Treating Voice Disorders in the School-Based Setting: Working Within the Framework of IDEA

Bari Hoffman Ruddy
University of Central Florida, Orlando

Christine M. Sapienza
University of Florida, Gainesville

ABSTRACT: The role of the speech-language pathologist (SLP) has developed considerably over the last 10 years. Technological advances have sustained the life of the medically fragile child and have allowed congenital conditions to be diagnosed before a child is born. Over time, medically fragile children with these conditions become mainstreamed into regular school-based settings, thus extending the traditional role of the SLP and multidisciplinary team in the academic setting.

IDEA DEFINITION

Eligibility decisions for students in school-based settings must be made within the framework of federal legislation and regulations governing the provision of services for students with disabilities. This article discusses how to identify children with voice disorders under the Individuals With Disabilities Education Act (IDEA) definition, the role of the SLP in assigning priority in various voice management scenarios, and how models of therapy can be incorporated in the school-based setting.

KEY WORDS: child, voice disorder, IDEA, treatment, education
legislation and regulations governing the provision of services for students with disabilities. The Individuals With Disabilities Education Act (IDEA) Amendments of 1997 (P.L. 105-17) provide parameters for services that are provided in an educational setting. The final Part B section of the document states that a child is only eligible for services if the impairment “adversely impacts educational performance.” IDEA final Part B regulations define the categories of disabilities that qualify a school-age child with a voice disorder for services under the law. These categories include physical development, communication development, social or emotional development, and adaptive development. However, students with voice disorders may fail to receive therapeutic services due to the misperception that their disability will not adversely affect academic performance or achievement, or a misunderstanding of IDEA.

The phrase “adversely affects educational performance” has never been defined in the federal regulations. However, the Department of Education and the Office of Special Education Programs (OSEP) have issued a number of policy letters interpreting this phrase. In a letter of interpretation, the OSEP clarified the term educational performance, as used in IDEA,

and included the following:

Furthermore, if the presence of a speech-language impairment has been established by an SLP through appropriate appraisal procedures, the receipt of services is not conditional upon academic performance. A child who is achieving at grade level can still qualify as having a speech-language disability (Andrews, 2002, p. 593).

This letter of interpretation from OSEP suggests that a vocal impairment can include disorders or difficulties with the production of voice, misperception of one’s voice, and/or misperception by others. Students with voice problems can face many difficulties that have the potential to affect academic and social–emotional aspects of life. Because oral communication is basic to all classroom learning and is the major vehicle of instruction and interaction between students and teachers, children who experience changes in voice production or vocal behavior will generally require intervention to offset potential academic difficulties (Andrews, 2002).

**IMPACT OF VOICE DISORDERS ON EDUCATION**

A voice disorder can include deviant vocal behavior related to the pitch, loudness, and/or overall quality of a child’s voice. However, the frequency and consistency of deviant vocal behavior must be considered. Some of the common voice disorders seen in school-age children may occur from functional, organic, or neurologic processes. Some of the common functional disorders occurring from behaviors of misuse, overuse, or abuse include vocal fold edema, vascularity, nodules, and/or polyps. Fluency or articulation disorders may also result in secondary functional voice problems due to the increased phonatory effort. Organic voice disorders can be congenital, or acquired, and may include papilloma, laryngeal pharyngeal reflux (LPR), granuloma, or contact ulcers. Some neuromuscular disorders with a secondary voice component include cerebral palsy, muscular dystrophy, or other disease processes affecting speech motor control.

Structural changes to the upper airway (congenital or acquired) can also impair laryngeal function. Congenital conditions include laryngeal anomalies, such as stenosis, laryngeal malacia, clefts, laryngocles, webs, and cysts. Disorders of the central nervous system include hydrocephalus, encephalcele, and Arnold-Chiari syndrome; disorders of the cardiovascular system may include cardiomegaly or abnormal vessels. Acquired disorders include trauma from birth injury or postsurgical correction of cardiovascular, esophageal, or cranial anomalies; tumor compression; and infection, such as whooping cough, polio, syphilis, or tetanus (Friedberg, 1983; Gray, Smith, & Schneider, 1996). The challenge for clinicians is to understand how the underlying pathophysiology of these disease processes affects vocal function and the child’s behavior in order to provide effective therapeutic interventions.

