

#### Assessment of Young Profoundly Deaf Children with Cochlear Implants

Dian Baker, M.A., CCC-SLP, LSLS CERT. AVT Texas Speech-Language-Hearing Association Convention March 4, 2011 @ 8:00

#### Assessment at Different Developmental Ability Levels

Adapted from Beth Wilkes, CASLLS

\* Pre-Verbal Level

- \* 0-12 months; no or few words
- \* Pre-Sentence Level
  - \* 12-24 months; 2-3 word combinations

\* Simple Sentence Level

- \* 24-48 months; complete simple sentences with basic grammatical morphemes; development of conversations
- \* Complex Sentence Level
  - \* 4-8+ years; more sophisticated language abilities (broad variety of discourse skills, more difficult question forms, elaborated noun phrases & subordination)

# Case History

- \* <u>Areas of Inquiry</u>:
  - \* Current Concerns
  - \* Prenatal, Birth, Medical, Developmental, Family & Hearing Histories
  - \* Therapeutic Services
  - \* Educational Information
  - \* Personal-Social & Behavioral Information
  - \* Language Use, Exposure & Proficiency

#### Pre-Verbal Level Assessment of Audition

- \* LittlEars Questionnaire
- \* Infant-Toddler Meaningful Integration Scale (IT-MAIS)
- \* Tracking Auditory Progress in CI Kids
- \* Ling Six-Sound Speech Test.
- \* Functional Auditory Performance Indicators
- \* Checklist of Auditory Communication Skills
- \* Early Listening Function (ELF)
- \* Listening Skills Scale for Kids with Cochlear Implants (LSSKCI)

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# Pre-Verbal Level Assessment of Language

- \* Cottage Acquisition Scales for Listening, Language and Speech (Pre-Verbal Level)
- \* SKI-HI Language Developmental Scale
- \* Rossetti Infant-Toddler Language Scale
- \* Ages & Stages Questionnaires, Third Edition (ASQ-3)

## Pre-Verbal Level Assessment of Speech

- \* Meaningful Use of Speech Scale (MUSS)
- \* Phonetic Inventory/Speech Sample
- \* Stark Assessment of Early Vocal Development (SAEVD)
- \* Developmental Vocal Assessment Form (DVAF)
- \* Cottage Acquisition Scales for Listening, Language and Speech (CASLLS) (Sounds & Speech)



# Pre-Verbal Level Assessment of Play

\* Westby Symbolic Play Scale Checklist.

\* Lowe & Costello Symbolic Play Test.

\* <u>NOTE</u>: These 2 tests are also used at the Pre-Sentence and Simple Sentence assessment levels.

## Pre-Sentence Level Assessment of Audition

\* LittlEars Questionnaire

- \* Infant-Toddler Meaningful Integration Scale (IT-MAIS)
- \* Tracking Auditory Progress in CI Kids
- $* \ \, {\rm Ling\,Six-Sound\,Speech\,Test}$
- \* Functional Auditory Performance Indicators
- $* \ \ \, {\rm Checklist} \ \, {\rm of} \ \, {\rm Auditory} \ \, {\rm Communication} \ \, {\rm Skills}$
- \* Early Listening Function (ELF)
- \* Listening Skills Scale for Kids with Cochlear Implants
- \* Functioning after Pediatric Cochlear Implantation (FAPCI)

### Pre-Sentence Level Assessment of Language

- \* SKI-HI Language Developmental Scale
- \* Rossetti Infant-Toddler Language Scale
- \* Ages & Stages Questionnaires, Third Edition (ASQ-3)
- \* Reynell Developmental Language Scales
- \* Cottage Acquisition Scales for Listening, Language and Speech (Pre-Sentence Level)
- \* MacArthur-Bates Communicative Developmental Inventories: Words and Gestures
- \* Language Sample (MLUm and Brown's Stages)
- \* Language Use Inventory

#### Pre-Sentence Level Assessment of Speech

- \* Meaningful Use of Speech Scale
- \* Phonetic Inventory/Speech Sample
- \* Stark Assessment of Early Vocal Development (SAEVD)
- \* Cottage Acquisition Scales for Listening, Language and Speech (Sounds & Speech)
- \* Conditioned Assessment of Speech Production (CASP)
- \* Identifying Early Phonological Needs of Children with Hearing Loss
- \* Goldman-Fristoe Test of Articulation.

