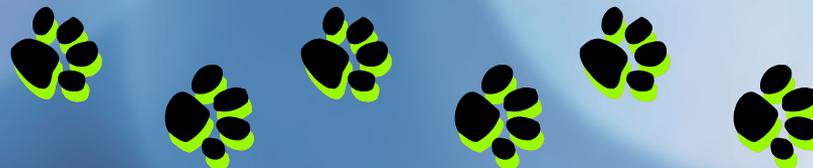


NASAL SPEECH CHALLENGES in 22Q

Testing to Treatment
May 18, 2014



What is nasal speech?



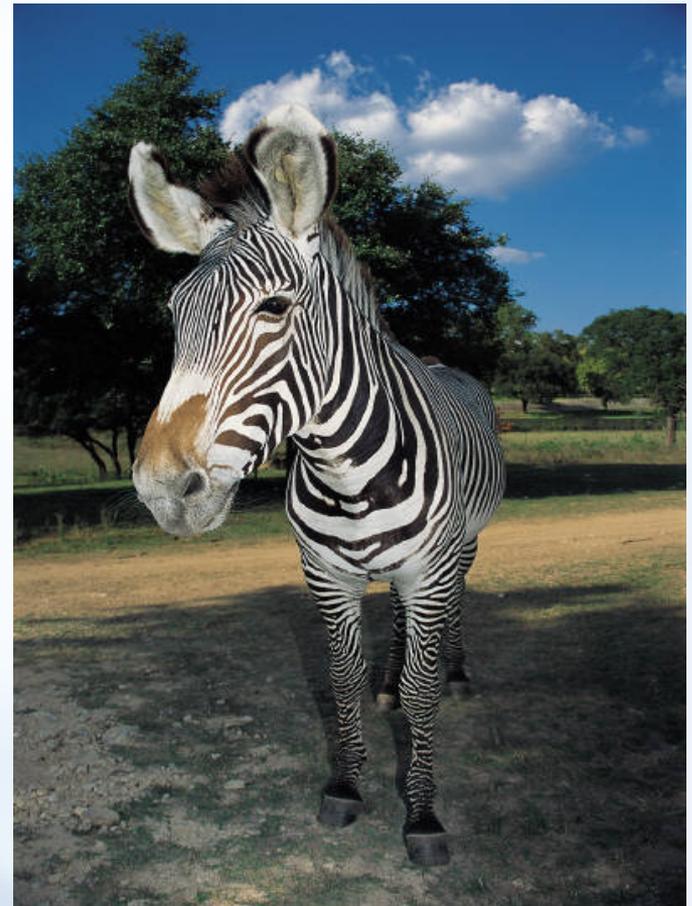
Like an Octopus, “Speech” can have many arms.

- Speech
- Language
- Voice
- Fluency
- Swallowing



The structure/talking part of speech can have many stripes!

- Articulation
 - Nasal Emission
 - Facial Grimacing
 - Weak consonants
 - Substitutions of speech & non-speech sounds
- Resonance



What is “Nasal Speech?”