Children with voice disorders can be negatively affected in a variety of ways. For example, children may attempt to conceal atypical vocal production or feelings of inferiority about their voices. This in turn may seriously limit their classroom participation, giving them fewer opportunities to practice and receive feedback. Andrews (2002) stated that school-age children’s preoccupation with concealing deviant vocal behaviors might interfere with concentration during academic activities and/or cause peer reaction or embarrassment. Social–emotional implications may include children becoming withdrawn and reticent, or vocally aggressive and defiant, in situations where the child is attempting to compensate for his or her vocal disability. These problems can become progressively worse without intervention and can seriously impact learning. Additionally, children who use a limited number of vocal strategies (i.e., whining, crying, or talking loudly and incessantly) as a way to solve interpersonal problems may be at risk for being evaluated in negative ways by educators. This may indirectly affect how they are viewed in all aspects of their educational process.

For the adolescent population, academic content emphasizes school-to-career activities. The school-to-career program connects academic learning to practical application. Many of these career-related activities demand efficient vocal communication skills for interviewing, employment opportunities, internships, apprenticeships, or mentorships in order to create a strong relationship between the student and the worksite. The adolescent with voice difficulty may have fewer opportunities (or none at all) to participate in these educational routines. Furthermore, adolescents with voice problems may have difficulty modifying maladaptive habits and inappropriate compensations later in life as they transition into college and career-related activities. Some of the adverse effects of voice impairment on a child’s educational performance can include the following:

- difficulty being heard or communicating in educational environments inside or outside of the classroom setting
• limited participation in public speaking activities
• fear of participating in oral reading activities
• limited participation in classroom discussions with peer groups
• fear of conversing in interpersonal interactions (i.e., raising hand to request to go to the bathroom)
• limited participation in regular physical education routines due to compromised physiologic aspects of the laryngeal anatomy
• limited participation in music education (vocal and instrumental) due to a compromised upper airway
• reluctance to participate in activities, such as school plays, cheering, and debate
• limited participation in secondary education coop activities, requiring the student to take nonvocal jobs only
• reluctance to participate in interview activities, thereby limiting access to employment and certain educational opportunities
• negative attention from peers, teachers, and other school personnel
• hindrance of academic goals of other classroom students (i.e., a child’s voice quality may be distractive to other classmates who may focus on the abnormal voice quality instead of on the content of the message)

In the care of voice, the benefits of a multidisciplinary team approach are numerous. Below is a description of the IDEA criteria for a multidisciplinary team, as well as a description of their function.

IDEA: THE MULTIDISCIPLINARY TEAM

According to IDEA, a multidisciplinary team must decide eligibility for special education services. Members of the team must include the child’s parents, at least one regular education teacher (if the child will be participating in regular education), at least one special education teacher or special education provider, a representative of the school, and an individual who can interpret the instructional implications of evaluation results. An ad hoc member of the team may also include the otolaryngologist and/or voice pathologist.

Each member serves an important role on the multidisciplinary team. For example, the role of the classroom teacher is to identify children who are at risk and to have an understanding of the consequences of vocal difficulty on a student’s educational performance. In addition, the classroom teacher works in collaboration with the SLP by providing consistency between the therapy room and the classroom for generalization into the child’s more natural setting (i.e., voice production in the classroom with peers, on the playground, and in the lunchroom). Classroom teachers are also able to facilitate and support the child’s efforts to maintain good vocal habits throughout the school day versus the portion of time that the child is receiving direct services.

Because voice therapy relies on home programming for carryover to the child’s real world, the compliance and motivation of parents, siblings, friends, and other family members is critical to the success of the treatment. Occasionally, the child may face teasing or ridicule from siblings or peers because of the need to practice various vocal exercises or the need to restrict the use of his or her voice. Therefore, the inclusion of family members and friends in the child’s vocal rehabilitation program is a key factor in generating support for the child in the therapy process when he or she leaves the therapeutic setting.

Without this support, the child may feel alone or misunderstood. SLPs can help by counseling the parent, sending home checklists, and corresponding via phone or face-to-face conferences to facilitate home carryover. Another role of the parent is to assist the SLP in identifying vocal abuse problems that are occurring in the home or in extracurricular settings. Such activities may include loud peer or family involvement, smoky environments, vocal manipulations (i.e., crying to get what they want), and possible allergens.

