ABSTRACT

Early identification of pediatric disfluency and voice disorders is advisable because these disorders may progress to lifelong communicative impairments if left untreated. Especially with disfluency or stuttering, it is critical that an informed differential diagnosis be made to determine whether a speech pattern represents normal disfluency or actual stuttering. Voice disorders can be overlooked as laryngitis, when in fact the problem may be organic in origin. This article describes characteristics of both disorders, etiologic factors, and checklists to assess children for referral to an otolaryngologist and/or speech-language pathologist. Medical and therapeutic treatment recommendations also are discussed.


Identification and Remediation of Pediatric Fluency and Voice Disorders

Barbara M. Baker, PhD, CCC-SLP, & Patricia B. Blackwell, PhD, CCC-SLP

When children cannot communicate well, the difficulty often is because they have articulation or language disorders, but other difficulties also may adversely affect children’s abilities to express themselves. Problems with fluency (stuttering or cluttering) and voice quality can impair communication. Pediatric nurse practitioners need to be prepared to respond to parents’ questions about voice and fluency issues and, when appropriate, to make referrals for evaluation and possible treatment. This article presents a basic overview of the nature of fluency and voice disorders and provides guidelines for identifying children who should be referred, and to whom.

FLUENCY DISORDERS

Two different terms relate to fluency disorders. The more frequent and best known is stuttering, which may include repetitions of words or parts of words, prolongations of sounds, and/or the temporary blockage of speech. A second type of disfluency, cluttering, occurs far less frequently than stuttering, and results in speech that is “rapid, dysrhythmic, sporadic, unorganized, and frequently unintelligible” (Daly, 1992, p. 107). A rapid rate and lack of organization of ideas distinguishes cluttering from stuttering. Because stuttering is considerably more common, with a prevalence of approximately 1% of the pediatric population (Guitar, 1998), it will be the focus of this article. If, however, a child exhibits rapid, unorganized, and dysrhythmic speech in the absence of typical stuttering symptoms, a referral for evaluation and possible treatment for cluttering is appropriate. It

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should be noted, however, that stuttering and cluttering may co-exist in the same child (St. Louis & Myers, 1997).

**Normal Disfluency and Stuttering**

As early as the beginning of the 20th century, researchers in child language noticed transient periods of disfluency occurring in the speech of young children who otherwise seemed to be developing normally (Brandenburg, 1915). Yet until the 1930s and 1940s, however, did systematic research begin to investigate the existence of these normal disfluencies, that is, stuttering-like occurrences in the speech of typically developing children (Adams, 1932). It is now well accepted that some children, beginning between the approximate ages of 2 to 4 years, easily repeat sounds, syllables, or words but are not necessarily stuttering (Yairi & Ambrose, 1999). Some of the repeating, pausing, and general confusion with expressive speech is normal. It may reflect the complexity of the language structures the child needs to master, the difficulty the child is experiencing in coordinating his oral movements efficiently, or the distraction associated with environmental stress or excitement. These normal disfluencies generally peak in frequency between 2 and 3 ½ years of age and diminish thereafter, although episodic increases and decreased may be noticed throughout childhood (Guitar, 1998). For some children, however, the appearance of disfluencies marks the onset of true stuttering.

