

Overcoming the Barriers to Treating Children with Voice Disorders: Multiple Perspectives on a Complex Problem

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Background

Children with voice disorders are historically under-identified and under-served

Access to voice therapy is a challenge across settings.

What is the best service delivery model?

How do we form partnerships and ensure that these children are identified and receive services?

Misconceptions

Children aren't aware of or affected by their voice disorder

Voice therapy doesn't work for kids

A voice disorder doesn't significantly impact a child's academic participation or educational success

Learning Outcomes

1. Describe the purpose and use of two pediatric voice screening or evaluation tools
2. Identify three barriers to access of voice services for children
3. Characterize the impact of a voice disorder on communication and academic participation

Current literature related to pediatric voice disorders

Prevalence of pediatric voice disorders

Current literature estimates the prevalence of childhood dysphonia at 6-9% in school age children

~1 million school age children in the U.S. with a voice disorder

ASHA 2016 schools survey

Prevalence studies

Bhattacharyya (2015)

- National Health Interview Survey 2012
- Voice disorders occur in 14 per 1,000 children in the U.S. annually
- 48.9% reported the problem as moderate or greater
- Medical diagnosis and treatment

Prevalence studies

Carding, Roulstone, Northstone, et. al (2006)

Examined the prevalence of dysphonia within a large cohort of 8 year-old children (n=7,389)

- Identified a prevalence of atypical voices in 6% of the study group (n = 445).
7.4% male, 4.6% female

How are children
affected by a voice
disorder?

Dysphonia affects many areas of development

General health

Social and emotional development

Self-esteem

Self-image

Participation in school and extra-curricular activities

Negatively affects perception by both peers and adults

Attitudes of children with dysphonia

Conner, N.P., et. al (2008)

- Focused interviews of 40 children and their parents (ages 2-18 years)
- Scripted questions
- Children as young as 6 years old expressed awareness and impacts of their dysphonia

Who develops vocal cord nodules?

AND WON'T THEY JUST OUTGROW THEM?

Common perceptions of children with nodules?

Loud talkers

Frequent screaming

Verbally abusive

Aggressive

Argumentative

Immature

Poor attention

Roy, Holt, Redmond, & Muntz (2007)

Standardized comparison of behaviors for 26 children with vocal nodules and 29 children without a voice disorder

Childhood Behavior Checklist

Overall behavior consistent with normative expectations, higher social scales

De Bodt, Ketelslagers, Peeters, et al (2007)

Study of 91 adolescents diagnosed with nodules prior to age 12 years

21% had persistent voice complaints

34 participants completed laryngeal evaluation

- Vocal nodules present in 47% of females and 7% of males

Barriers to identification and treatment of pediatric voice disorders

Barriers related to specialty
medical care and clinic-
based SLP services

Retrospective Chart Review

Review of children evaluated in the Northwest Clinic for Pediatric Voice between January 2014 – December 2015

Research Questions:

- Are the demographics of children referred to our clinic similar to those previously reported in the literature?
- What are the referral patterns of children referred for voice evaluation?
- What is the success of in-office laryngeal examination?

Referral Patterns

Comparing those previously seen by an SLP (n=37) and those not (n=41)

- No significant difference in age, gender, CAPE-V or dysphonia severity
- Those who had seen an SLP were significantly more likely to have the problem first noticed by an SLP than those who had not.
- Those who had seen an SLP were significantly more likely to have a primary complaint of abnormal loudness or nasality.

Primary Complaint

Hoarseness	78.21%
Cough	14.10%
Volume	5.13%
Nasality/resonance	5.13%
Other	10.26%

Patient and caregiver report

SELF-REPORT

“If I talk quietly then my voice doesn’t come out.”

“My throat is scratchy when I talk.”

“Sometimes it’s just easier not to talk.”

“It feels like it’s stuck in there.”

“I don’t like to practice reading because it hurts.”

CAREGIVER REPORT

“People who don’t know him can’t understand him.”

“I know that she gets tired of answering questions about her voice.”

“She’s always had a smoker’s voice.”

“She had to drop out of choir and is frustrated because she’s still having trouble with her voice.”

Laryngoscopy

70% tolerated in-office laryngeal examination

20% deferred due to recent examination

8.2% deferred due to poor candidacy

Examination was attempted, but unsuccessful, in only 2 patients

Treatment Plan

Northwest Clinic for Voice and Swallowing (NWCVS)	30.2%
Local outpatient clinic	9.3%
NWCVS & School	23.2%
School – established IEP	16.3%
School	21.0%

Over half (60%) intended to use school-based services for all or part of their voice treatment

Barriers to accessing specialty medical care and outpatient services

Identification and referral

Family burdens related to medical appointments

Attitudes and beliefs

Barriers related to
identification of voice
disorders in the school
setting

Identification

For many children, identification is dependent on awareness of abnormal vocal quality by parent, classroom teacher or another school staff (Lee et al., 2004)

Limited ability for SLP to observe students for possible communication disorders

Inadequate opportunities for identification on speech and language screenings

Acker & Collins, 2014

Survey of school-based SLPs in Minnesota and Wisconsin

Study purpose: to examine school-based speech-language pathologists' perceptions of why children with voice disorders are under-diagnosed and under-treated.

How does a voice
disorder impact
academic participation?

