# Strategic inclusion of psychological variables in a pediatric cochlear implant database



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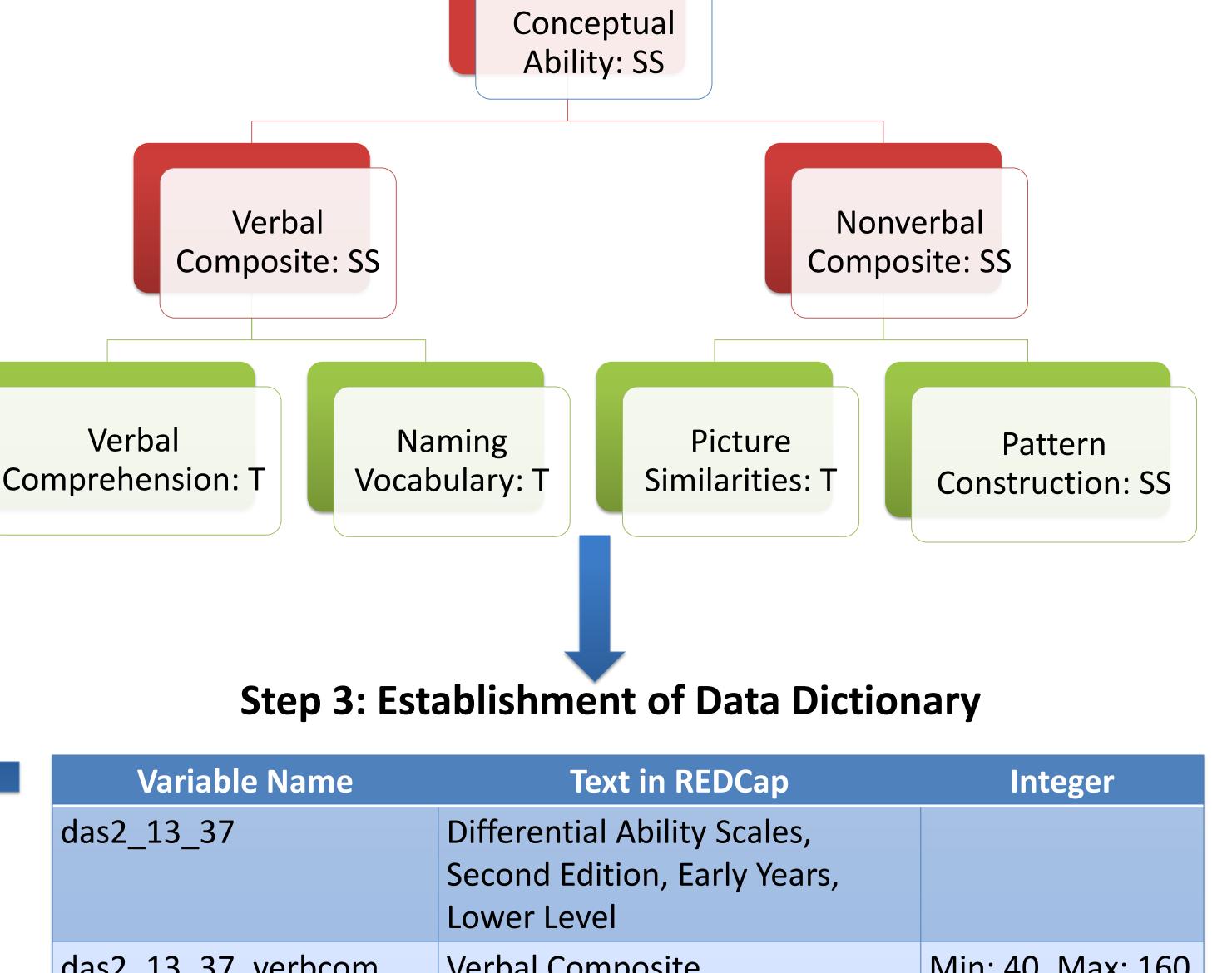
### Background

- The Cochlear Implant (CI) Team at Boston Children's Hospital (BCH) takes a multi-disciplinary approach to its care fo children undergoing CI surgeries
- CI Team Psychologists assess candidacy

0-12 Months       13-37 Months       38-60 Months       60+ Months         - Bayley-III       - DA5-2, Early Years, Upper Level       - OA5-2, Early Years, Upper Level       - OA5-2, Early Years, Upper Level       - DA5-2, School RAS-2       - Months       - OA5-2, School WAIS-IV         - WPPSI-IV, 2.56- 3-111       - WNV, 4:0-7:11				Me	ethods		
0-12 Months       13.37 Months       38-60 Months       60+ Months         • Bayley-III       • Bayley-III       • Bayley-III       • DAS-2, Early Years, Lower Level       • C-TONI-2 DAS-2, Early Years, Upper Level       • DAS-2, Early Years, Upper Level       • ODS-2, Early Years, Upper Level       • WNV, 40-7:11       • WNV, 40-7:11       • WNV, 40-7:11       • WPPS-1V, 2:0- 3:11       • WNV, 40-7:11       • WPPS-1V, 2:0- 3:11       • WPPS-1V, 2:0- 3:12       • WPS-1V, 2:0- 3:12       • WPS-1V, 2:0- 3:12       • WPS-1V, 2:0- 3:13       • WPS-1V, 2:0- 3:13       • WPS-1V, 2:0- 3:13       • WPS	Ster	ס 1: Tests organized	d by designated a	age range	-	est structure: composites	s, subtests, an
Vorths       J3-37       J3-800       OU         Wonths       Months       Months       Months         • Bayley-III       • Bayley-III       • Bayley-III       • Bayley-III       • OA5-2, Early         • Verst, Level       • DA5-2, Early       • OA5-2, Early       • OA5-2, Early       • OA5-2, Early         • PTONI       • DA5-2, Early       • OA5-2, Early       • OA5-2, Early       • OA5-2, Early         • WPSI-IV, 2-6       Level       • DA5-2, Early       • WAIS-1V         • WINS, 40-7:11       • WNV, 40-7:11       • WNV, 40-7:11       • WNV, 40-7:11         • WPSI-IV, 2-6       • WNV, 40-7:11       • WNV, 40-7:11       • WNV, 40-7:11         • WPSI-IV, 2-6       • WNV, 40-7:11       • WNV, 40-7:11       • WNV, 40-7:11         • WPSI-IV, 2-6       • WNV, 40-7:11       • WNV, 40-7:11       • WNV, 40-7:11         • WPSI-IV, 4:0-       • Til       • WPSI-IV, 2-6       • WNV, 40-7:11         • WPSI-IV, 4:0-       • Til       • WPSI-IV, 2-6       • WNV, 40-7:11         • WPSI-IV, 4:0-       • WPSI-IV, 2-6       • WNV, 40-7:11       • WPSI-IV, 2-6         • Mine 10, Max       • WPSI-IV, 2-6       • WNV, 40-7:11       • WPSI-IV, 2-6       • WINE         • Montice       • WPSI-IV, 2-6       • WNV, 40-7:11	Cognitive Measures				Example using the Differential Ability Scales, Second Edition, Early Years,		
• Bayley-III       • Bayley-III       • CTONL2         • DAS-2, Early       • DAS-2, Early       • DAS-2, Early         • PTONI       • DAS-2, Early       • DAS-2, Early         • WPPSI-IV, 2:6-       • WAS-2         • WIN, 4:0-7:11       • WAS-2         • WIN, 4:0-7:11       • WNV, 4:0-7:11         • WPPSI-IV, 2:6-       • WISC-V         • WIN, 4:0-7:11       • WNV, 4:0-7:11         • WPPSI-IV, 2:6-       • WISC-V         • WIN, 4:0-7:11       • WNV, 8:0-         • WPPSI-IV, 2:6-       • WIN, 4:0-7:11         • WPPSI-IV, 2:6-       • WIN, 4:0-7:11         • WPPSI-IV, 2:6-       • WIN, 8:0-         • WAS-2       • WIN, 8:0-         • WIN, 4:0-7:11       • WNV, 8:0-         • WIN, 4:0							
Level       Level       Level       Level       Nonverbal         • PTONI       • DAS-2, School       • RAS-2       • RAS-2       • RAS-2         • WPPSJ- IV, 2:6-       • RIAS-2       • WISC-V       • WISC-V         • WNV, 4:0-7:11       • WNV, 4:0-7:11       • WPPSI-IV, 2:6-       • WISC-V         • WNV, 4:0-7:11       • WPPSI-IV, 2:6-       • WISC-V       • WISC-V         • WPPSI-IV, 2:6-       • WISC, 4:0-       • WISC-V       • WISC-V         • WPPSI-IV, 2:6-       • WISV, 4:0-       • WPSI-IV, 4:0-       • WPSI-IV, 4:0-         • T11       • WPPSI-IV, 4:0-       • WPSI-IV, 4:0-       • WPSI-IV, 4:0-         • WPSI-IV, 2:6-       • WPSI-IV, 4:0-       • WPSI-IV, 4:0-       • WPSI-IV, 4:0-         • WPSI-IV, 4:0-       • WPSI-IV, 4:0-       • WPSI-IV, 4:0-       • WPSI-IV, 4:0-         • WPSI-IV, 4:0-       • WPSI-IV, 4:0-       • WPSI-IV, 4:0-       • WPSI-IV, 4:0-         • WPSI-IV, 4:0-       • WPSI-IV, 4:0-       • WPSI-IV, 4:0-       • WPSI-IV, 4:0-         • WPSI-IV, 4:0-       • WPSI-IV, 4:0-       • WPSI-IV, 4:0-       • WPSI-IV, 4:0-         • Idea       • WPSI-IV, 4:0-       • WPSI-IV, 4:0-       • WPSI-IV, 4:0-       • WPSI-IV, 4:0-         • Idea       • WPSI-IV, 4:0-       • WPSI-IV, 4:0- <th>• Bayley-III</th> <th>• DAS-2, Early</th> <th>• DAS-2, Early</th> <th>• DAS-2, Early</th> <th></th> <th>Conceptual</th> <th></th>	• Bayley-III	• DAS-2, Early	• DAS-2, Early	• DAS-2, Early		Conceptual	
<ul> <li>WPPSI-IV, 2:6- 3:11</li> <li>PTONI</li> <li>RIAS-2</li> <li>WSC-V</li> <li>WNV, 4:0-7:11</li> <li>WPPSI-IV, 2:6- 1:11</li> <li>WPPSI-IV, 4:0- 7:1</li> <li>WPSI-IV, 4:0- 7</li></ul>		Level • PTONI	Level • DAS-2, Early Years, Upper	<ul><li>Level</li><li>DAS-2, School</li></ul>			
WNV, 4:0-7:11       WNV, 4:0-7:11       WNV, 4:0-7:11       WNV, 4:0-7:11       WNV, 4:0-7:11       Naming Vocabulary: T       Picture Similarities: T       Pattern Construction         .11       WPPSI-IV, 4:0-7:11       WPSI-IV, 4:0-7:11       WPPSI-IV, 4:0-7:11       WPPSI-IV, 4:0-7:71       Step 3: Establishment of Data Dictionary         .11       WPPSI-IV, 4:0-7:11       WPPSI-IV, 4:0-7:71       Wordable Name       Text in REDCap         Step 4: Programming items into REDCAP       Variable Name       Text in REDCap       Integer         .40       .40       .41       .42       .43       .41       .41       .41       .41       .41       .42       .43       .41       .43       .41       .41       .43       .41       .43       .43       .43       .43       .41       .43		·	• PTONI	• WAIS-IV			