**Causes of Stuttering**

Although stuttering was one of the earliest communication disorders to be studied (Brandenburg, 1915) and has been the subject of numerous research articles, it remains one of the most challenging and least understood disorders. A persistent question concerning stuttering is its etiology. What causes stuttering? Some persons suggest a biologic basis through genetic influences, and some evidence exists for this position. Fifteen percent of stutterers have a first-degree relative (mother, father, sibling, or child) who is a current or recovered stutterer (Felsenfeld, 1997). Other investigators suggest that stuttering arises from environmental factors such as competition for speaking turns or pressure to communicate at a time when the child is still learning language (Johnson & Leutenegger, 1955). Still others purport biologic factors interacting with environmental factors (Conture, 2001). According to one interpretation of the latter theory, when a child is under stress, the coordination of the muscles of speech appear to fail. This failure of coordination, coupled with an overload of communication pressure, such as accelerated speech rate, interruptions, complex language demands, and anticipation of speech difficulty, may have a negative impact on speech fluency (Logan & LaSalle, 1999). Conditioning and other learning factors appear to contribute to maintaining the problem. Over-concern, noticeable anxiety, or negative reactions of parents can draw attention to a child’s speech and consequently exacerbate the disfluent pattern. Peers’ reactions also may affect stuttering. Recent evidence indicates that children as young as 3 years notice disfluencies in the speech of others and by 5 years attach a negative value to the disfluencies, that is, the stutterers are doing “something wrong” (Ezrati-Vinacour, Platzyk, & Yairi, 2001).

Occasionally medication has been observed to cause stuttering-like symptoms. Burd and Kerbeshian (1991) reported the case of a 3-year-old child who started stuttering after stimulants were taken. In a 1994 study, three children began stuttering after taking theophylline (Rosenfield, McCarthy, McKinney, & Viswanath, 1994). Stuttering symptoms resolved after medication was discontinued. Although these cases are rare, if a child begins stuttering after initiating or changing medications involving either of the aforementioned types, the role of medication should be investigated.

**Prevalence of Stuttering**

Approximately 5% of the population, at some point during their lives, has experienced true stuttering for at least 6 months (Guitar, 1998). Typically the onset of stuttering occurs before a child’s fourth birthday and is termed developmental stuttering. Disfluencies that do not begin until adulthood are often associated with psychogenic or neurogenic factors (Brady, 1998). (For information concerning adult onset of stuttering, see Baumgartner [1999] and Helm-Estabrooks [1999]). Both the onset and course of developmental stuttering vary by individual child. In the majority of children, onset is mild and devoid of struggles to speak, much like normal disfluencies. In approximately one third of stuttering children, onset is abrupt, with severe and frequent fluency disruptions (Yairi, 1997). Approximately 74% of children who begin true stuttering show remission within 4 years, but for the remaining 26%, stuttering becomes chronic (Yairi & Ambrose, 1999).

Although males are more likely to stutter than females, the ratio is not consistent across ages. In young children, the male to female ratio is 2:1, but in adulthood it increases to 5:1 (Ambrose, Cox, & Yairi, 1997).

**Primary Characteristics of Stuttering**

Stuttered speech may be characterized by involuntary prolongations of sounds, inability to start a word, or repetitions of parts of a word or whole words.

Stuttering becomes chronic (Yairi & Ambrose, 1999).

Although males are more likely to stutter than females, the ratio is not consistent across ages. In young children, the male to female ratio is 2:1, but in adulthood it increases to 5:1 (Ambrose, Cox, & Yairi, 1997).

**Primary Characteristics of Stuttering**

Stuttered speech may be characterized by involuntary prolongations of sounds, inability to start a word, or repetitions of parts of a word or whole words. In the majority of children who stutter, repetitions affect only parts of words, often the initial syllable (eg, “da-da-daddy”). Repetitions usually number three or more per syllable. Children who stutter also may prolong sounds (eg, “ssssoup”). Infrequently a young stutterer will have a tense pause with articulators, that is, lips, jaw, tongue, and vocal folds, fixed in one position. Children who are beginning to stutter may show some momentary frustration and even say something to their parents about the disfluencies, but their concern seems largely transient (Guitar & Conture, 2001).
Secondary Characteristics

In a struggle to free himself or herself from the throws of dysrhythmia, the child who continues to stutter may develop facial grimaces, eye blinks, or body movements that become a consistent part of that individual’s stuttering pattern. These behaviors are known as secondary characteristics because they are a response to the tension of stuttering. The child may avoid making eye contact, saying particular words, or engaging in selected verbal interactions (e.g., phone calls, class participation, presentations, and reading aloud) (Guitar, 1998).

