Assessment of Young Profoundly Deaf Children with Cochlear Implants

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Texas Speech-Language-Hearing Association Convention
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Assessment at Different Developmental Ability Levels
Adapted from Beth Wilkes, CASLLS

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>Pre-Verbal Level</td>
<td>0-12 months; no or few words</td>
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<tr>
<td>Pre-Sentence Level</td>
<td>12-24 months; 2-3 word combinations</td>
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<tr>
<td>Simple Sentence Level</td>
<td>24-48 months; complete simple sentences with basic grammatical morphemes; development of conversations</td>
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<tr>
<td>Complex Sentence Level</td>
<td>4-8+ years; more sophisticated language abilities (broad variety of discourse skills, more difficult question forms, elaborated noun phrases &amp; subordination)</td>
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</tbody>
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Case History

Areas of Inquiry:

- 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)
<table>
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<tr>
<th>Pre-Verbal Level Assessment of Language</th>
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<tr>
<td>* Cottage Acquisition Scales for Listening, Language and Speech (Pre-Verbal Level)</td>
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<tr>
<td>* SKI-HI Language Developmental Scale</td>
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<td>* Ages &amp; Stages Questionnaires, Third Edition (ASQ-3)</td>
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<td>* Meaningful Use of Speech Scale (MUSS)</td>
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<tr>
<td>* Phonetic Inventory/Speech Sample</td>
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<tr>
<td>* Stark Assessment of Early Vocal Development (SAEVD)</td>
</tr>
<tr>
<td>* Developmental Vocal Assessment Form (DVAF)</td>
</tr>
<tr>
<td>* Cottage Acquisition Scales for Listening, Language and Speech (CASLLS) (Sounds &amp; Speech)</td>
</tr>
</tbody>
</table>
Pre-Verbal Level Assessment of Play

- Westby Symbolic Play Scale Checklist
- Lowe & Costello Symbolic Play Test

NOTE: 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
- 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
- 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
### 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
- Language Sample (MLUm and Brown’s Stages)
- Language Use Inventory

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## 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) (+)
- Auditory Perception Test for the Hearing Impaired-Revised
- 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
- 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**
  - 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)

- **LittleEars Questionnaire**  [www.medel.com/US/Rehabilitation/Pediatric-Assessment.php](http://www.medel.com/US/Rehabilitation/Pediatric-Assessment.php)
- **Meaningful Integration Scale (MAIS)**  [http://medicine.iu.edu/documents/Otolaryngology/mais.pdf](http://medicine.iu.edu/documents/Otolaryngology/mais.pdf)
- **Checklist of Auditory Communication Skills**  [http://www.medel.com](http://www.medel.com)

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### Test Resources (Audition)

- **Early Listening Function (ELF)**  [http://www.doh.state.fl.us](http://www.doh.state.fl.us)
- **Ling Six-Sound Speech Test**  [http://www.advancedbionics.com/UserFiles/File/Ling_Six_Sound_Check-6.pdf](http://www.advancedbionics.com/UserFiles/File/Ling_Six_Sound_Check-6.pdf)
- **Functional Auditory Performance Indicators (FAPI)**  [http://www.tsbvi.edu/Outreach/handouts/oct08/FAPI.pdf](http://www.tsbvi.edu/Outreach/handouts/oct08/FAPI.pdf)
- **Auditory Perception Test for the Hearing Impaired-Revised (APT/HI-R)**  [http://www.pluralpublishing.com](http://www.pluralpublishing.com)
- **Common Objects Token (COT) Test**  [www.medel.com/US/Rehabilitation/Pediatric-Assessment.php](http://www.medel.com/US/Rehabilitation/Pediatric-Assessment.php)
Test Resources (Audition)

- Test of Auditory Comprehension of Language-3 (TACL-3)  www.linguisystems.com
- Test of Auditory Processing Skills-3 (TAPS-3)  www.linguisystems.com
- 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