7:11       7:7         Step 3: Establishment of Data Dictionary         Step 4: Programming items into REDCAP         160       160         140       140         120       140         120       120         120       120         120       120         120       120         120       120         120       120         120       120         120       120         120       120			<ul> <li>WNV, 4:0-7:11</li> <li>WPPSI-IV, 2:6- 3:11</li> </ul>	<ul> <li>WNV, 4:0-7:11</li> <li>WNV, 8:0- 21:11</li> </ul>	Comprehension: T Voca		Pattern Construction:
Step 4: Programming items into REDCAP       das2_13_37       Differential Ability Scales, Second Edition, Early Years, Lower Level         160       das2_13_37_verbcom       Verbal Composite Standard score       Min: 40, Max Standard score         140       das2_13_37_rvc       Verbal Comprehension T score       Min: 10, Max T score         120       das2_13_37_nv       Naming Vocabulary T score       Min: 40, Max T score         120       das2_13_37_nv       Nonverbal Composite Standard score       Min: 40, Max T score         120       das2_13_37_nv       Nonverbal Composite Standard score       Min: 40, Max T score         120       das2_13_37_nv       Nonverbal Composite Standard score       Min: 40, Max T score         120       das2_13_37_nv       Nonverbal Composite Standard score       Min: 40, Max T score         120       das2_13_37_ps       Picture Similarities T score       Min: 10, Max T score         120       das2_13_37_pc       Pattern Construction       Min: 10, Max T score							
Step 4: Programming items into REDCAP       Second Edition, Early Years, Lower Level         160       das2_13_37_verbcom       Verbal Composite Standard score       Min: 40, Max Standard score         140       das2_13_37_vc       Verbal Comprehension T score       Min: 10, Max T score         140       das2_13_37_nv       Naming Vocabulary T score       Min: 10, Max T score         120       das2_13_37_nv       Naming Vocabulary T score       Min: 10, Max T score         120       das2_13_37_ps       Picture Similarities T score       Min: 10, Max T score         120       das2_13_37_ps       Picture Similarities T score       Min: 10, Max T score         120       das2_13_37_ps       Picture Similarities T score       Min: 10, Max T score         120       das2_13_37_ps       Picture Similarities T score       Min: 10, Max T score						tablishment of Data Diction	onary