Identifying Beginning Stuttering

Parents and professionals who work with children may have difficulty determining if a young child is experiencing normal disfluencies or if they are beginning to stutter. In both cases part-word and single-syllable word repetitions may occur. Children who are beginning to stutter experience more frequent disfluencies, and individual disfluencies contain a greater number of repetitions of grammatical units, that is, sounds, syllables, or words. Although a clear dividing line does not exist between the frequency of disfluencies of these two groups of children, most researchers agree that a child who is disfluent only once in every 10 sentences is presenting more as a child with normal disfluencies than a beginning stutterer. Normally, disfluent children repeat grammatical units once (“I-I want to go”) or, less frequently, twice (“ba-ba-baby”). Children who are beginning to stutter may have two, but

### TABLE 1 Health care provider’s checklist for referral*

<table>
<thead>
<tr>
<th>Variables</th>
<th>The child with normal disfluencies</th>
<th>The child with mild stuttering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speech behaviors</td>
<td>Repetitions of sounds, syllables, or words that are occasional (not more than 1 in every 10 sentences and brief (½ second or shorter)</td>
<td>Repetitions of sounds, syllables, or words that are frequent (3% or more of speech) and long (1⁄2 to 1 second); occasional sound prolongations</td>
</tr>
<tr>
<td>Other behaviors</td>
<td>Occasional pauses, hesitations/fillers (eg, “uh,” changing words/thoughts)</td>
<td>Repetitions and prolongations begin to be associated with eyelid closing and blinking, looking to side, and some physical tension in and around lips</td>
</tr>
<tr>
<td>When noticed</td>
<td>Tends to come and go when child is tired, excited, talking about complex topics, asking/answering questions/talking to unresponsive listeners</td>
<td>Tends to come and go in similar situations, but often is more present than absent</td>
</tr>
<tr>
<td>Child reaction</td>
<td>None apparent</td>
<td>May show some concern/be frustrated or embarrassed</td>
</tr>
<tr>
<td>Parent reaction</td>
<td>Varies from none to a great deal</td>
<td>Most parents are concerned, but concern may be minimal</td>
</tr>
<tr>
<td>Referral decision</td>
<td>Refer only if parents are moderately to overly concerned</td>
<td>Refer if continues for 6 to 8 weeks or if parental concern justifies</td>
</tr>
</tbody>
</table>

*Data from Guitar & Conture, 2001.

