Working With Preverbal Infants and Toddlers Toward Early Speech

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Disclosures

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  – None
Learning Objectives

Following this course, participants will be able to:

• Provide parents with a brief review of the early development of nonverbal communication and speech in children under age 3
• Explain to parents why children with communication disorders may not be talking
• Brainstorm communication assessment methods for children under age 3
• Create an assessment plan for a preverbal toddler
• Explain to parents how AAC and speech-focused activities work together to enhance early communication
• Coach parents on techniques for eliciting vocalizations and early speech behaviors in preverbal toddlers
• Create a set of activities for parents to try that integrate early literacy with communication (e.g., dialogic storybook reading)
• Create a model session plan for working with a preverbal toddler on communication

Review of Early Communication: Birth to Three
Stark’s Stages of Vocalization

0-4 months
- 0-2 months – vegetative sounds
- 2-4 months – coos, laughs

4-6 months
- Vocal play
Stark’s Stages of Vocalization

0-4 months
- 0-2 months – vegetative sounds
- 2-4 months – coos, laughs

4-6 months
- Vocal play

6-10 months

6-10 Months: Video
### Stark’s Stages of Vocalization

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Description</th>
</tr>
</thead>
</table>
| 0-4 months | - 0-2 months – vegetative sounds  
             - 2-4 months – coos, laughs |
| 4-6 months | - Vocal pay |
| 6-10 months|             |
| 8-18 months|             |

#### 8-18 Months: Video
Early Communication Stages (Bates, 1976)

- **Perlocutionary**
  - 0-8 months

- **Illocutionary**
  - 8-12 months

- **Locutionary**
  - 12-24 months

Early Communication: Perlocutionary
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Early Communication: Illocutionary

Communication Pragmatics
- Frequency: 2.5 acts/min.
- Functions: Proto-declarative, Proto-imperative

Communication Forms
- Nonvocal: Gesture, Gaze
- Vocal: Variegated/jargon babble, Proto-words, Echolalia, Words

Early Communication: Illocutionary
### Early Communication: Locutionary

#### Phonology

- **12 mo.**
  - Sounds: Front stops & nasals
  - Syllables: CV, CVC
  - Intelligible words: 25%

- **18 mo.**
  - Sounds: Back stops, fricatives, glides added
  - Syllables: CVC
  - Percent consonants correct: 50%

#### Semantics

- Average expressive vocabulary size:
  - 12 mo.: 3 words
  - 15 mo.: 10/50r words
  - 18 mo.: 100/300r words
  - Contain 50% Gen'l Ns, 10% Proper names, 20% Verbs, 10% Adjectives, 10% Social & Functional
  - Words for objects child handles
  - 24 mo.: 300/900 words

- Comprehension:
  - 12-18 mo.: Responds to words outside context; does what is usually done
  - 18-24 mo.: Understands 2-word combinations; uses child as agent

### Early Communication: Locutionary Example
Early Communication: Developing Language

Phonology
- Some CVCs appear by 18 mo.
- Consonant blends appear by 24 mo.
- Consonants used first in initial, then final, then medial position
- Stops most often in initial position; fricative in post-vocalic

Pragmatics
- New discourse level intentions by 24 mo.:
  - Answer
  - Acknowledge
  - Give new information
  - By 24 mo.: Provides new information in two-word utterances

Semantics
- Pronouns:
  - I, it, this, that, my, me, mine, you-2
  - You, you’re, your, she, he, we, these, those-3
- Relational words:
  - Locatives: in, on, under-2.5
  - Beside, in front, next to, over-3

Syntax
- By 24 mo., two-word utterances express semantic-syntactic relations with consistent word order
  - Agent-action, agent-object, action-object, possession, appearance, disappearance, recurrence, etc.

Early Communication: Word Combinations
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Brainstorm: What Does it Take to Learn to Talk?

- Hearing, and hearing language used
- Oral motor skills and babbling practice
- Concept development
- Preverbal “conversational” experience
- Representational and symbolic thought
- Communicative intentions/social motivation
Assessing Communication in Nonspeaking Children

<table>
<thead>
<tr>
<th>Stage</th>
<th>(Birth to 2 months) Vocalization Types</th>
<th>Observed directly</th>
<th>Parent report</th>
<th>Phonetics/comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>Crying, vocalization, pitch skills, exaggerated high pitch</td>
<td>Check for vocalization, pitch, vocal tone</td>
<td>Avoid vocalization</td>
<td>Note vocalization tone</td>
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<tr>
<td>Stage 2</td>
<td>Vocal sounds predominate, but a few consonant sounds emerge (primarily velar and glottal)</td>
<td>Check for vocal sounds</td>
<td>Avoid vocal sounds</td>
<td>Note consonant sounds</td>
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<tr>
<td>Stage 3</td>
<td>Vocal sounds predominate, but a few consonant sounds emerge (primarily velar and glottal)</td>
<td>Check for vocal sounds</td>
<td>Avoid vocal sounds</td>
<td>Note consonant sounds</td>
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<tr>
<td>Stage 4</td>
<td>Vocal sounds predominate, but a few consonant sounds emerge (primarily velar and glottal)</td>
<td>Check for vocal sounds</td>
<td>Avoid vocal sounds</td>
<td>Note consonant sounds</td>
</tr>
</tbody>
</table>

