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Birth to Three – Special Considerations for Speech Sound Disorders in Children with Cleft Palate &/or Velopharyngeal Dysfunction

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Key Concepts & Techniques for Children Birth to Three

- Key Concepts…. help you think on your feet
- Techniques… give you a place to start assessment and treatment

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Key Concepts:

#1. Cleft Palate-Craniofacial Team care is necessary.

- Refer the family to a team listed with the American Cleft Palate-Craniofacial Association (ACPA). See www.cleftline.org for listing by state.

- If a child is affiliated with a team, contact the team SLP. It is part of her/his job to collaborate. If you don't hear from the team SLP, contact the team director, usually the pediatric plastic surgeon.

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 # 2. Timeline Factors - Each team has a team-specific timeline. The following is one example used for speech/feeding issues during the first three years:

- Birth – immediate feeding issues, managed by team nurse &/or SLP. See www.cleftline.org for feeding videos
- First 3 weeks to 3 months – surgery for lip and dental appliances as needed
- Birth to One + – counsel parents to discourage glottal-play noises & encourage babbling using anterior phonemes (/w/ /j/ /m/ /n/ /p/ /b/)

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- Ages 9 to 12 months – palate repaired & PE tubes inserted
  - Speech/language assessed 6-8 weeks post-op by team SLP
  - Begin monitoring for a disorder of resonance
  - No multi-center data available, but about 20% of children will need secondary palatal management, usually surgery (Marsh, 2013)
- Ages 1 to 3 – Assess and treat language and articulation disorders, as needed.

  Monitor for resonance disorder.

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Timeline, continued

- Age 3 – More complete assessment of a resonance disorder is possible.

- If you suspect VPD, report your findings to team SLP and ask about imaging, etc. Secondary surgery cannot be performed without imaging and/or instrumental testing.
- Continue assessment and therapy for articulation and language disorders.

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#3. Speech and language intervention & parent training are appropriate throughout the first 3 years of life.

* Including the pre-linguistic period during the first year of life

* Don't wait for palate repair at 9-12 months or secondary palate repair at around 3-4 years.

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#4. Speech Sound Disorders are not just related to a cleft &/or VPD. Assess and treat as to:

- Cleft &/or VPD related:
  - Compensatory - glottal stops, pharyngeal fricatives, etc.
  - Obligatory - related to physical structure
  - Mis-learned - errors remaining after palatal surgery
- Phoneme-specific nasal emission not related to VPD
- Developmental
- Phonological patterns (Peterson-Falzone, et al, 2010)
- A possible motor speech disorder:
  - Dysarthria
  - Childhood apraxia of speech (CAS)
  - Mixed

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#5. Toddlers & children with severe cleft/VPD related SSD may only produce /m/, /n/, /w/, /j/.

….You need to teach articulation using traditional articulation therapy.

……You <u>cannot</u> wait for correct production to occur and then reinforce it.

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#6. Traditional articulation is needed:

* Modeling, imitation, mirror work & cueing

* Token reward system

* Keep correct production high (Grames recommends 100% to obtain eventual carryover)

* Watch for co-production of error phoneme produced along with correct phoneme

* Goal = CARRYOVER (playground speech)

* Think in terms of - Place, Manner, & Voicing

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#7. During articulation therapy

…use nose-pinching/closing as needed to direct oral air & sound flow.
A swim plug can be used.

…Even if child needs secondary palatal surgery at age 3-4, he/she needs to exhibit some oral speech sounds & best VP closure during imaging to achieve accurate results.

photos courtesy
Mary Blount Stahl, MA,CCC-SLP
Children's Hospital-St. Louis

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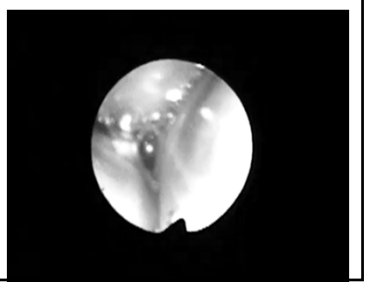
….. When compensatory articulation (glottal stops) is pervasive, it appears the VP mechanism "gives up." When this happens, imaging doesn't illustrate best closure. The team plastic surgeon needs images of best VP closure to refine & individualize the secondary palatal surgery.