### TABLE 2 Overview of various voice disorders affecting children*

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Description</th>
<th>Cause</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocal nodules</td>
<td>Bilateral benign growths on anterior vocal cords</td>
<td>Vocal abuse</td>
<td>Surgery and/or voice therapy</td>
</tr>
<tr>
<td>Vocal polyps</td>
<td>Unilateral benign growths of anterior vocal cords</td>
<td>Atmospheric irritation</td>
<td>Medical treatment and/or voice therapy</td>
</tr>
<tr>
<td>Juvenile papilloma</td>
<td>Wartlike lesions</td>
<td>Viral infection</td>
<td>Surgery and voice therapy</td>
</tr>
<tr>
<td>Laryngeal web</td>
<td>Membranous attachment between vocal cords</td>
<td>Congenital acquired</td>
<td>Surgery and voice therapy</td>
</tr>
<tr>
<td>Extrinsic trauma</td>
<td>Fracture or displacement of extrinsic laryngeal cartilages</td>
<td>Motor vehicle accident or injury</td>
<td>Surgical reconstruction and voice therapy</td>
</tr>
<tr>
<td>Intrinsic trauma</td>
<td>Fracture or displacement of intrinsic laryngeal cartilages</td>
<td>Intubation</td>
<td>Surgical reconstruction and voice therapy</td>
</tr>
<tr>
<td>Vocal cord paralysis</td>
<td>Damage to superior and/or recurrent laryngeal nerves</td>
<td>Tumor</td>
<td>Laryngoplasty and/or voice therapy</td>
</tr>
<tr>
<td>Hypernasality</td>
<td>Excessive nasal resonance</td>
<td>Velopharyngeal insufficiency</td>
<td>Surgery and/or voice therapy</td>
</tr>
<tr>
<td>Hyponasality</td>
<td>Decreased nasal resonance</td>
<td>Nasal airway obstruction</td>
<td>Surgery and/or voice therapy</td>
</tr>
<tr>
<td>Vocal cord dysfunction</td>
<td>Paradoxical vocal cord movement</td>
<td>Idiopathic, psychogenic, asthma, gastroesophageal reflux disorder</td>
<td>Voice therapy</td>
</tr>
</tbody>
</table>
usually more repetitions of a grammatical unit (“My-my-my-my daddy is go-ing” or “Da-da-da-daddy”). Children who are beginning to stutter may repeat whole words and the initial sounds of words, but repetitions of normally disfluent children tend to more frequently involve whole words. Guitar (1998) suggests that as a child who has normal disfluencies grows older, his repetitions are likely to involve even more words within the unit that is repeated, for example, “Stu went to see...Stu went to see Liza.” Children who are experiencing normal disfluencies do not seem to notice that they are having difficulties with their speech. Children who stutter may show temporary frustration or awareness. Both groups of children experience periods of fluency, but such periods are shorter and less frequent for the child who is beginning to stutter. Normal disfluencies often will decrease in frequency and severity within a year of onset.

In summary, many children go through periods of speech disfluency. In some children disfluencies resolve, and in others they persist and intensify into true stuttering. Children are more in jeopardy of developing stuttering if they have a family history of stuttering, are late in learning to speak, or if language development is advanced in comparison with their oral coordination. Children who stutter are more likely to continue stuttering if they associate it with tension and frustration and try to avoid disfluencies. True stuttering may be suspected when a child usually has more than two repetitions of a speech unit (eg, “ra-ra-ra-rabbit”), or disfluencies are more frequent than one in every ten sentences. Tension and struggle in the facial muscles, especially around the mouth, are associated with true stuttering, as are behaviors such as changing or avoiding words or speaking situations. Table 1 outlines the differences in normal disfluencies and beginning stuttering.

**VOICE DISORDERS**

Another concern for pediatric nurse practitioners is the diagnosis and treatment of pediatric voice disorders (Table 2). A normal voice should have a pleasing quality and should not distract the listener. A voice problem exists when the loudness, pitch, or quality of the voice is not appropriate to the age or sex of the child. For example, the voice may exhibit hoarseness, breathiness, a pitch that is too high for a boy or too low for a girl, be too nasal (hypernasality) or insufficiently nasal (hyponasality), or have a volume that is too loud or soft. Pain or discomfort while speaking or singing may indicate a more significant problem.

Greene and Mathieson (2001) state that approximately 3% to 9% of the pediatric population exhibits symptoms of voice disorders. Boys tend to present with voice disorders more frequently than do girls. The word “voice” refers to sound produced by the vocal cords. The distinction between speech and voice is that speech is the final outcome of sound generated from the vocal cords. The movement of the tongue and lips in the oral cavity produces articulated speech. Voice may be described in terms of loudness, pitch, resonance, and vocal quality such as hoarseness, harshness, and/or breathiness.

From time to time, children intermittently develop hoarseness, but the symptoms subside within days. However, if the symptoms persist or recur, it is sometimes difficult to determine whether to dismiss the problem or to further investigate the possibility of vocal cord pathology.