Assessing Vocal Behavior

https://www.youtube.com/watch?v=RSrEgP7hMWo

Assessing Communication Intentions

<table>
<thead>
<tr>
<th>Form: Function</th>
<th>Gesture</th>
<th>Vocalization</th>
<th>Word</th>
<th>Word Combination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request action</td>
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<tr>
<td>Request object</td>
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<tr>
<td>Protest</td>
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<tr>
<td>Comment/Joint Attention</td>
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<tr>
<td>Request Information</td>
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<tr>
<td>Answer</td>
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<tr>
<td>Acknowledge</td>
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### Video

<table>
<thead>
<tr>
<th>Age</th>
<th>Symbolic Behavior</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;18 mo.</td>
<td><strong>Functional scheme:</strong> Child shows understanding of conventional object use. There is no pretending. Child appears serious rather than playful.</td>
<td>Picks up a brush, touches it to hair, drops it. Picks up a toy telephone, puts it to ear, sets it aside. Swishes broom on floor briefly.</td>
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<tr>
<td></td>
<td><strong>Recognitory gesture:</strong> Child briefly uses object for its intended purpose.</td>
<td></td>
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<tr>
<td>18-24 mo.</td>
<td><strong>Auto-symbolic schemes:</strong> Child pretends at self-related activities. Symbolism is directly involved with the child’s body. Child appears playful, seems aware of pretending.</td>
<td>Pretends to drink from toy teacup. Eats from an empty spoon. Closes eyes, puts hands by cheek, pretending to sleep.</td>
</tr>
<tr>
<td>24-36 mo.</td>
<td><strong>Simple schemes:</strong> Child extends symbolism to include other agents or objects of actions - pretending at activities of other people or objects such as dogs, vehicles, etc.</td>
<td>Feeds doll. Brushes doll’s hair. Pretends to read a book. Pretends to sweep floor. Moves a block or toy car with sounds of vehicle.</td>
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<tr>
<td></td>
<td><strong>Combinatory schemes:</strong> Child extends symbolism beyond own actions by including other agents or objects of actions - pretending at activities of other people or objects such as dogs, vehicles, etc.</td>
<td>Combs own, then mother’s hair. Drinks from toy bottle, then feeds doll from bottle. Puts empty spoon to mother’s mouth, then experimenter and self. Kisses doll, puts it to bed, puts blanket on.</td>
</tr>
</tbody>
</table>
Symbolic Play Assessment: Example

**Play sample**  https://www.youtube.com/watch?v=p1R2vha7Ytc

In informal assessment of receptive language for children under 3:

- Parents may overestimate child comprehension; test informally with objects parent reports child knows the name of:
  - Identify common body parts (eyes, nose, mouth, ear, hair, foot)
  - Identify common objects from an array (sock, spoon, bunny)
  - Acting on given objects with common actions (pat it, push it)
  - Perform expected two-term instructions on objects from array (pat the bunny, push the truck, kiss the baby)
  - Perform unexpected two-term instructions on objects from array (kiss the book, pat the truck, push the bunny)

Commercial Assessment Instruments for Children Under 3

- **MacArthur-Bates Communicative Development Inventory (CDI)**
  - Parent questionnaire
  - Measures expressive and receptive vocabulary

- **Communication and Symbolic Behavior Scales**
  - Measures expressive and receptive language, communication intentions, and social/emotional behaviors
  - Uses direct observation and has accompanying parent questionnaire
  - Can be used for children suspected of autism OR language disorders

- **Interactive Checklist for Augmentative Communication (InCh)**
  - Observational checklist format
  - Useful for planning AAC trials and monitoring communicative progress
Decision Tree for Nonspeaking Children Under 3

Are functional or symbolic play skills present?
- Yes
  - Provide opportunities in intervention for child to model, and imitate conventional and symbolic uses of objects in play contexts.
- No
  - Include work to increase nonverbal communication using modeling and communication temptations in intervention program.

Are nonverbal intentional communication acts present?
- Yes
  - Monitor progress each 3-6 months; provide parent counseling to optimize interactions.
- No
  - Is comprehension appropriate for developmental level?
    - Yes
      - Consider Rx, including introducing simple AAC to enhance communication, encouraging vocal development, and providing indirect language stimulation and focused stimulation to advance expressive and receptive language.
    - No
      - Is age <24 mo.?
        - Yes
          - Monitor progress each 3-6 months; provide parent counseling to optimize interactions.
        - No
          - Include work to increase nonverbal communication using modeling and communication temptations in intervention program.