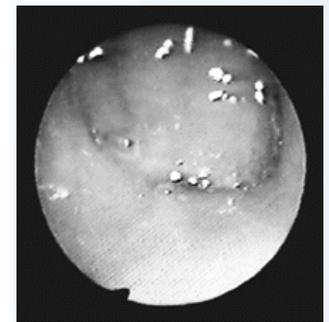
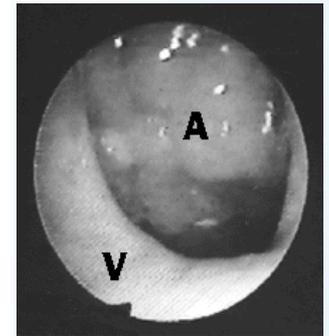
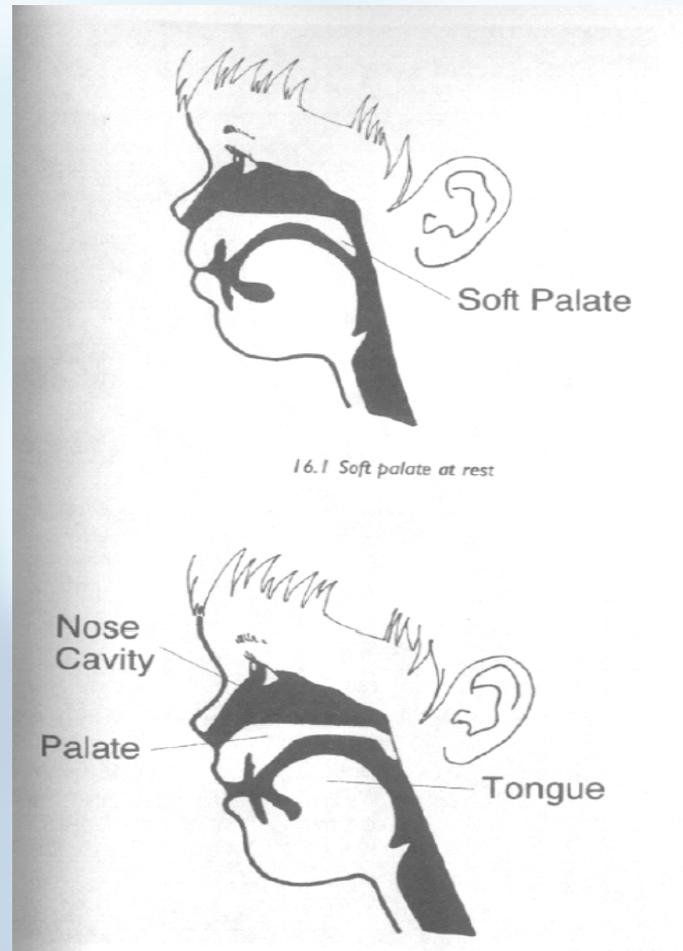
Velopharyngeal Dysfunction (VPD)

Velopharyngeal incompetence, insufficiency, inadequacy (VPI)



Normal Speech/VP closure

- In English, VP port open for /m, n, ng/
- Closed for pressure consonants



Resonance: Nasality

- ***Hypernasality*** – too much nasality

- occurs on vowels

- may be accompanied by nasal emission on pressure consonants

- ***Hyponasality*** – not enough

- anatomic obstruction

- ***Mixed nasality*** –

- may reflect nasal obstruction, timing/movement problems, residual compensation after surgical repair



VPD in 22q11.2 deletion syndrome

From Paula Klaiman, SLP

May be related to

- Cleft palate, submucous cleft palate (overt or occult)
- Hypotonia/low muscle tone
- Respiratory and phonatory disorders: poor voice; poor respiratory support
- Low muscle tone: flat facies, open mouth at rest, drooling, tongue protrusion
- Delayed acquisition of language milestones
- Motor speech disorders: poor imitation, groping oral movements, poor sequencing of sounds
- Articulation or phonological error patterns: higher incidence



Assessment of children with VPD

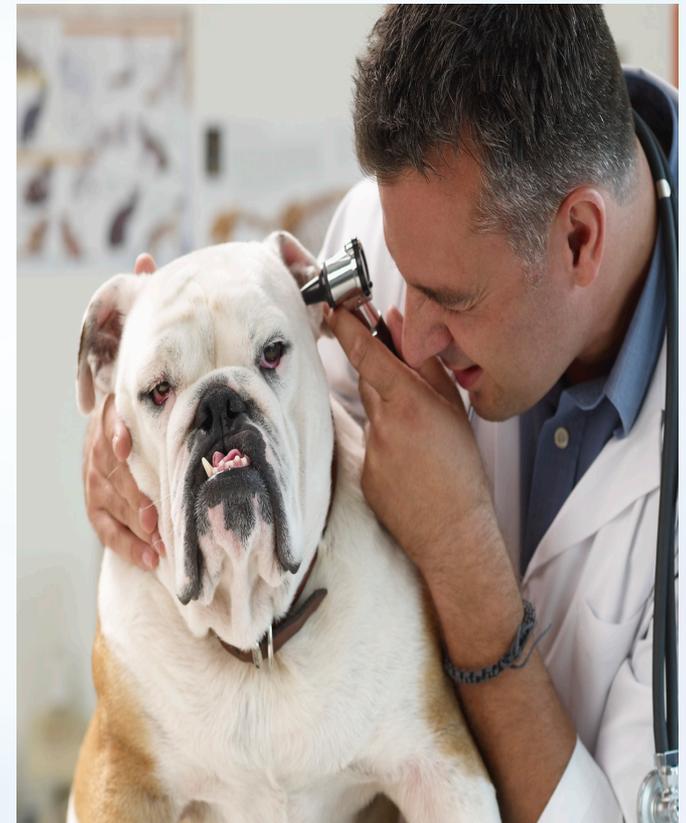
UCDMC Protocol:

