Pediatric Voice Therapy: Why, What, and How

Sarah D. M. Blakeslee, MA, CCC-SLP
Dean Clinic – Fish Hatchery
Madison, WI

Voice Problems
Voice problems can be described as abnormalities in:
- Quality
- Pitch
- Loudness
- Resonance

Most common voice quality problem in children is dysphonia/hoarseness, over 1 million estimated nationwide.

Voice Disorders
- Changes in structure or function result in voice disorders
- Voice is a developmental phenomenon
- Dysphonias originate from many etiologies

IMPORTANT NOTE: Not all children who present with dysphonia have nodules

Indications for Referral
- Referral for a voice evaluation (Otolaryngologist & Speech Pathologist)
- Persistent hoarse voice
- Progressive hoarse voice
- Any voice change with airway symptoms (stridor or audible breathing)
- Voice change associated with aspiration
*Should be pediatric focused and trained in voice

Infant versus Adult Larynx
- Infant larynx is NOT a miniature version of an adult larynx
- Differences in size, position, layer structure, and ratio of cartilaginous to membranous portions

Evaluation
- Thorough case history
- Perceptual evaluation (GRBAS, CAPE-V)
- Acoustic & Aerodynamic assessments
- Indirect laryngoscopy
- Possible additional testing:
  - Radiographic evaluation
  - pH probe
  - Direct laryngoscopy, bronchoscopy, and esophagoscopy
- Diagnosis
- Treatment
  - Medical, Surgical, Behavioral
Perceptual Assessment
- Overall level of dysphonia
- Roughness, breathiness, strain/back focus
  - GRBAS is a good guide, CAPE-V too
- Glottal fry
- Pitch, loudness
- Breath support
- Imperative to comment on this—otherwise we become technicians
- Your ear is your best tool

Voice Evaluation
- History/perceptual eval/computerized measures can give us clues into diagnosis, but visualization of the larynx is crucial for accurate diagnosis
- Indirect laryngoscopy is conducted in the clinic while awake
  - Flexible fiberoptic endoscopy
  - Rigid endoscopy
- Direct laryngoscopy is conducted while the child is under anesthesia

Flexible Fiberoptic Endoscopy
- Almost any child can be visualized with this technique
  - Advantages:
    - Can assess velopharyngeal function, adenoid tissue, palatal structure
    - Resting breathing & connected speech
    - Can sometimes assess subglottis
  - Disadvantages:
    - Clarity is often diminished
    - Numbing of nares

Rigid Laryngoscopy
- Child must be very cooperative
  - Advantages:
    - Increased clarity for assessing erythema, vascularity, tissue changes
    - Closer view
  - Disadvantages:
    - Difficult to conduct in young children
    - Gag reflex
    - Cannot assess other structures
Pediatric Voice Therapy: Why?
- Lots of kids are hoarse
  - Estimates range from 6-23% of school aged population
  - "She'll grow out of it"
  - "He just sounds hoarse" – benign condition
  - "Her voice is so sexy and cute!"

Listener's impressions
- When compared with non-dysphonic children, kids with dysphonia are rated more negatively:
  - “sick”
  - “sad”
  - “unpleasant”
  - “ugly”
  - “dirty”
  - “cruel”
  - “bad”
  - “worthless”
  - “dishonest”

Problems With Traditional Approach
- Adults have experienced “normal” voice and are motivated to return to that
- Often, children have been hoarse since they started talking
- Made to feel as if they are doing something wrong
- Negative connotations with terminology
- Typically, they are not motivated for change using this approach

Traditional Voice Therapy
- Focus on reducing "abusive" voice behaviors and often incorporate worksheets/charts
- Differentiation of "good" voice and "bad/hurting" voice
- No yelling
- Little focus on vocal technique in conversational speech

Pediatric Voice Therapy: What
- Uses similar approaches as with adults
- Hygiene/hydration does have a role
- Breath support (belly breathing)
- Decrease tension / improve VF closure
- Improve resonance
- Important to think about physiology
  - i.e., weak voice from unilateral vocal fold paralysis should not be treated with confidential voice therapy
- Lessac-Madsen Resonant Voice Therapy, LMRVT (Verdolini)
- (Vocal Function Exercises (Stemple), Flow-mode therapy, Pre-operative voice therapy)
Overview of Voice Therapy

- Four years and older
  - But there are exceptions to this
- 6-8 sessions
- 50 minutes each
- Weekly at first, then spaced out further
- Begin with basic exercises, gradually build to conversation
- Home practice is important!

Resonant Voice Therapy (RVT)

- Most common approach
- Goal: achieve barely abducted, barely adducted glottal configuration
- Barely aBducted -> not pressed -> decreased respiratory drive/effort -> EASY VOICE
- Barely aDducted -> sharp and complete shut-off of flow -> bigger changes in density of air in sound wave -> sensation of FACIAL VIBRATION

RVT

- High amplitude vibration but low impact stress
- Strong, functional voice (vs. confidential voice therapy)
- Follows principles of motor learning
  - Paying attention to effects of a motor activity as a target (anterior vibrations)
  - Focus on kinesthetic awareness to solidify learning

Perceptual Assessment of Improvement

- Overall level of dysphonia
- Roughness, breathiness, strain/back focus
  - GRBAS is a good guide; CAPE-V too
- Glottal fry
- Pitch, loudness
- Breath support
- Imperative to comment on this–otherwise we become technicians
- Monitor/comment on this throughout therapy to assess progress

“The Voice Police” – ???