The role of the SLP in the school-based setting is vast. The SLP becomes an advocate for the child and a motivator for the entire team. The SLP is typically the only on-campus link between the physician and the parent. As such, the SLP acts as the leader for dissemination of information between all team members. Most importantly, the role of the SLP is to become an educator for campus staff and teachers. The SLP may do so by providing inservice workshops, demonstrations, checklists, and/or pamphlets. Resources such as the Quick Screen for Voice instrument found in this issue should be included in this process (Lee, Stemple, Glaze, & Kelchner, 2004). In turn, teachers and staff can help identify children who are at risk and make appropriate referrals in a timely manner.

In many settings, once school-based personnel identify a child as having a “potential voice problem,” it is the school SLP who often becomes the primary advocate for the child’s laryngeal examination. The justification for persistence in this recommendation is clear-cut. For example, there are times when dysphonia in a child may seem consistent with a hyperfunctional disorder, but in fact it may be a perceptual representation of other organic pathology (e.g., papillomatosis, submucosal cysts, gastrointestinal or laryngeal-pharyngeal reflux, webbing, stenosis, paralysis) Medicinal, rather than solely behavioral, treatment is needed for these laryngeal conditions (Glaze, 1996). Moreover, an understanding of the primary pathology may lead to better insight regarding the secondary laryngeal and respiratory compensations that a child may exhibit.

There is also a need for the SLP to “suspect a correct diagnosis” (Glaze, 1996) whenever the child’s vocal behaviors and verbal affect do not match the profile of “vocal abuse/misuse” or other patterns associated with a particular disease process. For example, Glaze discussed an unusual case that was described by a clinician regarding a child with presumed nodules, when the child actually had suffered a fractured larynx during an incident of stranger abuse. Because the child’s affect was very reticent, quiet, and withdrawn, the clinician was alerted to the mismatch between typical hyperfunctional voice activity and her
client’s vocal behaviors. Another example described by a referring otolaryngologist (J. Lehman, personal communication, September 14, 1999) revealed that a child had been treated in the school-based setting for presumed vocal nodules due to the perceived hoarse voice quality, strained production, and inadequate respiratory dynamics. The child had been receiving speech therapy in the elementary school for 3½ years before a diagnosis of anterior webbing was made. These scenarios provide a firm justification for insisting that all children with presumed voice disorders must receive a medical diagnosis (preferably by an otolaryngologist) before initiating any therapeutic services (ASHA, 1992, 1998). Furthermore, there are certain laryngeal pathologies for which voice therapy would not be appropriate and would, in fact, be strongly contraindicated (i.e., papillomatosis, stenosis). For these conditions, the delay of an accurate diagnosis could be potentially life threatening (Boone & McFarlane, 2000).

**TRIAGE SCENARIOS**

**Scenario 1**

Triage is a general term that refers to a system of assigning priority. When a child is referred to the school-based SLP, the typical triage scenario involves an abbreviated screening of the child’s vocal quality. If the screening reveals moderate to severe changes in voice quality, the SLP will then meet (district/state) criteria by referring the child to a physician for a laryngeal examination (preferably an otolaryngologist). Once the diagnosis is established, the physician will provide treatment recommendations. If behavioral voice therapy is indicated, the child is referred back to the school-based SLP and an individualized education plan (IEP) is developed so the child can receive services as stipulated under IDEA.

The goals of voice therapy (included in IEPs) should reflect the nature of the voice impairment. For example, if a child is diagnosed with vocal fold nodules, then the goals for therapy may include the following:

- building awareness of factors relating to this voice problem (i.e., vocal overuse, misuse or abuse)
- discriminating between healthy versus vocally abusive behaviors
- applying laryngeal relaxation strategies for optimal use of the vocal mechanism
- using appropriate pitch, loudness, and rate in spontaneous conversation
- using appropriate voice quality in everyday speaking/spontaneous conversation

The objectives of each goal should be individually tailored for the child based on his or her symptom profile. Example objectives for goal #1 (building awareness of factors relating to the voice problem) may include (a) awareness of normal anatomy of the vocal mechanism, (b) awareness of causes of voice problems and how they affect the vocal folds, and (c) identification of physical behaviors that contribute to inappropriate voice. These objectives may be facilitated through a combination of activities, such as constructing the vocal mechanism with clay; drawing or painting the anatomical landmarks; using anatomy coloring books, video demonstration, observation, and/or question and answer sessions.