Academic participation

Reduced classroom participation

Fewer opportunities for practice and feedback

Child may attempt to conceal the voice disorder

Underdeveloped communication skills



Treating voice disorders under the IDEA

Hoffman Ruddy, Lewis & Sapienza (2013) Hoffman Ruddy & Sapienza (2004)

“Under the law, voice disorders constitute an educational disability”

Office of Special Education Programs definition of educational performance

Multidisciplinary collaboration

If I refer a student for ENT evaluation, is my district responsible for payment?

Medical statement

Requirement for medical evaluation varies between states and school districts

In Oregon, a medical statement by an Otolaryngologist is required, per statewide rule OAR 581-015-2135

Child find responsibilities mandated by IDEA

Interpreted that need for medical statement is a shared responsibility

Addressing this barrier

Identify state and district policies

Contact your state organization or ASHA SEAL

- Oregon SEAL: Janet Wagner

Parental priority

Educational team

Voice specialty clinic

Barriers related to SLP skills and competence

SLP skill development for voice disorders

Many SLPs report limited confidence in their skills to identify and treat voice disorders

Low incidence population on most caseloads

Limited practice opportunities during graduate programs

Acker & Collins, 2014

Teten, DeVeney & Friehe, 2016

Perception of skills and overall competency

Low incidence of children with voice disorders on caseload

Referral source

How do we overcome
these barriers?

Addressing barriers related to the clinic setting

Coordinated evaluation with ENT and SLP

Trial of voice therapy within the evaluation

Communication with referring providers

Collaboration between clinic and school based providers

Addressing the barriers related to SLP preparation and confidence

Academic instruction in voice, including the application of voice management for children

Faculty who teach coursework in articulation and phonological disorder disorders should include voice screening

Increased opportunities to develop skills related to evaluation and treatment of voice disorders within graduate program

Addressing the barriers related to the school setting

Increase teachers awareness of voice disorders

- <https://uiowa.edu/voice-academy>

Voice screening as part of every speech and language assessment

Become knowledgeable about policies for referral and payment

Collaboration with other professionals

Voice screening and assessment tools

Voice Screening

Screening Protocol

Boone, D. R. (1993). The Boone voice program for children. (2nd edition). Austin, TX: Pro-Ed.

Voice Screening

Screening Protocol

Lee et al., (2004). *Quick Screen for Voice and Supplementary Documents for Identifying Pediatric Voice Disorders*. LSHSS, Vol. 35, pp. 308-319

Quantifying the impact of the voice disorder

Zur, K., Cotton, S., Kelchner, L., Baker, S., Weinrich, B., Lee, L. (2007). Pediatric Voice Handicap Index (pVHI): A new tool for evaluating pediatric dysphonia. *International Journal of Pediatric Otorhinolaryngology*, 71, 77-82.

Boseley, M., Cunningham, M., Volk, M., Hartnick, C. (2006). Validation of the Pediatric Voice-Related Quality of Life Survey. *Arch Otolaryngol Head Neck Surg*, 132, 717-720.

Perceptual evaluation

Kempster, G., Gerratt, B., Verdolini Abbott, K., Barkmeier-Kramer, J., Hillman, R. (2009) Consensus Auditory-Perceptual Evaluation of Voice: Development of a Standardized Clinical Protocol. *American Journal of Speech-Language Pathology*. Vol. 18, 124–132.

Hirano, M. (1981). Clinical examination of voice. New York: Springer Verlag.

GRBAS Voice Quality Rating Scale

Hirano (1981)

GRBAS VOICE QUALITY RATING SCALE

PARAMETERS RATING

- G = Grade
- R = Roughness
- B = Breathiness
- A = Asthenia
- S = Strain

• Rating definitions:

- 0 = normal
- 1 = mildly abnormal
- 2 = moderately abnormal
- 3 = severely abnormal

Voice Assessment

Perform an S/Z ratio

- Produce /s/ as long as possible, /z/ as long as possible
- Three trials
- Longest /s/ divided by the longest /z/
- Should be 1 for normal function

Voice Assessment

Maximum Phonation Time (MPT)

- Sustaining a vowel at your modal pitch, comfortable loudness
- For the average adult, 15-20 seconds
- Children, 10 seconds

Voice Assessment

Child's rating vocal effort and perception of their voice

Scaling of Vocal effort

- Sustain /ah/ at minimum, most comfortable, and maximum loudness levels.
- Ask the child to rate the effort

Perception of voice

- How is your voice today?
- On a scale of 0-6, 0=best, 6=worst

Perceptual assessment and voice therapy trial

Role of voice therapy

Improve vocal quality and function

Avoid unnecessary surgery

Avoid or limit the use of medications

Adjunct to surgery to improve functional outcomes

Prevent future laryngeal injury

Voice therapy philosophies

Psychogenic

Symptomatic

Etiologic

Physiologic

Eclectic

Assessing vocal quality

Is their vocal mechanism capable of producing better sound?

Unload learned compensatory voicing patterns

Establish a starting point for treatment

Shaping Tasks

Lip trills or tongue trills

Humming

Sustained /hu/

Animal sounds

Voicing through a straw

Noisy bubbles

Exaggerated nasal sounds

Sustained phonation with movement

Sounds effects

Case studies

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