Interventions for Nonspeaking Children

Joint attention
Communication intentions
Vocal production
Play and symbolic behavior
AAC
Preliteracy
Eliciting Joint Attention (JA)
(Kasari et al., 2014; Mundy, 2016)

- Model show and share
- Unexpected events
- Shape joint attention
- Reinforce joint attention
- Move from proximal to distal
- Move from responding to initiating JA

Eliciting Communicative Intentions

- Communication Temptations
  (Prizant & Wetherby, 2005)
- Prelinguistic Milieu Teaching
  (Fey et al., 2006)
- Incidental Teaching
  (Fenske et al., 2001)
Eliciting Vocal Production
(Goldstein & Schwade, 2008)

- Attend to child vocalizations
- Play with sounds and singing
- Imitate child sounds
  - Make small changes in adult imitation to elicit child imitation
  - Continue only as long as child shows interest
- Enlist siblings and family members

Eliciting Play and Symbolic Behavior
(Kasari et al., 2006; Stamher, 1995)

- Use toys child prefers; change toys often to enhance interest
- Model functional play
- Model functional use of objects in playful settings
- Reward attempts to imitate actions; shape to closer imitations
  - If the child fails, imitate model again
  - When child shows functional play, model symbolic use, self-directed at first
- Provide additional examples by taking turns with toy child likes and adding new symbolic uses
  - Add more complex pretend (other-directed, multischeme) as child produces more symbolic behaviors
Introducing AAC for Nonspeaking Children
(Drager, Light, & McNaughton, 2011)

- Consider physical abilities, disabilities
- Use real objects (e.g., PECS [Sulzer-Asakoff et al., 2009]) and pictures
- Provide input in both speech and AAC
- Select appropriate vocabulary
- Provide effective means to communicate
- Identify meaningful contexts for communication
- Set up the environment to support communication
- Use appropriate interaction strategies to support communication
- Reward responses made with vocalizations, gestures, or AAC

Preliteracy Activities for Nonspeaking Children

Provide reading experience:
- Choose developmentally appropriate books
- Talk about parts of books (cover, pictures, pages)
- Talk about print (point out words/pictures, identify letters)
- Stop as you read to ask child to point to parts you’ve read
- Name pictures child indicates interest in with gaze or point
- Introduce words for unfamiliar items in picture books to increase vocabulary

Provide writing experience:
- Model writing for everyday purposes (lists, calendars)
- Encourage child to hold writing implements and scribble
- Draw simple shapes; give child a turn to trace, imitate, or draw independently
- Give child letters (magnetic, felt, paper) to pour, handle, arrange, play
Summary: Eliciting Speech From Nonspeaking Children

Speech requires several prerequisite skills:
- Vocal-motor ability and practice
- Preverbal "conversational" experience
- Representational thought
- Concept acquisition
- Hearing and receptive language
- Intention/motivation to communicate for social purposes

To elicit speech from nonverbal children, teach prerequisite skills:
- Speech-like vocalization
- Symbolic thought through symbolic play
- Receptive concepts and vocabulary
- Reinforcement for strengthening intentionality and motivation to communicate

Action Plan: Eliciting Speech From Nonspeaking Children

Include several building blocks of speech in each session:
- Vocal play and imitation
- Indirect language stimulation with enriched input in speech and sign or picture AAC; provide single words or simple word combinations to talk about what child is interested in/doing
- Communication temptations
- Modeling functional and symbolic play with child-preferred objects
- Simple social games ("patty-cake," "peek-a-boo") to encourage engagement and turn-taking
- Reading simple picture books
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**Birth to Three: Working Together to Serve Children and Their Families**

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<th>Go Do</th>
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<tbody>
<tr>
<td><strong>Explain</strong></td>
</tr>
<tr>
<td>• Create a handout to help families understand the many skills that go into learning to produce speech</td>
</tr>
<tr>
<td><strong>Assess</strong></td>
</tr>
<tr>
<td>• Design an assessment plan for a nonspeaking toddler to assess:</td>
</tr>
<tr>
<td>• Comprehension</td>
</tr>
<tr>
<td>• Communication</td>
</tr>
<tr>
<td>• Play</td>
</tr>
<tr>
<td><strong>Intervene</strong></td>
</tr>
<tr>
<td>• Create a session plan for a nonspeaking toddler that includes:</td>
</tr>
<tr>
<td>• Expressing a range of communicative intentions with joint attention</td>
</tr>
<tr>
<td>• Eliciting vocalizations</td>
</tr>
<tr>
<td>• Using basic AAC</td>
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