**Types of Voice Disorders**

Voice disorders result from vocal abuse or misuse, lesions on the vocal cords, gastroesophageal reflux disease, extrinsic trauma, vocal cord paralysis, and velopharyngeal insufficiency, to name a few etiologies. Hoarseness, a common outcome of voice impairment, may require referral to a speech language pathologist for voice therapy. Regardless of who identifies the voice problem (eg, parent, teacher, or nurse practitioner), the child must first be seen by an otolaryngologist to determine if vocal pathology exists. Once the status of
the vocal cords is determined, the oto-
laryngologist will either decide to treat
the child through surgery or medica-
tion or refer the child to a speech lan-
guage pathologist for voice therapy.
Voice therapy takes the form of evalua-
tion of various vocal parameters such
as respiration, phonation, and reso-
nance. A treatment plan is developed to
remediate the aberrant vocal quality
and contributing behaviors. For exam-
ple, a child with hoarseness may need
therapy to elevate a low pitch, reduce
straining, enhance the efficiency of res-
piration, reduce loud volume, and
eliminate vocal abuse behaviors. Chil-
dren with nasal emission of sounds
may require therapy to strengthen the
soft palate, establish correct articula-
tion, and reduce hypernasality.

Vocal abuse is a significant factor in
the development of hoarseness in chil-
dren. Health problems that contribute
to pediatric vocal abuse are frequent
upper respiratory tract infections,
"laryngitis, hearing loss, allergic reac-
tions, and asthma (Greene & Math-
ieson, 2001). Young children abuse their
voice by yelling on the playground or
making sounds with their voices to im-
itate motorcycles or other vehicles.
Adolescents cheer at sports events or
overuse their voice during choir or
other school activities. Mild infrequent
vocal abuse may result in transient
laryngitis, whereas chronic persistent
vocal abuse may lead to the develop-
ment of vocal cord lesions. Careful re-
view of the child’s behavioral profile
will help identify the possibility of vo-
cal abuse. Another factor in children
developing hoarseness is vocal misuse.
Children speak on the wrong pitch or
loudness level, use an inefficient respi-
ratory pattern, or tense and push out
the voice. Careful review of the child’s
behavioral profile by health profes-
sionals will help identify the possibility
of vocal abuse versus vocal misuse. A re-
feral to a speech pathologist is appro-
priate in either case to address the be-
havioral aspects of the disorder.

Vocal cord lesions, the majority of
which result from vocal abuse, can
range from vocal cord nodules (Figure
1) to polyps, juvenile papilloma, granu-
loma, or laryngeal webbing. Each type of
lesion is discussed below.

Vocal nodules are caused by vocal
abuse and are the result of a thickening
of the vocal cords (Kauffman, Lina-
Grande, & Truy, 1992). Nodules are typ-
ically bilateral, because there is often an
irritation at the same site on the oppos-
ing fold. The most common symptom of
nodules is hoarseness, a deep pitch, and
effortful, strained voice production.
Most otolaryngologists do not surgically
excise nodules from the vocal cords of
children but recommend voice therapy
for less effortful voice production. If the
abusive vocal pattern is corrected, the
nodules will disappear (Boone & McFar-
lane, 2000). If the vocal abuse continues
and is not modified through voice ther-

FIGURE 2 Four examples of anterior vocal cord web. (Reprinted with permission from Boone DR, McFarlane SC. The voice and voice therapy [6th ed.]. Boston: Allyn and Bacon; 2000.)

apy, the nodules will become hardened
and fibrotic. Even if nodules are re-
moved and no change occurs in abusive
vocal behaviors, nodules will recur.

Koufman, Sataloff, and Touhill (1996)
found that children with nodules also
may have gastroesophageal reflux dis-
eease. By using 24-hour double-probe
pH monitoring, they found that gas-
троesophageal reflux occurs in approxi-
mately half of patients with nodules.
Symptoms of gastroesophageal reflux
disease are hoarseness, pain upon initi-
ation of the swallow, lump-in-the-throat
sensation, frequent throat clearing, and
a dry cough. The pain symptoms and
dry cough usually are not found with
nodules from vocal abuse alone. Kouf-
man et al. suggest that voice therapy to
address the hoarseness combined with
antireflux medication is the most effec-
tive treatment.