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  http://hopepubl.com
- Rossetti Infant-Toddler Language Scale  www.linguisystems.com
- Reynell Developmental Language Scales  www.superduperinc.com
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| **Language Sample:**  
[http://www.speech-language-therapy.com/minisample.htm](http://www.speech-language-therapy.com/minisample.htm) |
| **Language Use Inventory**  
[http://www.knowledgeindevelopment.ca](http://www.knowledgeindevelopment.ca) |
| **Preschool Language Scale-Fourth Edition (PLS-4)**  
[http://psychcorp.pearsonassessments.com](http://psychcorp.pearsonassessments.com) |
| **Clinical Evaluation of Language Fundamentals-Preschool (CELF-P)** [http://psychcorp.pearsonassessments.com](http://psychcorp.pearsonassessments.com) |

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| **Expressive Vocabulary Test-Second Edition (EVT-2)**  
[http://psychcorp.pearsonassessments.com](http://psychcorp.pearsonassessments.com) |
| **Receptive One-Word Picture Vocabulary Test-2 (ROWPVT-2)**  
[http://www.linguisystems.com](http://www.linguisystems.com) |
| **Expressive One-Word Picture Vocabulary Test (EOWPVT)**  
[http://www.linguisystems.com](http://www.linguisystems.com) |
| **Bracken Basic Concept Scale-Revised (BBCS-R)**  
[http://pearsonassess.com](http://pearsonassess.com) |
Test Resources (Language)

- Oral & Written Language Scales (OWLS) http://proedinc.com
- Comprehensive Assessment of Spoken Language (CASL) http://proedinc.com
- Clinical Evaluation of Language Fundamentals-4 (CELF-4) http://pearsonassess.com
- Test of Narrative Language (TNL) http://www.linguisticsystems.com
- Carolina Picture Vocabulary Test (CPVT) http://www.proedinc.com

Test Resources (Language)

- Communication Matrix http://www.communicationmatrix.org
- Callier-Azusa Scale http://www.utdallas.edu/calliercenter/documents/academic/Azusa_orderform.pdf
- Every Move Counts http://www.proedinc.com
- 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**
  http://www.asha.org/practice/multicultural/Phono.htm

- **Stark Assessment of Early Vocal development.**
  http://journals.lww.com/topicsinlanguagedisorders/Citation1989/12000Stages_of_normal_noncry_vocal_development_in.5.aspx

- **Developmental Vocal Assessment Form (DVAF)**

- **Cottage Acquisition Scales for Listening, Language and Speech (Sounds & Speech)**
  www.sunshinecottage.org/Products/OnlineStore.aspx

- **Conditioned Assessment of Speech Production. (CASP)**

- **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)**
  http://www.superduperinc.com

- **Hodson Computerized Analysis of Phonological Patterns, 3rd Edition. (HCAPP-3)**
  http://www.hodsoncapp.com/index.html

- **Severity Rating Scale:**

- **Severity Rating Scale:**
  http://www.state.tn.us/education/speced/doc/4109svratingscale.pdf
Test Resources (Play)

  - 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
- Preferred Practice Guidelines for the Assessment of Children Birth to Three Who are Deaf or Hard of Hearing. http://www.oakland.k12.mi.us/Portals/0/SpecialEd/Birth%20to%20Three.pdf
### Assessment Resources & References

- **Brown's Stages**  
  [http://members.tripod.com/Caroline_Bowen/BrownsStages.htm](http://members.tripod.com/Caroline_Bowen/BrownsStages.htm)

- **Vocal Development Self-Test**  

- **Dynamic Assessment: Basic Framework**  

- **Reducing Test Bias Through Dynamic Assessment of Children's Word Learning Ability**  
  [http://ajslp.asha.org/cgi/content/abstract/10/2/138](http://ajslp.asha.org/cgi/content/abstract/10/2/138)

- **Suggested Scales of Development and Assessment Tools**  

### Other Resources & References

- **The Case for Dynamic Assessment in Speech and Language Therapy**  
  [http://clt.sagepub.com/cgi/reprint/23/1/9](http://clt.sagepub.com/cgi/reprint/23/1/9)

- **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.ca.gov/sp/se/fp/documents/ecassmnt.pdf](http://www.cde.ca.gov/sp/se/fp/documents/ecassmnt.pdf)

- **Minnesota Department of Education**  
  [http://education.state.mn.us/mdeprod/groups/SpecialEd/documents/Instruction/001167.pdf](http://education.state.mn.us/mdeprod/groups/SpecialEd/documents/Instruction/001167.pdf)