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## Simple Sentence Level Assessment of Audition

- \* Tracking Auditory Progress in CI Kids
- \* Ling Six-Sound Speech Test
- \* Functional Auditory Performance Indicators
- \* Checklist of Auditory Communication Skills
- \* Listening Skills Scale for Kids with Cochlear Implants (LSSKCI)

## Simple Sentence Level Assessment of Audition

- \* Meaningful Integration Scale (MAIS)
- \* Auditory Perception Test for the Hearing Impaired-Revised (APT/HI-R)
- \* Common Objects Token (COT) Test.
- \* Children's Home Inventory for Listening Difficulties (CHILD)
- \* Test of Auditory Comprehension of Language-3 (TACL-3)

# Simple Sentence Assessment of Language

- \* SKI-HI Language Developmental Scale
- \* Rossetti Infant-Toddler Language Scale
- \* Ages & Stages Questionnaires, Third Edition (ASQ-3)
- \* Reynell Developmental Language Scales
- $\ast~$  Language Sample (MLUm and Brown's Stages)
- \* Language Use Inventory

## Simple Sentence Assessment of Language

- \* Cottage Acquisition Scales for Listening, Language and Speech (Simple Sentence Level)
- \* MacArthur-Bates Communicative Developmental Inventories: Words and Sentences
- \* Preschool Language Scale-Fourth Edition (PLS-4)
- \* Clinical Evaluation of Language Fundamentals-Preschool (CELF-P) +5

# Simple Sentence Assessment of Language

- \* Peabody Picture Vocabulary Test-Fourth Edition (PPVT-4)
- \* Expressive Vocabulary Test-Second Edition (EVT-2)
- \* Receptive One-Word Picture Vocabulary Test (ROWPVT)
- \* Expressive One-Word Picture Vocabulary Test (EOWPVT)
- \* Bracken Basic Concept Scale-Revised (BBCS-R)

## Simple Sentence Assessment of Speech

- \* Cottage Acquisition Scales for Listening, Language and Speech (Sounds & Speech)
- \* Identifying Early Phonological Needs of Children with Hearing Loss
- \* Goldman-Fristoe Test of Articulation-2
- \* Photo Articulation Test (PAT)
- \* Hodson Computerized Analysis of Phonological Patterns, 3rd Edition (HCAPP-3)

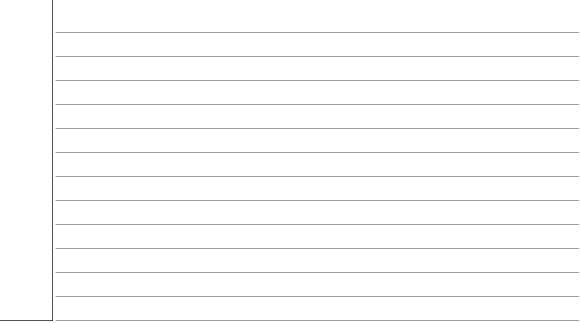
# Complex Sentence Level Assessment of Audition

- \* Functional Auditory Performance Indicators (+)
- \* Checklist of Auditory Communication Skills (+)
- \* Listening Skills Scale for Kids with Cochlear Implants (LSSKCI) (+)
- $\ast~$  Auditory Perception Test for the Hearing Impaired-Revised
- $\,\ast\,\,$  Children's Home Inventory for Listening Difficulties (CHILD)
- \* Test of Auditory Comprehension of Language-3 (TACL-3)
- \* Test of Auditory Processing Skills-3 (TAPS-3)
  - \* (+) = Only highest levels would be appropriate



# Complex Sentence Assessment of Language

- \* SKI-HI Language Developmental Scale
- \* Ages & Stages Questionnaires, Third Edition (ASQ-3)
- \* Reynell Developmental Language Scales
- \* Language Sample (MLUm and Brown's Stages)
- \* Preschool Language Scale-Fourth Edition (PLS-4)
- \* Clinical Evaluation of Language Fundamentals-Preschool (CELF-P)



# Complex Sentence Assessment of Language

- \* Peabody Picture Vocabulary Test-Fourth Edition (PPVT-4)
- \* Expressive Vocabulary Test-Second Edition (EVT-2)
- \* Receptive One-Word Picture Vocabulary Test (ROWPVT)
- \* Expressive One-Word Picture Vocabulary Test (ROWPVT)
- \* Bracken Basic Concept Scale-Revised (BBCS-R)

# Complex Sentence Assessment of Language

- \* Cottage Acquisition Scales for Listening, Language and Speech (Complex Sentence Level)
- \* Oral & Written Language Scales (OWLS)
- \* Comprehensive Assessment of Spoken Language (CASL)
- \* Clinical Evaluation of Language Fundamentals-4 (CELF-4)
- \* Test of Narrative Language (TNL)