Atmospheric irritation to the mucosa
may lead to vocal cord polyps. In chil-
dren, the most common cause is allergy.
Postnasal discharge leads to chronic
abusive throat clearing, resulting in vig-
orous approximation of the vocal cords.
The polyps usually are found on one
cord rather than bilaterally, as with
nodules (Boone & McFarlane, 2000).

T he most common
symptom of nodules is
hoarseness, a deep pitch,
and effortful, strained
voice production.
The voice characteristics associated with polyps, like those of vocal cord nodules, are deep pitch, hoarseness, and straining. Voice therapy is typically prescribed following medical/surgical management of the causal factors.

Juvenile papilloma are benign neoplasms that appear as wartlike lesions growing on the vocal cords and into the trachea. They are a result of viral infection (Greene & Mathieson, 2001). Papilloma occur more frequently in boys. They generally disappear at puberty but may recur later. If so, the lesions require surgical removal. It is not uncommon for an individual to have as many as 20 surgical or laser procedures to remove the papilloma and maintain a patent airway. Vocal quality is characterized by moderate to severe hoarseness, either a very deep pitch or an intermittently high-strained pitch, and breathiness. Vocal cord paralysis can result from extrinsic trauma such as a crush injury to the larynx or from intrinsic trauma to the nerves, innervating the vocal cords (Boone & McFarlane, 2000). The voice may sound hoarse and breathy because the paralyzed cord is not approximating the midline. Voice therapy is an effective treatment for unilateral vocal cord paralysis in some cases, because the normal functioning cord may be trained to cross the midline and close against the paralyzed cord to obtain an acceptable voice (McFarlane, Watson, Lewis, & Boone, 1998).

Velopharyngeal insufficiency, or abnormally decreased movement of the soft palate, results in hypernasality. Hypernasality is characterized by excessive nasal resonance. The voice sounds nasal with often audible emission of turbulent air through the nose. A well-known anatomic abnormality of the velopharynx is cleft palate. Murray (1998) indicates that surgical repair of cleft palate optimally takes place when the child is 6 to 12 weeks old. Surgery at this time reduces nasal regurgitation of food and liquids and facilitates speech development. Normal speech develops in 50% of children after repair of the cleft palate.

Hypernasality sometimes follows adenoidectomy. A child with a short, soft palate may have normal resonance if the adenoids obstruct a portion of the nasopharynx, thereby giving a cushion for closure. If the soft palate cannot make closure with the pharynx rather than the adenoidal pad, voice therapy to reduce hypernasality may be needed. However, if the soft palate is too short, surgery to establish alternate methods of closure may be necessary to correct the problem (Boone & McFarland, 2000).

Nasal airway obstruction contributing to hyponasality, or not enough nasal resonance, may be caused by a nasal obstruction such as a deviated septum, nasal polyps, or a highly arched hard palate (Greene & Mathieson, 2001). A lack of nasality is most evident in the articulation of the nasal consonants /m/, /n/, and /ng/. The child will sound
stopped up or blocked in resonance as if he or she has a cold. Surgery to remove the nasal obstruction may be recommended by the otolaryngologist. Voice therapy for hyponasality is commonly recommended to re-establish appropriate nasality of the nasal consonants.

