**Assessment for Children with Hearing Loss**

**Additional Information**

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### Types of Assessments

#### Criterion Referenced

- Compare a child's performance to a pre-defined set of criteria (usually developmental)
- Language tests indicate the skills that are expected at particular age or stage in development
- Skills are typically reported as:
  - Present or absent
  - Emerging, mastered, or generalized
  - Observed or not observed

**Examples**

- Rossetti Infant-Toddler Language Scale
- Infant-Toddler Developmental Assessment-2 (IDA)
- Cottage Acquisition Scales of Listening, Language & Speech (CASLLS)

#### Total Score

- **Percentage**
  - The percent correct out of a total number of items/opportunities
  - The closer to 100%, indicates a better score
  - Scoring method for speech perception measures

- **Total number correct**
  - A simple score is achieved from test items
  - These are usually checklists or surveys
  - Functional assessments may fall into this category

**Examples**

- Boehm Test of Basic Concepts -III Preschool Version
- Speech Perception Tests (MLNT, LNT, etc)
- Functional Listening Evaluation (FLE)
- Children’s Home Inventory of Listening Difficulties (CHILD)
- Listening Inventory for Education-Revised (LIFE-R)
Functional Assessments

- Evaluation at this level is the most beneficial for planning or goal development
- Skills a child is displaying in their everyday interactions in their natural environment
- By using these measures we can:
  - identify auditory or language skills already present
  - track skills based on performance in structured settings
  - observe and record skills demonstrated in naturalistic environments
  - set goals for continued development

Examples

- Criterion referenced and Total score tests typically fall into this category
- Assessments where the child is in engaging with their natural environment
- Observing skills vs. eliciting
  - parent, child or teacher checklists
  - parent, child or teacher interview
  - language sampling

Standardized

- Norm referenced
- A child’s performance is compared to a large sample of other children of the same who also took the assessment.
- Tests are designed to be given in a specific way to ensure that they are valid and reliable
  - Scripted language
  - Constraints for repetition, prompts, support, etc.
  - Starting and ending rules

Examples

- Clinical Evaluations of Language Fundamentals Preschool-2nd Edition (CELF P2)
- Clinical Evaluations of Language Fundamentals 5th Edition (CELF 5)
- Oral and Written Language Scale 2nd edition (OWLs II)
- Test of Integrated Language and Literacy Skills (TILLS)
- Test of Auditory Processing 3rd Edition (TAPS 3)

Standard Scores

- Standard Score
  - Typically MEAN = 100; SD=15
  - Therefore “average range” = 85 to 115
- Percentile Rank
  - Tells student’s position relative to the normative sample
  - 16th percentile to 85th percentile corresponds to average range
- Raw Score
  - The number correct (or errors depending on the assessment) the child scored

https://auditoryverbaltherapy.net/2014/12/04/testing-testing/
### Standard Scores

- **Age-Equivalent Scores**
  - Average score of children at particular ages
  - Do not inform instruction
- **Grade Equivalent Scores**
  - Average score of pupils at a corresponding grade placement
  - Do not inform instruction
- **Standard Scores** are typically used to qualify children for services
  - May not give us the whole picture of a child with hearing loss

### Areas of Assessment

- Auditory skills
- Self Advocacy
- Social/Pragmatics
- Language
  - Receptive
  - Expressive
- Vocabulary
- Articulation

### More Information about Comprehensive Assessment

### Auditory and Self Advocacy

### What do I want to know?

- **From the Audiologist**
  - Unaided hearing thresholds
  - Age of identification
  - Hearing Technology Status
  - Age at amplification
  - Wear time
  - Aided testing results
  - Speech Perception
  - Anatomy concerns

- **Communication Assessment**
  - Following directions
  - Auditory memory
  - Understanding of discourse with audition
  - Perception of phonemes in words
  - Understanding in noise
  - Ability to manage equipment
  - Ability to self advocate

- **Audiogram**
  - Audiologists often assess auditory skills at regular intervals to track progress and monitor device function
  - Areas assessed could include
    - Aided testing
    - Speech detection levels
    - Pattern perception skills
    - Single word identification
    - Open set
    - Closed set
    - With contrasting phonemes
    - Sentence level identification
Detection/Identification
- Ling 6 Sound Check
  - Ensure equipment is working
- May be the first indicator of hearing change or equipment problems
- Check distance and loudness level
- Resources:
  - AdvancedBionics.com/TFS
  - Boom Cards
  - Teachers Pay Teachers

Standardized Tools
  - Number memory forward
  - Number memory/reversed
  - Word memory
  - Sentence memory
  - Number memory forward
  - Number memory/reversed
  - Word memory
  - Sentence memory
  - Recalling Sentences
  - Linguistic concepts
  - Following Directions

Functional Assessment Tools
- Auditory Learning Guide (Walker)
  - Download at hearingfirst.org
- Auditory Skills Checklist (Calefle-Schencck/Anderson)
- Cottage Acquisition Scales for Listening, Language, and Speech (Wilkes)
- Cochlear Americas - Tracking the Listening Child
- Infant- Toddler Meaningful Auditory Integration Scale (IT-MAIS)

Auditory Learning Guide
- Download at hearingfirst.org
- One thing to keep in mind when looking at this chart is that as we increase the language load, it will impact the auditory load. So for example:
  - If I have a field of balls different colors: Get the blue ball (1 critical element)
  - If I have a field of balls different colors and sizes: Get the big blue ball (2 critical elements)
  - If I have a field of balls different colors, sizes and patterns:
    - Get a big blue ball (2 critical elements)
    - Get a blue ball with stripes (2 critical elements)
    - Find a ball without polka dots (2 critical elements)
- You want to consider the linguistic load as well when assessing and developing these skills.