1. Clinical Speech Assessment

Case History; Speech Exam; Oral-Peripheral Exam; Recordings; Family input

2. Imaging

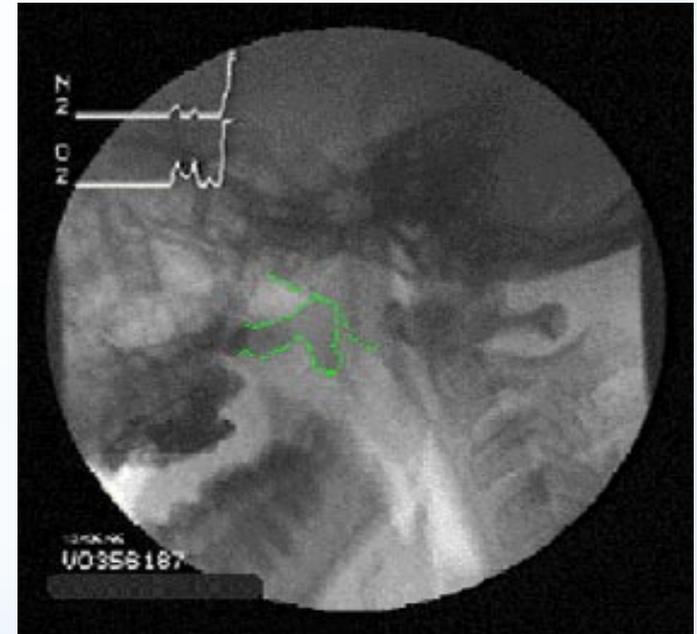
Nasopharyngoscopy +/-
VideoFluoroscopy)



Acoustic & Aerodynamic Testing



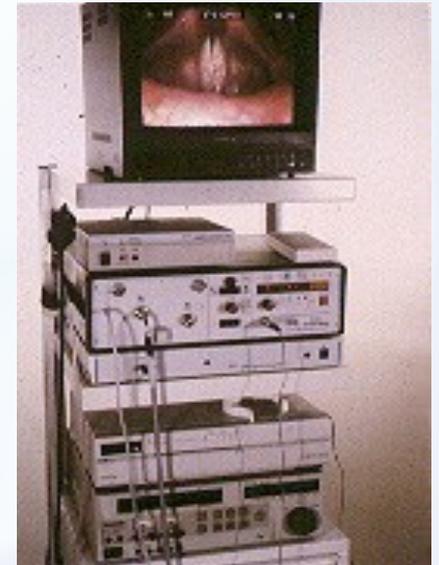
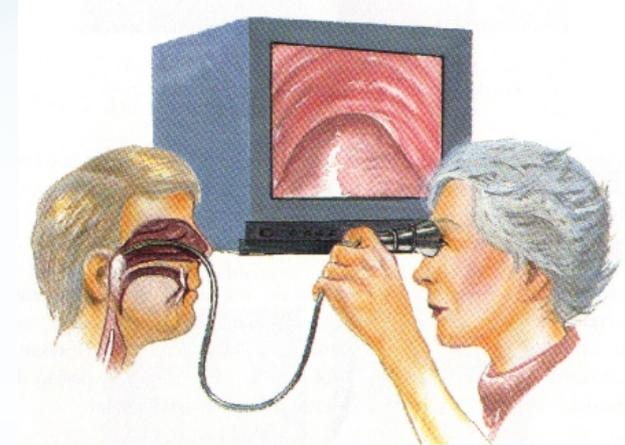
VIDEOFLUOROSCOPY