# Complex Sentence Assessment of Speech

- \* Cottage Acquisition Scales for Listening, Language and Speech (Sounds & Speech)
- \* Goldman-Fristoe Test of Articulation-2
- \* Photo Articulation Test (PAT)
- Hodson Computerized Analysis of Phonological Patterns, 3rd Edition (HCAPP-3)

# Assessment of Sign Language Users

- \* SKI-HI Language Developmental Scale (Languages: English & Sign; Spanish & Sign)
- \* MacArthur Communicative Development Inventory for American Sign Language
- \* Carolina Picture Vocabulary Test (CPVT)
- \* Rubrics for Assessment of Sign Language

### Assessment of Deaf Children with Severe & Multiple Disabilities

- \* Communication Matrix
- \* Insite Developmental Checklist: 0-6 Years
- \* Callier-Azusa Scale
- \* Every Move Counts
- \* Home Talk

### Dynamic Assessment Framework

- \* Pretest
  - \* Assess child's current performance
- $\ast$  Teach
  - \* Using a mediated learning experience
  - \* Help the child develop strategies
  - \* Observe the child's modifiability
- \* Post Test
  - \* Compare performance to pretest
  - \* Assess transfer of strategies

### Examples of Teaching Strategies

\* Audition

\* use of acoustic highlighting (emphasis on key word)

#### \* Language

\* use of signs as a cue (auditory sandwich)

#### \* Speech

 $\ast$  use of facilitating strategies (whispering word)

\* use of cues (tactile, visual, motor prompt)

#### \* Play

\* demonstration of play behaviors not observed

#### Interpretation of Test Results

- \* Results can be interpreted according to both chronological age & hearing age.
- \* Report child's strengths & weaknesses.
- \* Indicate severity of speech, language & listening skills.
- \* State prognosis for development of normal speech, language & listening skills given appropriate amplification & intervention.
- Generate recommendations for modifications, amount & type of therapy approach, school & home suggestions, etc.



Test Resources	(Audition)
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- \* LittlEars Questionnaire www.medel.com/US/Rehabilitation/Pediatric-Assessment.php
- \* Infant-Toddler Meaningful Integration Scale (IT-MAIS) <u>http://</u> www.advancedbionics.com/UserFiles/File/IT-MAS
- \* Meaningful Integration Scale (MAIS) <u>http://medicine.iu.edu/documents/</u> <u>Otolaryngology/mais.pdf</u>
- \* Functioning after Pediatric Cochlear Implantation (FAPCI); <u>http://</u> www.hopkinsmedicine.org/otolaryngology/specialty\_areas/listencenter/ FAPCI/downloads/FAPCI\_v2%200.pdf
- \* Tracking Auditory Progress in CI Kids <u>http://www.advancedbionics.com/</u> <u>UserFiles/File/2-091435\_RedFlags-FNL.pdf</u>
- \* Checklist of Auditory Communication Skills http://www.medel.com

# Test Resources (Audition)

- \* Early Listening Function (ELF) <u>http://www.doh.state.fl.us</u>
- \* Listening Skills Scale for Kids with Cochlear Implants (LSSKCI) In book Cochlear Implants for Kids, Warren Estabrooks, Appendix D; <u>http://</u> www.amazon.com
- \* Ling Six-Sound Speech Test. <u>http://www.advancedbionics.com/UserFiles/</u> <u>File/Ling\_Six\_Sound\_Check-6.pdf</u>
- \* Functional Auditory Performance Indicators (FAPI) http://www.tsbvi.edu/Outreach/handouts/octo8/FAPI.pdf
- \* Auditory Perception Test for the Hearing Impaired-Revised (APT/HI-R) http://www.pluralpublishing.com
- \* Common Objects Token (COT) Test. <u>www.medel.com/US/</u> <u>Rehabilitation/Pediatric-Assessment.php</u>

	Test Resources (Audition)	
*	Checklist of Auditory Communication Skills <u>www.medel.com/US/</u> <u>Rehabilitation/Pediatric-Assessment.php</u>	
*	Test of Auditory Comprehension of Language-3 (TACL-3) www.linguisystems.com	
*	Test of Auditory Processing Skills-3 (TAPS-3)	