CASLLS
- Criterion referenced
- Looks at several domains of listening and spoken language development
- 4 levels (birth-6 years)
  - Pre-Initial
  - Pre-Sentence
  - Simple sentence
  - Complex sentence

http://successforkidswithhearingloss.com/for-professionals/listening-auditory-skills-development/
Functional Assessment Tools: Auditory Skills

- In addition to auditory skills development, functional assessments may also look at:
  - Independence with accommodations
  - Behaviors related to self-advocacy
  - Classroom listening skills, teacher strategies, etc.

  - http://successforkidswithhearingloss.com/tests/

Functional Assessment Tools: Self Advocacy

- As more children are placed in mainstream classrooms we need to focus on their ability to advocate for themselves

- Functional Assessments:
  - Guide to Self-Advocacy Skill Development (successforkidswithhearingloss.com)
  - Listening Inventory For Education Revised (successforkidswithhearingloss.com)
  - Audiology Self-Advocacy Checklist (successforkidswithhearingloss.com)
  - Advocacy in Action (Bitz & Musselman)

Reporting Results

- Report explicit information about how a child is using their hearing to learn from their environment
  - Establish goals to focus on auditory skills

- Functional assessments:
  - How noise and the environment may be impacting a child
  - Help you to justify HAT usage
  - Justify accommodations
  - Show a child’s true abilities in their natural environment

Planning Intervention

- Children are following a much more typical pattern of development
  - Development of technology
  - Early Intervention

- Consider whether certain skills can be developed in a naturalistic approach vs. strict auditory training

- Use of strategies will help facilitate a child’s ability to develop these skills in their environment
  - Highlighting or low lighting
  - Auditory sandwich
  - Wait/Processing time

Pragmatics

- Most abstract and complex language skills
- Children with age appropriate listening and spoken language skills from standardized assessments may still show a delay in this area
- Goberis (2012) found children with hearing loss to have significantly delayed social communication skills in comparison to typical hearing children.

Assessment for Children with Hearing Loss

Additional Information


Assessment Tools

- **Standardized**
  - Pragmatic Language Subtest - Comprehensive Assessment of Spoken Language 2 (CASL 2)
  - Pragmatic Language Skills Inventory (PLSI) is for students (age 5;0-12;11)
  - Social Language Development Test (age 6;0-11;11)

- **Functional**
  - Pragmatics Checklist [Link](http://successforkidswithhearingloss.com/wp-content/uploads/2012/01/PRAGMATICS-CHECKLIST.pdf)

Language Skills

Standardized Testing

- Language measures assess a child’s comprehension or understanding (receptive language) as well as use or expression (expressive language) of the following features
  - Semantics/Vocabulary
  - Morphology
  - Syntax
  - Pragmatics

- What this may not tell us is how the child uses their language in everyday conversations

Standardized Assessments

- Preschool Language Scale-5 (PLS-5)
  - Ages 0:6-11
- Clinical Evaluation of Language Fundamentals Preschool-2 (CELF P-2)
  - Ages 3:0-6:11
- Clinical Evaluation of Language Fundamentals 5th Edition (CELF-5)
  - Ages 5:0-21:11
- Comprehensive Assessment of Spoken Language 2nd Edition (CASL 2)
  - Ages 2:0-21:11
- Oral Written Language Scales (OWLS II)
  - Ages 2:0-21:11
- Test of Integrated Language and Literacy Skills (TILLS)
  - Ages 6:0-8:11

Functional And Criterion Tools

- Rossetti Infant-Toddler Language Scale
- Brigance IED III - Early Childhood Edition
- Cottage Acquisition Scales for Listening, Language, and Speech (CASLLS) Williams
- Teacher Assessment of Spoken Language (TASL) Moog and Biedenstein
- Central Institute for the Deaf Rating forms
  - Syntax - TAGS
  - Vocabulary - CID Early Childhood Vocabulary Rating Form
  - Pragmatic Language - CID Preschool/Pragmatic Language Rating Form
  - Language Related to Play - CID Preschool Symbolic Language Rating Form
- Language Sample
Language Sample

- Analyze: morphology, syntax, semantics, phonology, pragmatics in conversation or play
- Utilize a language criterion referenced list (e.g., CASLLS, TAGS, etc) to analyze the sample
- Elicit a variety of narratives
  - Recounts- factual reports of past events
  - Accounts- spontaneous verbalizations about events
  - Scripts- Description of typical event
  - Fictional Narrative- Story creation

Keep In Mind

- Transcribe everything the child says
  - If the child omits or misarticulates a sound, write what the child says and in parenthesis write the target word (e.g., “tat”/cat, “boo”/book)
  - If the child uses the wrong word, transcribe that word
- The goal is to encourage a child to use connected language in conversation, play, and narratives.
- It’s important to have language samples from a variety of contexts to evaluate a child’s ability to engage in a variety of communication exchanges.