A recently identified disorder termed **paradoxical vocal cord dysfunction** also is referred to as vocal cord dysfunction and is a disorder with which nurse practitioners should become familiar. Shields, Hayes, and Fitzgerald (1995) define paradoxical as a difference in the normal movement of the vocal cords. For example, because the vocal cords normally open when air is inhaled, they will move in a paradoxical manner or close upon inspiration. Paradoxical vocal cord movement imitates asthma attacks, that is, the vocal cords close when they should open and obstruct the airway during inspiration. Stridor, a wheezing sound produced at the level of the vocal cords, and hoarseness are predominant features. The wheezing or stridor is generated at the vocal cords, not within the lung or bronchial level. Misdiagnosis of paradoxical vocal cord dysfunction as asthma can lead to unnecessary medication and even tracheostomy (Poirier, Pancioli, & Shiels, Hayes, and Fitzgerald, 1995). Child athletes may exhibit the paradoxical dysfunction during sports activities. Swimmers need to take more breaths per stroke and basketball players find it difficult to continue running during a game. Relaxation and breathing techniques can be taught by the speech language pathologist as a proactive preventative measure and can eliminate the problem.

In summary, two distinct communication impairments commonly treated by speech language pathologists have been presented. However, these common treatment areas sometimes go without referral because of a lack of knowledge about which disorders to refer and unfamiliarity with the therapeutic process. It is hoped that the information found in this article will facilitate more patient referrals for therapeutic intervention of fluency and voice disorders (see Box). **WHEN TO MAKE A REFERRAL TO AN OTOLARYNGOLOGIST AND/OR SPEECH-LANGUAGE PATHOLOGIST**

For voice disorders, if the child exhibits any of the vocal behaviors listed in the Box, a referral for a laryngoscope by an otolaryngologist is warranted. If a disorder is already diagnosed, a speech-language pathologist can treat the vocal symptoms.

For fluency disorders, there is cause for concern and a need for an immediate referral to a speech-language pathologist when (a) the child’s speech contains frequent disfluencies (single syllable repetitions, sound prolongations, or tense pauses with fixed articulators); (b) the child shows an emotional reaction to his or her disfluent speech pattern, regardless of age, recency of the disorder, or intermittent nature; (c) disfluencies are becoming more consistent across time and situations; or (d) parents are highly concerned about the child’s disfluencies (Curlee, 1999).

Paradoxical vocal cord movement imitates asthma attacks, that is, the vocal cords close when they should open and obstruct the airway during inspiration.

Families may ask if postponing treatment will have a negative effect on their child’s disfluencies or if the stuttering will go away without treatment. Although some children show remission of stuttering within a few months to a year after onset, it is not yet possible to predict which children will regain fluency spontaneously. Once remission is achieved and maintained for several months, however, the chances of permanent recovery is high (Yairi & Ambrose, 1999). As a result of their investigation, Ingram and Bothe (2001) have suggested that the longer a child has been stuttering, the less successful the treatment is likely to be. They found a 27% decrease in the number of children whose treatment was successful if the children had been stuttering for at least 15 months. It is, therefore, good practice to immediately refer a child for evaluation and possible treatment if any of the conditions previously listed are observed. (Additional information concerning normal disfluencies and about stuttering in general may be obtained from the Stuttering Foundation of America, www.stuttersfa.org.) HOW TO FIND A SPEECH-LANGUAGE PATHOLOGIST

A speech-language pathologist should have state licensure and the Certificate of Clinical Competence (CCC) awarded by the American Speech-Language-Hearing Association (ASHA).* Such professionals work in a variety of settings: (a) public and private schools, (b) private practice, (c) colleges and universities, (d) rehabilitation centers, (e) hospitals, and (f) specialty clinics. When making a referral, it is important to determine if the speech-language pathologist has a particular area of expertise. Some professionals specialize in pediatric articulation and language disorders, whereas others are focused on adult-centered organic deficits such as cerebrovascular accident, head injury, or head and neck cancer. The areas of fluency and voice tend to be highly specialized and require a speech-language pathologist with expertise and knowledge concerning these specific disorders.

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**REFERENCES**


*The ASHA (800/498-2071) maintains a listing of certified individuals in every state. The Web site for ASHA is www.asha.org. The Web site contains information for the speech-language pathologist, but also contains information for the consumer. References are provided for obtaining brochures and for the location of a professional speech-language pathologist in a particular area.