Assessment of children with VPD

Imaging: Nasopharyngoscopy

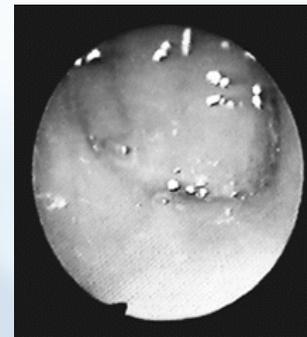
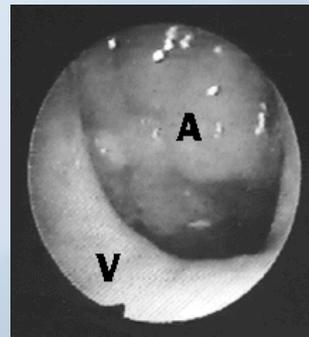
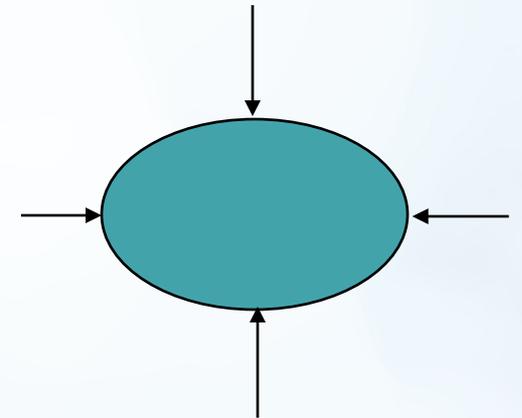
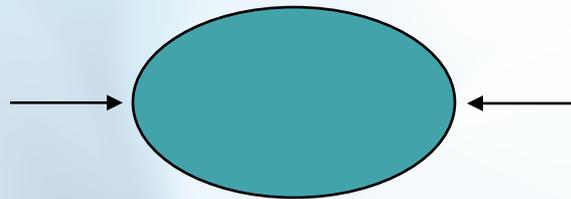
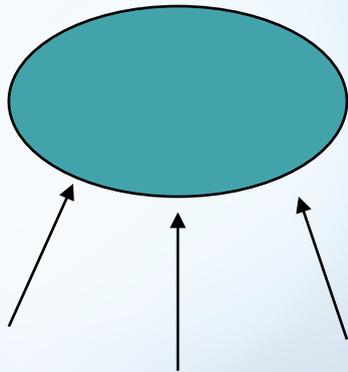
- Soft palate, wall movement
- Adenoid pad and tonsils
- Consistency and timing of movement-related to speech sample



Assessment of children with VPD

UCDMC Protocol: Clinical Speech Assessment +
Nasopharyngoscopy +/- VideoFluoroscopy

- Closure: when, where, how



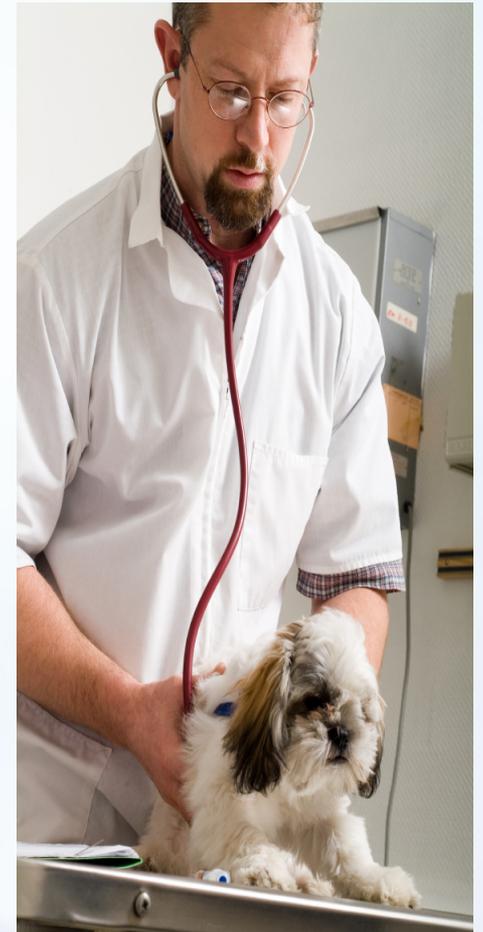
Factors to consider prior to imaging

- Developmental Age of child
- Previous hospital experiences
- Response to and amount of conditioning done
- Others present (radiology tech; medical students; family members)
- Parental attitude
- Positioning



Diagnostic Considerations

- Etiology
- Extent of disorder
 - relative contribution of VPD to communication disorder
- Type of resonance problem
- Articulatory deficit
- Age of child