- \* North Carolina Guidelines for Speech-Language Pathology in Schools Listening Forms: www.ncpublicschools.org
  - \* Teacher's Rating Scale: Listening Skills (p.34)
  - \* Evaluation of Classroom Listening Behavior (p.93)
  - \* Class Performance/Listening Behavior

www.linguisystems.com

# Test Resources (Language)

- \* Cottage Acquisition Scales for Listening, Language and Speech (Pre-Verbal, Pre-Sentence, Simple Sentence, Complex Sentence, Level) www.sunshinecottage.org/Products/OnlineStore.aspx
- \* SKI-HI Language Developmental Scale. <u>http://hopepubl.com</u>
- \* Rossetti Infant-Toddler Language Scale www.linguisystems.com
- \* Ages & Stages Questionnaires, Third Edition (ASQ-3) http://www.brookespublishing.com/store
- \* Reynell Developmental Language Scales www.superduperinc.com

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- \* MacArthur-Bates Communicative Developmental Inventories: Words and Gestures & Words and Sentences <u>http://www.brookes</u> publishing.com/store/books/fenson-cdi/index.htm
- \* Language Sample <u>http://www.speech-language-therapy.com/minisample.htm</u>
- \* Language Use Inventory http://www.knowledgeindevelopment.ca
- \* <u>Preschool Language Scale-Fourth Edition (PLS-4)</u> <u>http://psychcorp.pearsonassessments.com</u>
- \* Clinical Evaluation of Language Fundamentals-Preschool (CELF-P) <u>http://psychcorp.pearsonassessments.com</u>

## Test Resources (Language)

- \* Peabody Picture Vocabulary Test-Fourth Edition (PPVT-4) http://psychcorp.pearsonassessments.com
- \* Expressive Vocabulary Test-Second Edition (EVT-2) http://psychcorp.pearsonassessments.com
- \* Receptive One-Word Picture Vocabulary Test-2 (ROWPVT-2) http://www.linguisystems.com
- \* Expressive One-Word Picture Vocabulary Test (EOWPVT) http://www.linguisystems.com
- \* Bracken Basic Concept Scale-Revised (BBCS-R) http://pearsonassess.com



Test Resources (Language)	
<ul> <li>* Oral &amp; Written Language Scales (OWLS) <u>http://proedinc.com</u></li> <li>* Comprehensive Assessment of Spoken Language (CASL) <u>http://</u></li> </ul>	
<ul> <li>Compresense of Issessment of Spoken Language (CHSL) <u>Ittp://</u> proedinc.com</li> <li>Clinical Evaluation of Language Fundamentals-4 (CELF-4) <u>http://</u></li> </ul>	
<pre>pearsonassess.com * Test of Narrative Language (TNL) <u>http://www.linguisystems.com</u></pre>	
<ul> <li><i>* Carolina Picture Vocabulary Test (CPVT)</i> <u>http://www.proedinc.com</u></li> <li><i>* MacArthur Communicative Development Inventory for American Sign.</i></li> </ul>	
Language http://www.signlang-assessment.info/eng/ASL-CDI- eng/asl-cdi-eng.html	

## Test Resources (Language)

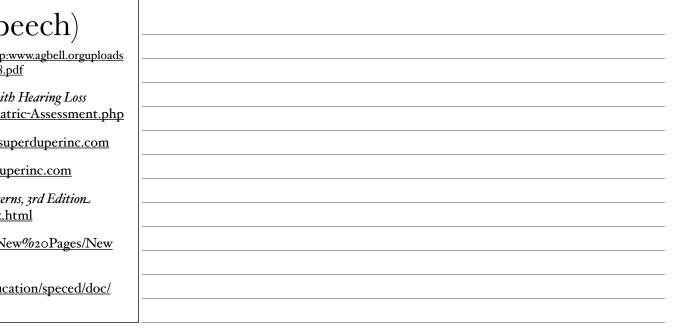
- \* Rubrics for Assessment of Sign Language <u>http://www.nj.gov/</u> education/framework/worldlanguages/appendb.pdf (pages 242-243)
- \* Communication Matrix http://www.communicationmatrix.org
- \* Insite Developmental Checklist: o-6 Years http://www.hopepubl.com/products.php?cat=9
- \* Callier-Azusa Scale\_<u>http://www.utdallas.edu/calliercenter/</u> documents/academic/Azusa\_orderform.pdf
- \* Every Move Counts <u>http://www.proedinc.com</u>
- \* Home Talk http://www.ohsu.edu/oidd/d2l/our\_pro/hometalk.html