In order to document improvement, a goal must have criteria that are measurable. An example for goal #2 (discriminating between healthy and vocally abusive behaviors) might be that the child will discriminate between healthy and abusive voice production 80% of the time. The clinician may have the child listen to audio samples of him- or herself or others and rate each production. Clinicians may also consider having the classroom teacher or parent involved in data collection while the child is engaged in voice production in a more natural setting. The clinician may facilitate this by providing checklists of appropriate vocal behaviors or progress charts to the teacher and parent to fill out for a specified activity (i.e., classroom discussion, oral reading, engaging with siblings in the home). The SLP can collect and review these data sheets and make adjustments to the therapeutic plan based on the child’s compliance in these different settings.

Other scenarios clinicians may encounter are more complex. Some of the situations described below may further extend the role of the SLP in order to provide an effective diagnostic and therapeutic process. Provided in each scenario are suggestions of ways to advocate for each child’s needs, even when the situation is less than optimal.

**Scenario 2**

In this scenario, the child is referred to the SLP by the classroom teacher for perceived hoarseness and vocal difficulty. The SLP administers a standard voice screening as per district/county guidelines; however, a further evaluation is not warranted because the child’s screening did not yield a score that would qualify the child for further evaluation based on the district/county guidelines for speech and language services. Clinicians may question how far the role of the SLP extends. Could the child’s “mild” voice difficulty worsen without treatment? Should the SLP refer the child for private services because he or she does not qualify for services in the schools?

The role of the SLP here would include correspondence with the parents, providing them with a checklist of behavioral indicators in case the condition progresses. Certainly, the child’s condition could worsen over time, particularly if behavioral indicators are not completed and the parent is unaware of how to modify the child’s environment. The SLP may elect to educate the parents on vocal health and hygiene and organize a home therapy program. The SLP should also provide the parents with resources available in their community if the parents wish to seek services on their own outside of the school setting. Although the child is not eligible for services under IDEA in this scenario, the SLP’s time consulting with the parent is considered part of the standard workload (ASHA, 2002).
Scenario 3

In this scenario, the classroom teacher refers the child to the SLP. The SLP administers a standard voice screening. Based on the results of the screening, the child is referred to a physician for a laryngeal examination. After a period of time, the SLP learns that the child was never examined by a physician due to noncompliance by the parent and/or no financial support. Clinicians may be concerned about how the child’s needs get addressed under IDEA.

In several counties or school districts, Scenario 3 has been successfully addressed through free community-based clinics organized by the school-based SLP (Leeper, 1992). These clinics involve a physician (preferably an otolaryngologist) and an SLP/voice pathologist specializing in voice care outside of the school-based setting who is particularly knowledgeable with the distinguishing features of pediatric laryngeal structure and function. The physician and SLP/voice pathologist would volunteer their time and services for this activity. The clinic could be held at the school (if space is available) or in a medical office. The child presents for the laryngeal examination with both the parent and the school-based SLP. A brief review of the child’s past medical and developmental history is discussed and a symptom profile is established. The otolaryngologist would perform an indirect (or preferably endoscopic) laryngeal examination for the children who were identified as being at risk. Once the diagnosis is established, the SLP/voice pathologist would conduct a short consultation with the child, parent, and school SLP suggesting treatment strategies appropriate for the current condition. The school-based SLP would now be able to develop the IEP and implement therapeutic services under the guidelines of IDEA.

Scenario 4

In this scenario, a child is referred to the SLP by the classroom teacher due to abnormal voice quality. Following a standard screening, the child is referred to a physician for a laryngeal exam. The physician’s report is negative for laryngeal pathology but agrees that the child has a “functional” dysphonia. What is the role of the SLP? Will the child need therapeutic services or just outgrow the behavior?