Challenges

- Transcribing EXACTLY what the child says
  - As adults with a sophisticated language system, our brains automatically fills in missing sounds and words
  - That /s/ on the end of words are tricky!
- Promoting to encourage more complex language vs. 1 or 2 words
- Vocabulary and concept knowledge can lead to vague language
- It’s important to plan when and how you will language sample and analyze

Functional Tools

- Cottage Acquisition Scales for Listening, Language, and Speech (CASLLS)
  - Wilkes
- Teacher Assessment of Spoken Language (TASL)
  - Moog and Biedenstein
- Central Institute for the Deaf Rating forms
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Examining Results

- Once a child’s capacity for producing language structures has been ascertained, specific targets for intervention can be identified
  - Build a child’s receptive and expressive capability within and across grammatical categories
  - Consider the setting in which any particular language target is observed
- Use functional tools/checklists to develop goals to fill in holes and avoid teaching to the test
- It’s valuable to report results by comparing to typically hearing peers
  - “_______ skills are in the _________ range when compared to same age typically hearing peers”
### Assessment for Children with Hearing Loss

#### Additional Information

<table>
<thead>
<tr>
<th>Pre-Verbal (0-12 months)</th>
<th>Cognition/Play</th>
<th>Listening</th>
<th>Social Interaction</th>
<th>Emerging Meaning</th>
<th>Vocal Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3 months</td>
<td>Mastered 6/6 (100%)</td>
<td>Mastered 3/3 (100%)</td>
<td>N/A</td>
<td>Mastered 5/5 (100%)</td>
<td>N/A</td>
</tr>
<tr>
<td>3-6 months</td>
<td>Mastered 5/5 (100%)</td>
<td>Mastered 2/5 (40%)</td>
<td>Mastered 1/4 (25%)</td>
<td>N/A</td>
<td>Emerging 1/4 (25%)</td>
</tr>
<tr>
<td>6-9 months</td>
<td>Mastered 9/9 (100%)</td>
<td>Mastered 4/7 (57%)</td>
<td>Mastered 6/6 (100%)</td>
<td>Mastered 5/5 (100%)</td>
<td>Mastered 2/7 (29%)</td>
</tr>
<tr>
<td>9-12 months</td>
<td>Mastered 9/9 (100%)</td>
<td>Mastered 2/16 (12%)</td>
<td>Mastered 9/15 (60%)</td>
<td>Mastered 2/4 (50%)</td>
<td>Mastered 5/13 (38%)</td>
</tr>
</tbody>
</table>

#### Total
- Mastered 29/29 (100%)
- Mastered 20/47 (4%)
- Mastered 22/45 (49%)
- Mastered 7/9 (77%)
- Mastered 11/29 (38%)

### Vocabulary
- Peabody Picture Vocabulary Test (PPVT 4) Ages 2:6-90+
- Expressive Vocabulary Test (EVT 2) Ages 2:6-90+
- Receptive One Word Picture Vocabulary Test (ROWPVT 4) Ages 2:0-18:11
- Expressive One Word Picture Vocabulary Test (EOWPVT 4) Ages 2:0-18:11
- Comprehensive Assessment of Spoken Language (CASL) Ages 3:0-21:11
- Synonyms
- Antonyms

### Language Sample Analysis
- Use your language sample to analyze child’s use of a variety of words.
- Require multiple exposures to words in multiple contexts (related to what they see, hear and do) to learn words.
- Struggle to learn from “overhearing” vocabulary in their environment (incidental learning).
- Explicit teaching in the classroom doesn’t always target words in context, related concepts, or multiple meanings. Resulting in splintered vocabulary development.

### Examining The Results
- Children with hearing loss have less opportunities for incidental learning which impacts their vocabulary knowledge.
- Look at their ability to:
  - Categorize
  - Describe
  - Multi meaning words
  - Curriculum vocabulary
- Breadth: variety of items in vocabulary
- Depth: degree of understanding of words
  - Multiple meanings
  - Abstract terms

### Articulation
Articulation

- Goldman-Fristoe Test of Articulation 3 (GFTA-3) Ages 2:0-21:11
- Arizona Articulation Proficiency Scale Third Revision Ages 1:0-21:11
- Ling Phonetic Inventory
  - Syllable level
- Audiogram

Examining The Results

- Go back to your audiogram and see if the sounds omitted are audible to the child
  - If they are, the child may need articulation therapy
  - If they are not, the child may need visual supports to develop those sounds
- Check to see if sound substitutions are developmental phonological errors