See Youtube nasendoscopy…google "KG_nasendoscopy_medium"
http://www.youtube.com/watch?v=nFOQqFjEPfY

Luis Cuadros, MD
The New Mexico
Cleft Palate Center

Video 1



#8. Ideally, articulation therapy sessions by SLP or parents should be:

* Short

* Frequent – scattered throughout the day

* Strong daily home program

(make sure parents can distinguish correct from incorrect production)

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Kelly

History – Kelly was adopted at age 6 months, unrepaired cleft of palate - no lip involvement

- First team visit at 6 months, she was very interactive - appropriate facial expression, smile, eye contact, body posture, and appropriate play
- She actively vocalized and cooed. Most vocalizations were glottal stops plus vowel. Glottal stops = cleft-related compensatory articulation (CAs) and firmly entrenched!
- Pervasive, severe hypernasality noted. Palate repaired 11 mos
- Feeding & eating were going well. Kelly drank formula & was starting to eat solid food
- Social & family adjustment were going very well, excellent family environment
- Team SLP referred to a Birth to Three program in her local state

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- Recommendations for parents by team SLP on 1st team visit:
  1. Avoid play-noises that use glottals - growling noises, etc. Play noises that use the lips, such as raspberry noises, are OK and bring production to the front of the mouth.
  2. Encourage babbling using front sounds (anterior phonemes) – /w/, /m/,/n/, /j/, /p/,/b/ (/m/ is acceptable) Kelly produced "oma" for "mama" and that was reinforced.
  3. Encourage language as social-verbal interaction; materials provided for parents from ASHA web site.
  4. Parents provided with:
     -Team SLP contact information
     -Home state Birth to Three contact information

Resources from the American Cleft Palate-Craniofacial Association www.cleftline.org

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PLAN for Birth to Three intervention:

- Collaboration through email among team SLP, local B-3 SLP, and mother who was very aware and had natural skills.
- Birth to Three SLP created a plan for language and pragmatic skills. Shared this plan with team SLP. Sessions 1X per wk = state regulation.
- Team SLP & B-3 SLP created a plan for speech sound disorders. Emailed each other with updates

(Hypernasality continued after palate repair at 11 mos. Kelly fell in the 20% who needed imaging & secondary palatal surgery at age 3)

1. Articulation therapy using "traditional" techniques – Face to face imitation, cueing, mirror, child in high chair with toys on the food tray
2. Hypernasality and nasal emission were obligatory; encourage oral air flow using nose pinching as tolerated
3. Assess stimulable phonemes – "dg" was stimulable

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NEXT is a video speech sample of Kelly at 2 yrs 7 mos
Assess video sample: See transcript in Handout #2

- Resonance balance
- Audible nasal emission (difficult on video)
- Articulation
  - Compensatory errors
  - Developmental
  - Motor speech?
- Voice (dysphonia)
- Language
- Prosody

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This is a speech sample, not a session:

- Mom is on the left
- SLP is on the right
- ……the cat is on the right

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Video 2

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- NOTE – Kelly produces markers for final consonants but uses compensatory articulation (cleft/VPD related), indicating this is a disorder of articulation.
- NOTE appropriate vowel production
- NOTE excellent prosody
- NOTE excellent natural gesture and pragmatic skills

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- Resonance disorder - *severe, pervasive hypernasality*
- Audible nasal emission – *noted and significant*
- Articulation - *severely impaired, poor intelligibility*
  - Compensatory articulation errors
    - *glottal stops*
    - *pharyngeal production*
    - *co-production*
- Voice – *mild dysphonia*
- Language – *within normal limits, hampered by articulation disorder*
- Prosody - *excellent*

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At age 3yrs 3 mos, Kelly had a secondary palatal procedure – a sphincterpharyngoplasty…..example below

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- BUT…..

