Current Assessment and Treatment Models for Children with Cleft Palate

Nancy J. Scherer, Ph.D.
Course of Communication Development 0-3 Years

- Babbling has few consonants and simple syllable structures.
- Limited amount of vocalizations.
- Onset of words delayed.
- Onset of word combinations delayed.
Course of Communication Development 0-3 Years

- Compensatory articulation errors.
  - Non-English sounds
  - Backed substitution patterns replacing stops, fricatives and affricates
  - Examples: Glottal stops /dʔ/ for /d̲k/,
    or pharyngeal fricatives /ʕun/ for /sun/
- Potential impact of hearing loss related to middle ear pathology.
Course of Communication Development 3-5 Years

- Limited consonant inventories and sound accuracy.
- Compensatory articulation errors.
- Phonological processes persist.
  - Rules that govern sound use.
  - Examples: fronting (/tʌp/ for /kʌp/), backing (/kʌp/ for /tʌp/).
Course of Communication Development 3-5 Years

- At risk for phonological awareness deficits.
- Velopharyngeal dysfunction assessed.
- Language performance improving.
Course of Communication Development 5-7 Years

- Speech sound accuracy errors.
- Compensatory articulation errors.
- Velopharyngeal dysfunction assessed.
- Subtle language delays.
- At risk for reading delays.
Factors Influencing the Course of Development

- Relation between speech and language development
- Profiles of speech and language delays
- Cleft type
- Middle ear pathology
- Language and emerging academic performance
Relation between speech and language development

- Almost 1:1 in early development
- After 3 years, deficits can occur independently
- Speech and language deficits frequently co-occur
Profiles of speech and language delays

- Receptive-expressive language deficits
- Speech and expressive language deficits
- Speech deficits only
- Expressive language deficits only
Cleft type

- Cleft lip and palate
  - Unilateral
  - Bilateral
- Isolated cleft palate
  - Cleft of the hard and soft palate
  - Cleft of the soft palate
Cleft Type Issues

- CLP most associated with articulation deficits
- ICP most associated with language deficits
- ICP most frequently occurring with syndromes
Middle ear pathology

- Early placement of PE tubes
- Placement of PE tubes does not assure normal hearing status
- Frequent monitoring of hearing status
- Higher incidence of sensorineural hearing loss in children with syndromes
Language and emerging academic performance

- Phonologic awareness
  - Awareness of sound relationships in words (e.g., segmenting words into sounds, sound blending, rhyming)

- Reading disabilities
  - Subgroup of children with clefts show reading deficits particularly in auditory/language domains.
Velocardiofacial Syndrome
A new syndrome involving cleft palate, cardiac anomalies, typical facies, and learning disabilities
The syndrome was found to be common (1:2000 people, second most common after Down syndrome)

- Found to be genetic (autosomal dominant inheritance)
- Occurs in all races and ethnic groups with equal frequency
- Many new abnormalities delineated (180+)
Velo-cardio-facial syndrome
VELO-CARDIO-FACIAL SYNDROME
VELO-CARDIO-FACIAL SYNDROME
Speech and Language Profile

- Severe deficits in speech production through early school ages.
- Receptive/expressive language deficits.
- Social/pragmatic impairments.
- Uneven cognitive performance.
  - Nonverbal/visual deficits
  - Verbal/language deficits
- Learning disabilities
Relationship of Children with CLP, ICP and VCFS
Assessment Protocols for Children with Clefts: Birth to Three Years

- **Cognition**
  - Bayley Scales of Infant Development-2
  - Differential Abilities Scales (DAS)

- **Language**
  - Standardized: Sequenced Inventory of Communicative Development-R (SICD-R)
    - Receptive Language
    - Expressive Language
Assessment Protocols for Children with Clefts: Birth to Three Years

- Parent questionnaire: Communication Development Inventories (CDI)
  - Words and Gestures (8-15 M)
  - Words and Sentences (16-30 M)
**PART 1 EARLY WORDS**

A. FIRST SIGNS OF UNDERSTANDING

Before children begin to speak, they show signs of understanding language by responding to familiar words and phrases. Below are some common examples. Does your child do any of these?

1. Respond when name is called, (e.g., by turning and looking at source)
2. Respond to "no no!" by stopping what he/she is doing, at least for a moment.
3. React to "there's mommy/daddy" by looking around for them.

Yes ☐ No ☐

B. PHRASES (28)

In the list below, please mark the phrases that your child seems to understand.

