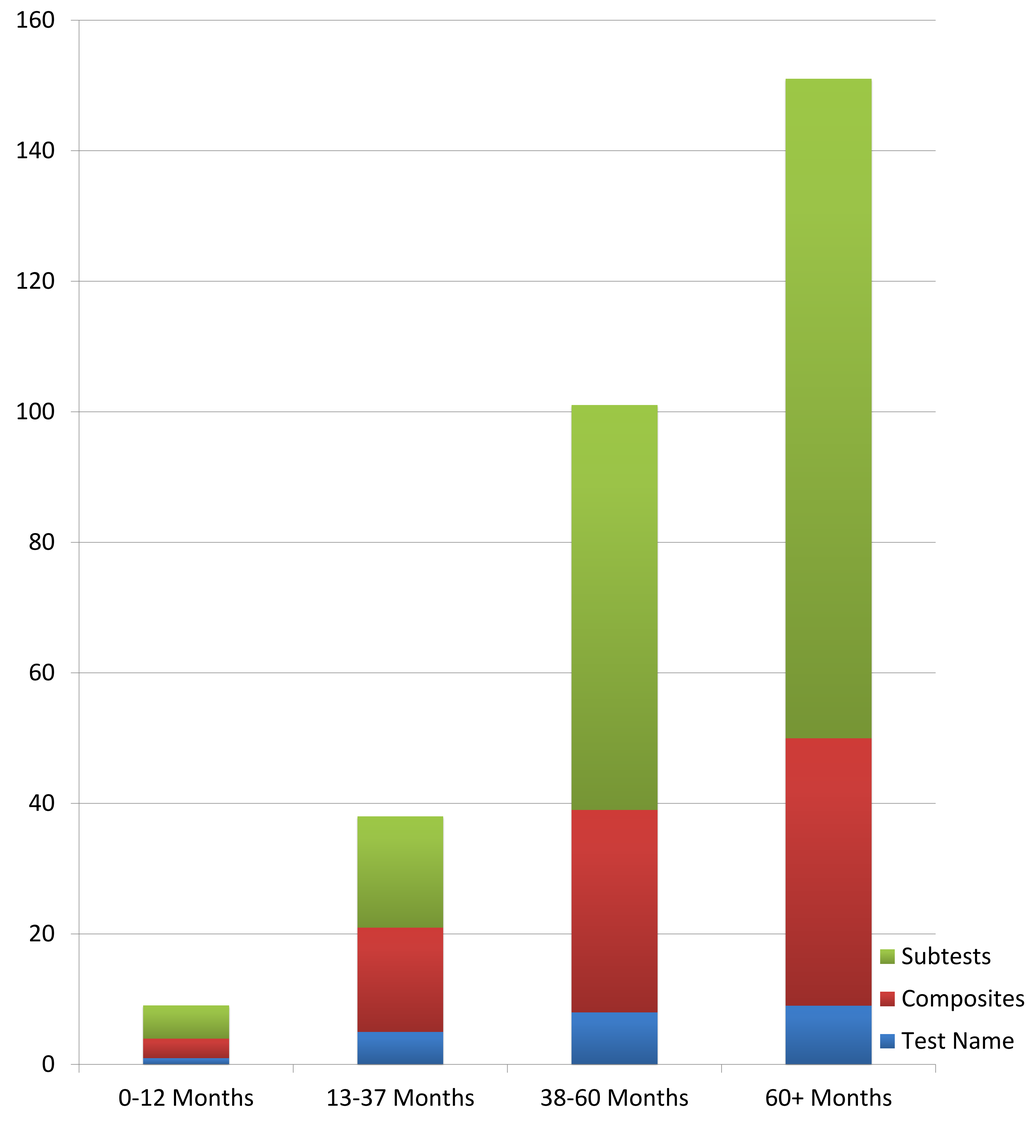
Example using the Differential Ability Scales, Second Edition, Early Years, Lower Level



Step 3: Establishment of Data Dictionary

Variable Name	Text in REDCap	Integer
das2_13_37	Differential Ability Scales, Second Edition, Early Years, Lower Level	
das2_13_37_verbcom	Verbal Composite *Standard score*	Min: 40, Max: 160
das2_13_37_vc	Verbal Comprehension *T score*	Min: 10, Max: 90
das2_13_37_nv	Naming Vocabulary *T score*	Min: 10, Max: 90
das2_13_37_nonverbcom	Nonverbal Composite *Standard score*	Min: 40, Max: 160
das2_13_37_ps	Picture Similarities *T score*	Min: 10, Max: 90
das2_13_37_pc	Pattern Construction *T score*	Min: 10, Max: 90
das2_13_37_gca	GCA *Standard score*	Min: 40, Max: 160

Step 4: Programming items into REDCAP



Future Directions

- Pre- and post-surgical functioning in cognitive, neuropsychological, adaptive, executive functioning, behavioral and academic domains can now be tracked. Overall patient profiles, including strengths and vulnerabilities can be determined.
- Retrospective and prospective studies examining the relationships between aspects of patient functioning, language modality, communication abilities, family factors, and other multi-disciplinary outcomes, including post-implantation Quality of Life, will be possible.