# Test Resources (Speech)

- \* Meaningful Use Speech Scale (MUSS) http://medicine.iu.edu/documents/Otolaryngology/muss.pdf
- \* *Phonetic Inventory* <u>http://www.asha.org/practice/multicultural/Phono.htm</u>
- \* Stark Assessment of Early Vocal development. <u>http://journals.lww.com/</u> topicsinlanguagedisorders/Citation1989/12000Stages\_of\_normal \_\_noncry\_vocal\_development\_in.5.aspx
- \* Developmental Vocal Assessment Form (DVAF)<u>http://www.eshow2000.</u> com/asha/2007/handouts/1137\_1203Velleman\_Shelley\_073753\_ Nov18\_2007\_Time\_010029PM.pdf
- \* Cottage Acquisition Scales for Listening, Language and Speech (Sounds & Speech) www.sunshinecottage.org/Products/OnlineStore.aspx

## Test Resources (Speech)

- \* Conditioned Assessment of Speech Production. (CASP) <u>http://www.agbell.orguploads</u> CASP\_Score\_Sheet\_Ertmer\_&\_Stoel-Gammon\_2008.pdf
- \* Identifying Early Phonological Needs of Children with Hearing Loss http://www.medel.com/US/Rehabilitation/Pediatric-Assessment.php
- \* Goldman-Fristoe Test of Articulation. http://www.superduperinc.com
- \* Photo Articulation Test (PAT) <u>http://www.superduperinc.com</u>
- \* Hodson Computerized Analysis of Phonological Patterns, 3rd Edition. (HCAPP-3) <u>http://www.hodsoncapp.com/index.html</u>
- \* Severity Rating Scale: <u>http://www.slc.sevier.org/New%20Pages/New</u> <u>%20Speech.html</u>
- \* Severity Rating Scale: <u>http://www.state.tn.us/education/speced/doc/</u> <u>4109svratingscale.pdf</u>



# Test Resources (Play)

- \* Westby Symbolic Play Scale Check List. http://lshss.asha.org/cgi/reprint/11/3/154
- \* Lowe & Costello Symbolic Play Test. http://shop.gl-assessment.co.uk
- \* <u>North Carolina Guidelines for Speech-Language Pathology in Schools</u> <u>Development of Play Forms:</u> www.ncpublicschools.org
  - \* Language/Play Developmental Scales (pp. 49-55)

#### Assessment Resources & References

- \* Knowledge and Skills Required for the Practice of Audiologic/Aural Rehabilitation (Audiologists and Speech Language Pathologists) www.asha.org
- \* Clinical Practice Guideline: Report of the Recommendations. Hearing Loss, Assessment and Intervention for Young Children (Age 0-3 Years); <u>http://</u> www.asha.org/members/guidelines.aspx?id=6948
- \* Preferred Practice Guidelines for the Assessment of Children Birth to Three Who are Deaf or Hard of Hearing, <u>http://www.oakland.k12.mi.us/</u> Portals/0/SpecialEd/Birth%20to%20Three.pdf
- \* <u>Assessment Tools for Students who are Deaf or Hard of Hearing</u>; http:// www.nasdse.org/Portals/0/Documents/AssessmentTools.pdf
- \* <u>Test Reference for Cochlear Implants;</u> http://www.advancedbionics.com/ <u>UserFiles/File/Test%20Reference%20for%20Cochlear</u>



### Assessment Resources & References

- \* Brown's Stages <u>http://members.tripod.com/Caroline\_Bowen/BrownsStages.htm</u>
- \* Vocal Development Self-Test. <u>http://www.vocaldevelopment.com/</u>
- \* Dynamic Assessment: Basic Framework <u>http://www.asha.org/</u> practice/multicultural/issues/framework.htm
- \* Reducing Test Bias Through Dynamic Assessment of Children's Word Learning Ability <u>http://ajslp.asha.org/cgi/content/abstract/10/2/138</u>
- \* Suggested Scales of Development and Assessment Tools <u>http://</u> <u>clerccenter.gallaudet.edu/Clerc\_CenterInformation\_and\_</u> <u>Resources/Cochlear\_Implant\_Education\_Center/Resources/</u> <u>Suggested\_Scales\_of\_Development\_and\_Assessment\_Tools.html</u>

#### Other Resources & References

- \* The Case for Dynamic Assessment in Speech and Language Therapy; <u>http://clt.sagepub.com/cgi/reprint/23/1/9</u>
- \* The Challenge of Assessing Language in Children With Hearing Loss by Christine Yoshinaga-Itano; Language, Speech, & Hearing Services in Schools 1997; 28: 362-37
- \* California Dept. of Education: www.cde.cagov/sp/se/fp/documents/ecassmnt.pdf
- \* Minnesota Department of Education. <u>http://education.state.mn.us/mdeprod/groups/SpecialEd/</u> <u>documents/Instruction/001167.pdf</u>