Speech exam: Perceptual Exam

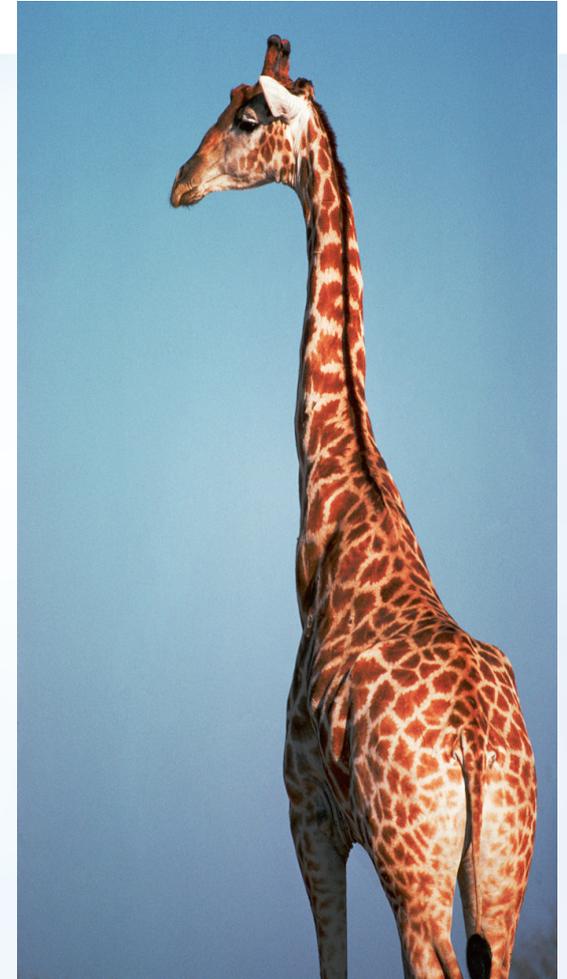
Subjective assessment reflects ENTIRE vocal tract (vocal characteristics of pitch, loudness, quality; nasal anatomy; tongue carriage; jaw position, etc.)



Treatment

- Diagnosis

Goal: Effect change in perceptual realm by altering structures / events in physical realm, so carefully consider their relationship



Treatment

- Speech Therapy/
services
- Prosthetic Devices
- Surgery



Treatment: Speech Therapy

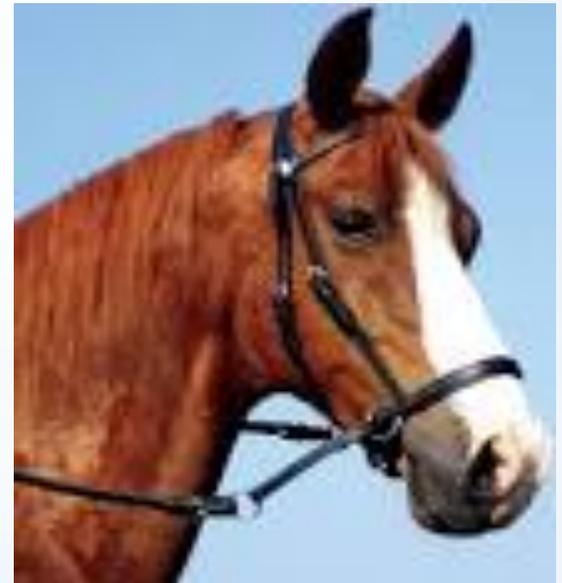
INDICATIONS

- ✓ inconsistencies in VP activity
- ✓ speech problems independent of VPD
- ✓ mechanism appropriate, but retraining needed
- ✓ Preoperative
- ✓ postoperative



Treatment: Prosthetic Device

- Indications
 - neuromotor impairment
 - Stimulability
 - Poor surgical candidacy
- palatal lift vs.
palatal obturator



Treatment: Surgery

- Goals: decrease VP port size; get adequate palatal mobility & length
- Options
 - pharyngeal flap
 - dynamic pharyngoplasty
 - posterior pharyngeal wall implant or wall-plasty
 - palatal lengthening procedures