…..before secondary palatal surgery could be completed at 3 yrs 3 mos, the following plan was created by the team SLP and B-3 SLP.

…..as it turned out, after the secondary surgery, compensatory articulation remained and the same plan continued and expanded; for example, nose-pinching was still needed.

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Plan for therapy: Before & after secondary palatal surgery at 3yrs 3mos:

1. Anterior phoneme in isolation, started with /p/, added /b/asap

- Voiceless often best to start
- Nose-pinching as needed
- Give it a name - /p/ "popping sound" to remove linguistic load
- As you progress, add stimulable, high value phonemes (SLP found "dg" & "sh" were stimulable)
- Sometime /s/ is stimulable; tttt…ssssss can be helpful
- Watch for co-production of glottal along with correct sound
- Keep # of correct productions high;
  like hitting a baseball – practice needed
- Capitalize on correct phonemes
  /m//n//w//j/

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2. Proceed to phoneme in syllable

- Pair with front vowel – "peee," "paay" or most stimulable
- /h/ or whisper can be used to counteract glottal stop intrusion between the consonant and vowel
- Add voiced cognate, ex. /b/, if stimulable and successful, "beee" "baaay"
- Beware when adding voicing, a glottal stop may re-appear

3. Proceed to word level as long as production remains successful and # of correct productions is high

•Get creative – "peeeyou", yummy "pea," Winnie the "pooh", "bee"

4. Proceed to phrase, sentence, etc.

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General Reminders:

- Imitation, cueing, mirror work
- Place map (see Peterson-Falzone, et al. 2006)
- Negative practice if needed
- Drill based
- Token reward
- Teach speech the way we say it – want to = "wanna"
- Recommend # of correct productions=100% to achieve best eventual carryover

REMEMBER -

1. Go to the highest level where the child is successful
2. Don't waste time on things that don't affect speech production
3. The best way to work on speech is to work on… SPEECH
4. Carryover is the whole reason we do speech therapy…playground, dinner table, yelling at siblings.

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Handout #3 is a list of resources for future reference & future needs.

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References

- American Cleft Palate-Craniofacial Association (ACPA) at www.acpa-cpf.org & www.cleftline.org
- Golding-Kushner, K. (2000). *Therapy techniques for cleft palate speech and related disorders.* Clifton Park, NY: Thomson Delmar Learning.
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- Marsh, J.L. (2013). Personal communication.
- Peterson-Falzone, S.J., Hardin-Jones, M.A., & Karnell, M.P. (2010). *Cleft palate speech (4th edition).* St. Louis, MO: Mosby.
- Peterson-Falzone, S., Trost-Cardamone, J., Karnell, M., & Hardin-Jones, M. (2006). *The clinician's guide to treating cleft palate speech.* St. Louis, MO: Mosby-Elsevier.
- Trost-Cardamone, J.E. (2013). *Cleft Palate Speech: A Comprehensive 2-Part Set.A* product of the American Speech-Language Hearing Association, www.asha.org

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Addendum – additional Key Concepts

A-1. !!!!! Non-speech oral motor exercises are not appropriate for speech sound disorders related to clefts or VPD

(Kummer, 2014; Peterson-Falzone, et al. 2006; Trost-Cardamone, 2013)

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A-2. Children with clefts of the palate (overt or not) are at risk for middle ear dysfunction & conductive hearing loss.

…..SLPs are often the best monitors of ear health.

….. Refer a child back to the team ENT/audiologist or at least the child's pediatrician

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A-3. For assessment…

Speech sample needs to include:

- Spontaneous conversation - first
- Special, controlled speech sample
- Formal test of articulation, such as Goldman-Fristoe, but don't score (scoring doesn't provide an accurate picture of compensatory articulation, etc.)

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