- Addressed directly in first session, reminders and discussion as needed thereafter
- Healthy for your voice vs. not healthy for your voice
- Education rather than admonishment
- Discussion of choices

Vocal Hygiene

- Hydration: water, avoidance of caffeine
- Reflux: (if needed–plays a role for many children with nodules, even when asymptomatic): medication, avoidance of/ moderation with reflux-associated foods, other precautions
Vocal Hygiene

- Good vocal health: avoid yelling and screaming, periodic voice rest, non-vocal creative/energetic activities, resting the body, etc.
- Don’t want to change their personality (and you couldn’t if you tried!)
- “Non-stop talkers are my FAVORITE kids, BUT…”

Belly Breathing

- Develop initial awareness of breathing at rest
- Child’s hand on their belly/chest increases awareness—which hand is moving?
- Stuffed animals can help awareness too
- Continuum: lying, slouching, sitting up
- Belly = balloon
- Pair with voiceless and then voiced sounds to reinforce pattern in speech activities
- In through nose, out on sustained /s/

Resonant Voice

- Begin with lip trills (“motorboats”), sustained and in pitch glides
  - With and without voice
  - Lip or tongue trills
  - Decreases strain
  - Engages breath support
  - Focuses sound in the front of the face

- Then humming, sustained, and in pitch glides
  - Focus attention on anterior vibration
    - Can use manual palpation of face
  - Voice should feel easy, sound clear
  - Can be more specific with adults
    - Although kids are surprising!

“Buzzy Voice”

- Use explorations of specific dimensions to solidify “buzzy voice”
  - Clear vs. scratchy
    - Front vs. back (do they feel vibrations?)
    - Easy vs. tight
  - Clear/Front/Easy = Buzzy Voice

Hierarchy of Targets

- Lip trills: a good warm-up
  - Mmmm
  - Sustained, pitch glides
- /u, i/ vowels, repeated
  - /mamama/, /mumumum/, /mimimimi/
    - Chanted and exaggerated prosody can help bridge to natural production
- /m-initial words, phrases
  - /m/ at end of words/phrases will facilitate sound
    - Careful of glottal fry at ends of words/phrases
- Prolong /m/ to feel “buzzy voice”
  - Use nasals at end of word to sustain forward focus
Hierarchy of Targets

- Voiced continuants (/v, z, r, l, "-ng", "zh")
  - Sustained, pitch glides
  - Positive/negative practice helps with these
- Voiced continuant loaded words, phrases
  - /u/ vowels and /m, n/ will be facilitators
  - room, vacuum, lion, zoom, lemon, etc.
- Again, draw attention to “buzzy sounds” to facilitate success
- Use chant and/or exaggerated prosody as needed
- Sentences
- Reading, conversational activities

Resonant Voice

- Immediate need for real world applications of “buzzy voice”
  - Begin addressing carry-over ASAP
- Ideas for this:
  - Start pointing out spontaneous use of clear/scratchy, buzzy/not buzzy in conversation right away
  - Family member names
  - Functional sentences
  - Embedding targets in session activities (i.e., memory with /m/ cards, Guess Who?, reading, 20 questions)

Child as Clinician

- Immediately begin training self-judgment skills
  - Children require more direct feedback than adults (contrary to motor learning principles)
- Let them judge your productions—fun for them and good ear training
- Positive/negative practice
- Self-judgments of productions
- Rating scales

Discharging

- Not all children will be able to master resonant voice in conversation by the 7th or 8th session
- Children may plateau, often at structured sentence level
  - Self-monitoring skills and maturity often a factor
  - Assess for continued progress and consider the need for a break from therapy to allow for maturation
- At final session make sure to discuss strategies for maintaining their gains
  - Hydration, structured practice when needed, intermittent attention to conversational voice quality over next few months

Special Considerations

- Considerations for pediatric population
  - Abstract concepts
  - Attention span
  - Self-monitoring skills
  - Importance/motivation/compliance
  - Some targets are easier for kids than adults!

Abstract Concepts

- Voice therapy is hard! (compare to articulation therapy)
- Make it as concrete as you can
  - Clear, easy, front = correct
  - Use more kinesthetic feedback (hands on the face)
  - Focusing on the sound (clear/scratchy) can be easier to grasp for some children
- Positive/negative practice at all levels
- Additional cueing (i.e., pointing up and down for glides)
**Attention Span**
- You have to make it fun!
- Find ways to incorporate targets into game activities
  - Guess Who?, memory, Go Fish, Battleship, 20 questions, etc.
- Physical activity keeps it interesting/fun and engages the whole body
  - Gestures to accompany sound, moving around the room

**Self-Monitoring Skills**
- Encourage self-monitoring immediately
- Identification of clinician productions
- Use meaningful targets—functional sentences they will actually use
- Rating scales for global judgments
- Functional reminders throughout the day—help them “remember to remember”
  - Charting home practice
  - From Post-it notes to Turkey baster

**Compliance/Motivation**
- This is a HUGE issue with kids—moreso than adults
- Especially for those who have been hoarse since birth
- FAMILY compliance/motivation is crucial
  - Having caregiver in the room especially for first few sessions helps them “buy in” to therapy
  - Trains their ear for home practice, teaches cueing strategies
  - They can hear the difference!

**Increasing Motivation** (and Hopefully Compliance)
- Physical motivators
  - Less tired
  - Less pain
  - Feels good
- Social/communicative motivators
  - Ability to be heard
  - Ability to be understood
  - Sound like other kids
  - Not teased

**Increasing Motivation**
- The COOL factor
  - Princess voice, Superman voice, Motorboats
- “I beat you!” Competition as motivation
  - From time trials to Voice Skee-ball
- Limit parent criticism
  - Assure them they don’t have to be the “Voice Police”

**Increasing Motivation**
- Approach from perspective of fun, not punishment
  - “I love non-stop talkers!!!”
  - Especially for pre-operative voice therapy
  - Voice rest does not equal thumb twiddling
  - “You have lots of good things to say!”—help them understand why this matters