Treatment in 22q11.2 deletion syndrome

- **Therapeutically**

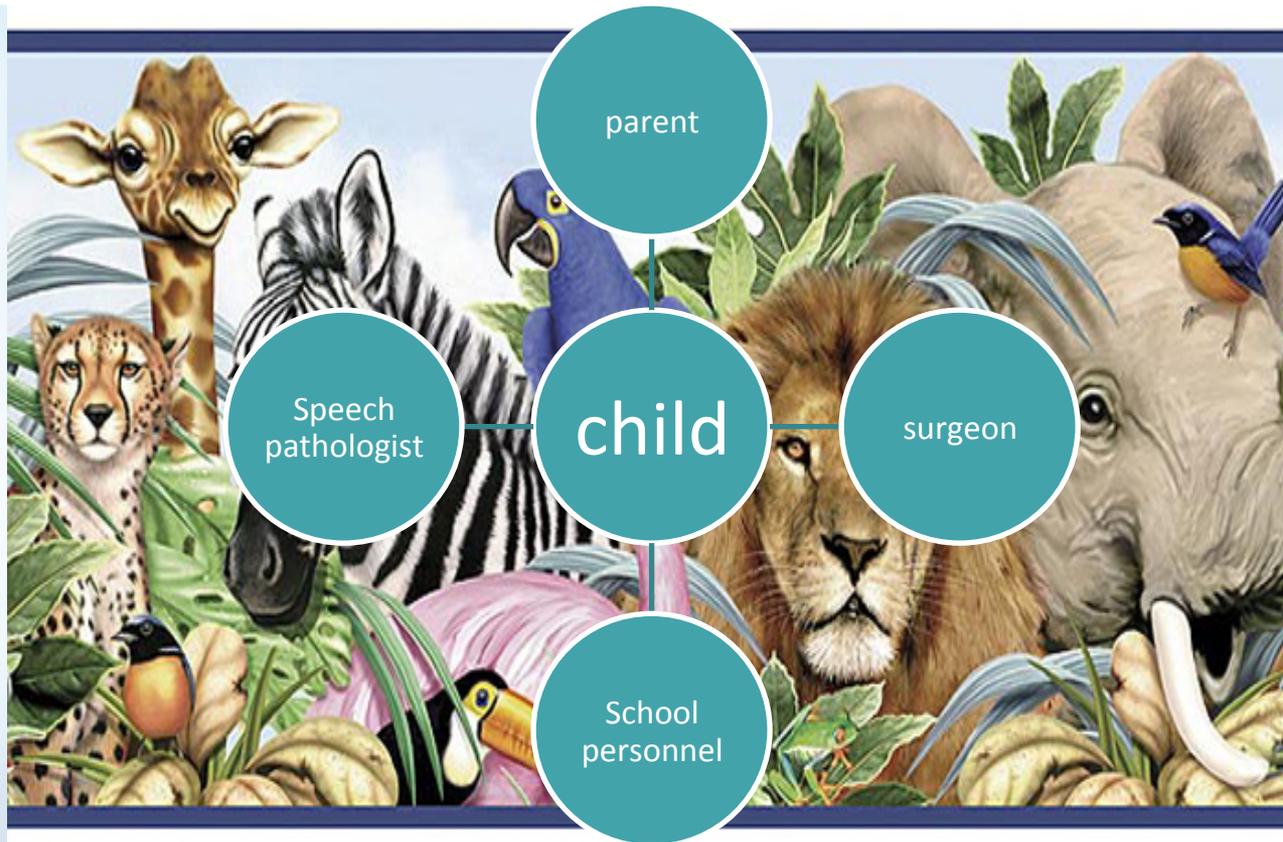
- benefit from Enhanced Milieu approach: manipulate environment to facilitate verbal communication
- benefit from Focused Stimulation approach: model words during play, give feedback

- **Surgically**

- less likely to achieve “normal” resonance
- more likely to require revisions of original repair
- longer time till improvement/resolution of VPD



Team Approach to Pediatric Care



Cleft/craniofacial anomalies

- Cleft/Craniofacial Team (CCT) assessments
- Clinical Speech Evaluations
 - ongoing (ACPA Guidelines)
 - pre and post surgery
- Work up for Velopharyngeal Dysfunction (VPD)
 - Nasopharyngoscopy
 - Videofluoroscopy



Yo Llama...



When in doubt, give us a shout.

UCDMC SLP Christina Roth at 916-734-5400

VPD-

VERY PHINALLY DONE



Treatment studies

Bezuhly et al. (2012) -78 children with submucous cleft palates -23 with 22q Deletion Syndrome.

-findings: 22q children less likely to achieve normal resonance on a perceptual speech exam following surgery than non-syndromic patients.

-children with 22q Deletion Syndrome more likely to require revisions and further surgery after the initial repair. The median time until normal resonance was achieved was 150 weeks for children with 22q Deletion Syndrome and only 34 weeks for non-syndromic children.

Fullman and Boyer (2012): using Enhanced Milieu approach most beneficial to children with 22q

-Enhanced Milieu approach encourages parents, caregivers, and therapists to manipulate the environment in a way that facilitates verbal communication. Provides social interactions in contexts that are structured and predictable.

-combining an Enhanced Milieu approach with a Focused Stimulation approach recommended to improve speech production.

-In a Focused Stimulation approach, caregivers model specific words many times during play interactions. When a child produces a target word, caregivers offer feedback on the sounds that were produced and expand the child's utterance.