<table>
<thead>
<tr>
<th>Phrase</th>
<th>Understands</th>
<th>Understands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you hungry?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Are you sleepy?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Be careful.</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Be quiet.</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Clap your hands.</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Change diaper.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Come here, come on.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Daddy/mommy's hands.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Do you want more?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Don't do that.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Eat your food.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Get up.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Give me a kiss.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Give me a hug.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Give me a toy.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Go get it.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Go to bed.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Good girl/dog.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Hold still.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Help me.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I'm tired.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Next to me.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>No.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Now.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Open your mouth.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Put it down.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Put the ball down.</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Pull it.</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Pull my toy.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Pull the string.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Put the spoon down.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Read a book.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Right now.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Sleep.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Stop it.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Start walking.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Step on it.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>That's not a toy.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Throw the ball.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>This is my toy.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Wait a minute.</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Want to go for a ride?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>What's that?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>What's this?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Where do you want to go?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Whoop it up!</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Won't eat</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Yuck!</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Yuck!</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

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Assessment Protocols for Children with Clefts: Birth to Three Years

- Language sample: Systematic Analysis of Language Transcripts (SALT)
  - Vocabulary
  - Syntax
  - Verbal Fluency
- Pragmatics: Communication and Symbolic Behavior Scales (CSBS)
Assessment Protocols for Children with Clefts: Birth to Three Years

- **Speech**
  - Consonant Inventory
  - Syllable Structure
  - Stimulability

- **VP/Laryngeal Function**
  - Resonance/nasal emission
  - Compensatory articulation placement
  - Oral motor
  - Voice quality

- **Hearing**
Assessment Protocols for Children with Clefts: Preschool

- **Cognition**
  - Measures of verbal and nonverbal performance: Differential Abilities Scales, WIPPSI

- **Language**
  - Receptive/expressive language: SICD-R
  - Language sample: SALT
  - Phonologic awareness: Comprehensive Test of Phonological Processing (CTOPP)
Assessment Protocols for Children with Clefts: Preschool

- **Speech**
  - Consonant inventory
  - Syllable structure
  - Single word articulation test
  - Connected speech

- **VP/Laryngeal Function**
  - Structural and functional integrity of VP mechanism
  - Compensatory articulation errors
  - Diagnostic therapy
  - Voice quality

- **Hearing**
Assessment Protocols for Children with Clefts: School age

- **Cognition**
  - Measures of verbal and nonverbal performance: Differential Abilities Scales, WISC-III

- **Language**
  - Test of Language Development-P3 (TOLD:P3)
  - Clinical Evaluation of Language Fundamentals (CELF-3)
  - Language sample
  - Test of Written Language-3 (TWL-3)
Assessment Protocols for Children with Clefts: School Age

- Speech
  - Consonant inventory
  - Syllable structure
  - Single word articulation test
  - Connected speech
  - Stimulability

- VP/Laryngeal Function
  - Same as preschool. More aggressive assessment and management if newly identified

- Hearing
Assessment Protocols for Children with Clefts: School Age

- Academics
  - Early Reading (Woodcock Reading Mastery, Gray Oral Reading Test)
    - Word identification
    - Phonics
    - Reading comprehension
Treatment Models for Children with Clefts

- Early intervention models
  - Parent training models
    - Developmental milestones
    - Hanen Parent Training
      - It Takes Two to Talk
      - More Than Words
    - Hybrid Program
Treatment Models for Children with Clefts

- Hybrid Model
  - Language and articulation
    - Naturalistic Language Intervention: Focused Stimulation
      - Prevocalic stop consonant words trained
      - Parents trained to use target vocabulary intensively during play
      - Parents trained in naturalistic language stimulation (e.g. modeling, expansion, imitation, etc)
    - Glottal stop reduction
      - Over emphasis of initial stop consonants
Treatment Models for Children with Clefts

- Direct intervention models
  - Articulation/Compensatory articulation
    - Focus on place of articulation changes (Children often not responsive to this approach prior to 3 years)
  - Language
    - Focused Stimulation
    - Milieu
    - Use of sign language for non-oral children
Treatment Models for Children with Clefts

- Preschool intervention models
  - Direct intervention models
    - Articulation/compensatory articulation
      - Place of articulation changes in syllable, word, phrase, sentence and connected speech
    - VP Function/nasal emission
      - Oral/Nasal contrasts
      - Nasometer
    - Language
  - Academic intervention
    - Phonological awareness
Treatment Models for Children with Clefts

- School aged intervention models
  - Direct speech/language intervention models
    - Articulation/compensatory articulation
    - VP Function/nasal emission
    - Language
  - Academic interventions
    - Phonological awareness interventions
    - Reading
      - Auditory/Verbal: CLP, ICP
      - Visual/Nonverbal: VCFS