140       das2_13_37_verbcom       Verbal Composite Standard score       Min: 40, Max         140       das2_13_37_vc       Verbal Comprehension T score       Min: 10, Max         120       das2_13_37_nv       Naming Vocabulary T score       Min: 40, Max         120       das2_13_37_nonverbco m       Nonverbal Composite Standard score       Min: 40, Max         120       das2_13_37_nonverbco m       Nonverbal Composite Standard score       Min: 40, Max         120       das2_13_37_nonverbco m       Poiture Similarities T score       Min: 40, Max         120       das2_13_37_pc       Pitture Similarities T score       Min: 10, Max					Step 3: Est		onary Integer
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120       das2_13_37_nv       Naming Vocabulary T score       Min: 10, Max Min: 40, Max M		ep 4: Programming	7:11	7:7	Step 3: Est         Variable Name         das2_13_37	Text in REDCapDifferential Ability Scales, Second Edition, Early Years, Lower LevelVerbal Composite	•
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and readiness for surgery by collecting important clinical information

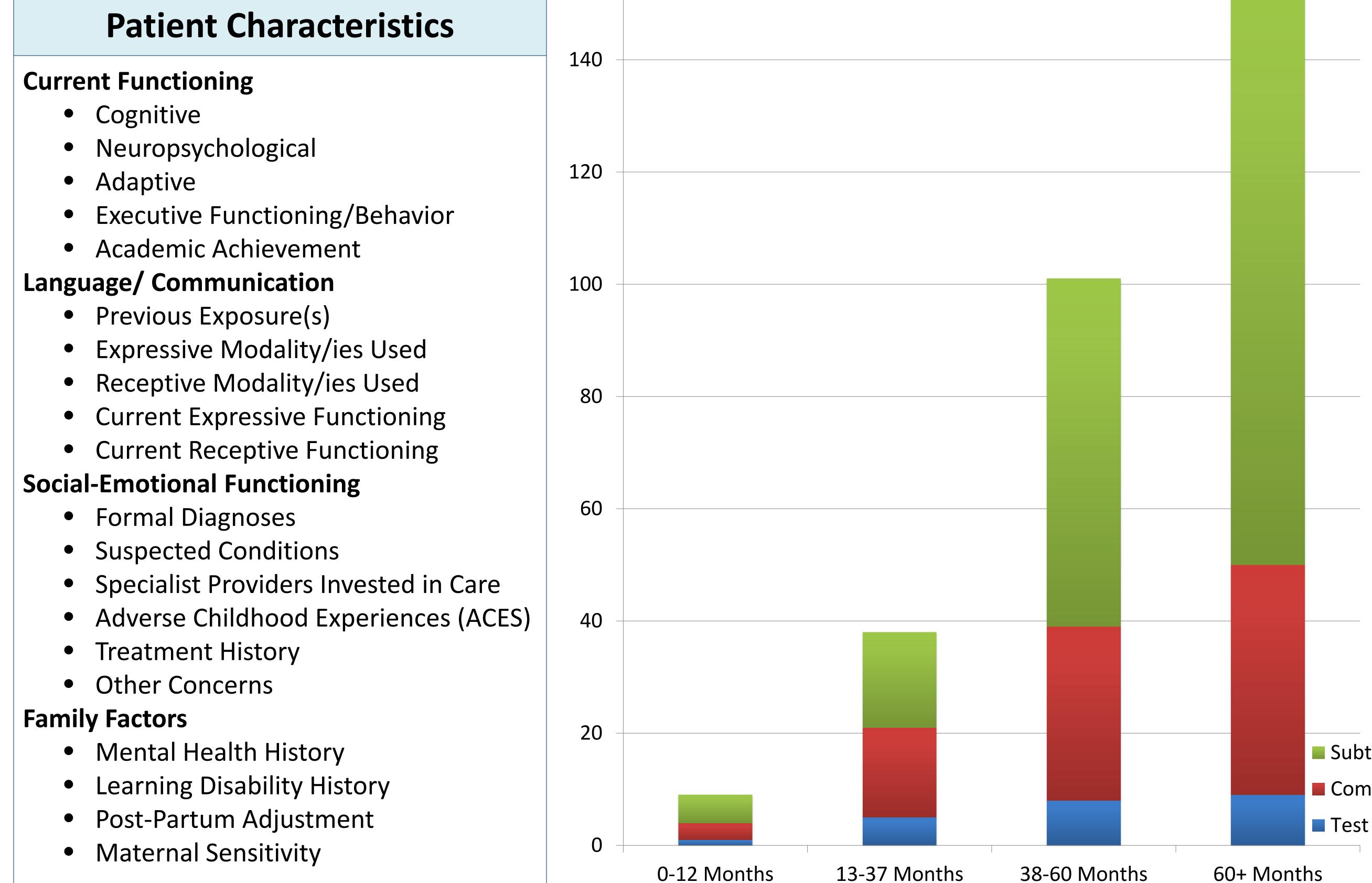
- To capture this clinical data, the Department of Otolaryngology and **Communication Enhancement invested** in creating a pediatric CI database through Research Electronic Data Capture (REDCap)
- CI Team Psychologists collaboratively determined which patient characteristics, family factors, and interdisciplinary psychological assessment data were most critical for inclusion in REDCap



- Neuropsychological

- Current Receptive Functioning

### **Social-Emotional Functioning**



## **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 Subtests relationships between aspects of patient functioning, Composites language modality, communication abilities, family factors, and other multi-disciplinary outcomes, including post-Test Name implantation Quality of Life, will be possible.