Scenario 4 may present some challenges to the school-based SLP, primarily because school district/state guidelines may vary regarding the management of “functional” cases. If district/state guidelines do not permit the SLP to initiate therapy, one possible solution is to counsel the classroom teacher on therapeutic strategies that may be helpful in eliminating deviant or “functional” behavior. Another strategy would be to determine if the child is stimulable for any normal voice production. If the child is stimulable, then the SLP may elect to provide the parent and/or classroom teacher with strategies to facilitate the therapeutic process. Last, the school-based SLP may consider the potential for another underlying cause for the resulting voice quality and make appropriate referrals to medical professionals to share in the evaluation and care of this child.

Scenario 5

The classroom teacher refers a child to the SLP. The child’s voice screening from the SLP warrants a referral to the otolaryngologist due to presumed hyperfunction. The otolaryngologist finds organic pathology (or severe structural abnormality). The otolaryngologist recommends that the child receive voice therapy and refers him or her back to the school-based SLP. However, the SLP feels uncertain about the type of voice therapy that is appropriate for this child and is uncomfortable initiating treatment. How does the child receive the services that he or she requires?

It may be helpful to identify a “voice specialist” within the school district who can consult on these difficult-to-treat cases. Inservice workshops that are presented in a “grand rounds” style may also be helpful so that ideas for treatment can be discussed or demonstrations of new treatment techniques can be practiced in a forgiving environment.

SERVICE DELIVERY OPTIONS

There are several service delivery options that are effective under the IDEA guidelines. It is important for clinicians to remember that the typical therapy model that is followed for children with articulation or language-based deficits may not be an effective model for children with voice disorders. Therapeutic models should be tailored to fit the academic and therapeutic needs of each child. However, children with voice disorders typically represent a small group of the general population of children receiving speech and language services in the schools. Therefore, clinicians may experience difficulty finding the best group, time, or service delivery model for a child with a voice disorder. General questions and concerns that clinicians may face include the following: Which therapy group would the child fit in best? What treatment activities would fit with the other disorders being treated in the same group? How long do I keep the child in therapy or on the caseload? How do I collect the appropriate data to reflect progress? Some of the IDEA options for service delivery to address these issues can include the following:

- **Classroom pullout.** The child leaves the regular education classroom to receive voice therapy in a one-on-one or small-group environment. The therapeutic activities may include identification of vocal behaviors, education on vocal health/hygiene, or practicing vocal exercises.

- **Classroom-based service delivery.** The SLP works with the child in the classroom or recreational environment for a designated period of time. The clinician may incorporate voice therapy during small-group “centers” (i.e. reading group) with peer interaction or observe vocal behavior of the child during physical education activities, providing timely feedback and cues.

- **Collaborative method.** The SLP works in collaboration with other service delivery team members (i.e., occupational therapist or physical therapist),
incorporating voice therapy strategies during other therapeutic services.

- **Consultative method.** The child and clinician meet one time per month to monitor progress or reestablish appropriate use of therapeutic techniques.

- **Individual therapy sessions.** The clinician and child meet one-on-one to establish therapeutic techniques in an intensive manner.

- **Small-group sessions.** These sessions ideally would be conducted with other children with voice disorders.

The frequency of visits can vary from one time per week, every other week, one time per month, or any combination of these options. In addition, some unique intervention models could be integrated into service delivery options. Some of these models include implementing classroom lessons for the entire class that involve vocal health and prevention strategies; creating science and health projects associated with voice; providing materials that parents can use to teach vocal awareness at home to the entire family; implementing voice treatment programs with small groups, in peer dyads, or one-on-one; and collaborative voice therapy programs with music, drama, or physical education teachers (Andrews, 2002). Clinicians may continue to explore other collaborative therapeutic programs within the school-based community in order to facilitate a therapeutic plan that is unique to the child’s individual needs.

**SUMMARY**

Understanding the impact of voice disorders on the educational performance of children continues to be a struggle for many clinicians. This article describes some of the factors that may affect eligibility criteria and defines the role of the SLP and multidisciplinary team working within the framework of IDEA. In addition, triaging scenarios are provided as practical models of intervention and have described some unique ways to advocate for each child’s needs, even when the scenario is less than optimal. If left untreated, any voice disorder has the potential to result in more severe structural abnormalities and have a significant impact on academic performance and learning.

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Contact author: Bari Hoffman Ruddy, PhD, P.O. Box 162215, Orlando, FL 32816. E-mail: bhruddy@mail.ucf.edu