

Chapter 13: Assessment of Stuttering in Early Childhood

LEARNER OUTCOMES

Readers of this chapter will understand:

- Differences between the initial evaluation of a preschool child and that of older children and adults who stutter.
- The objectives and rationales for the initial evaluation of preschool children who stutter.
- The structure and content of the parent interview.
- Procedures and formal instruments for the measuring stuttered speech in young children.
- Criteria for differentiating early stuttering from normal disfluency.
- Criteria for making early assessment of chances of persistent and natural recovery courses of stuttering.
- How to offer parent counseling in conjunction with the evaluation.

Challenges, Objectives, and Settings for the Initial Evaluation

In Chapter 9 we stated that in health fields, a typical diagnostic evaluation involves an analysis of presenting symptoms, both objectively observed and reported by the patient. It is a process that eventually leads to the diagnostic finding: the identification of a disease or a disorder that was not apparent at the beginning of the process. Sometimes the diagnosis is substantiated by a single sign; in other cases there may be a pattern of signs. The primary motivation for isolating the condition or disorder from other alternatives is to facilitate decisions concerning suitable treatment. It was suggested that because the majority of adults who stutter correctly diagnose their own speech problem, the main purpose of initial evaluation for adults is to understand, describe, and measure the various dimensions of the disorder, rather than to identify it. Is this also true for preschool age children? Frequently, the answer is positive. By the time the speech-language pathologist is consulted, typically more than one caretaker has noticed the appearance of excessive and unusual disfluencies in the child's speech and correctly diagnosed it as "stuttering."

Occasionally disorders of phonology and/or language may be called “stuttering” by individuals unaware of the distinctions. At other times parents may express greater fluency proficiency during the language-learning process, may express concern about “stuttering.” In our experience, however, these are the minority of cases.

Stuttering Versus Normal Disfluency: A Diagnostic Challenge

Yairi and Ambrose (2005) stated that rarely did they have occasions to question parents’ diagnoses of their child’s speech as stuttering. Close agreement between the parents’ and clinician’s diagnosis of stuttering in preschool age children has been reported in several studies (e.g., Ambrose & Yairi, 1999; Yairi, 1983). Yet there can be exceptions to agreement as well as to clear evidence for a diagnosis. Sometimes referral occurs at such an early stage of the disorder that it is not fully formed at the time of the initial evaluation. Also, because speech skills are still developing, normal childhood speech characteristics, such as “placeholder” word and phrase repetitions, may blur the picture. Thus clinicians should exercise extra caution in determining whether a disorder of clinical significance exists, and which one. Occasionally there are exceptions to the close agreement between parents and clinicians in diagnosing stuttering. For example, based on objective evidence a clinician may be reluctant to diagnose borderline disfluency as stuttering, whereas overly anxious parents, perhaps with a familial history of stuttering, are more inclined to do so. Disagreement may also arise in the case where parents have had opportunities to observe more pronounced stuttering episodes that never occur even during two or three visits to the clinic. Finally, there are isolated instances where children are brought in because of parental concern about “stuttering,” when actually they exhibit another communication disorder altogether. These few cases do present the classic challenges of the diagnosis process. Based on our experience and data, however, we disagree with several authors who overemphasize difficulty in differentiating early stuttering from normal disfluency (Conture, 2001; Gordon & Luper, 1992a, 1992b; Manning, 2001). They stand in sharp contrast to Cutler (1999, p. 3), who stated that “I can recall only a handful of parental misdiagnoses of stuttering in over 25 years of clinical practice.”

How do we explain Cutler’s and our observations? The answer: Whereas a normative study of speech disfluency in 1,000 preschoolers selected randomly from the general population might find a few children in the gray area between normal and stuttering to pose a diagnostic challenge, the clinical setting presents an altogether different picture. Preschool children seen for evaluation in the clinic, or sometimes by a school speech-language clinician, constitute a selective, not random subset. They have already been closely and intensively “screened” by their parents, who found them to exhibit speech characteristics that are beyond normal. Typically parents have observed these behaviors for weeks, if not months, prior to making a referral to a speech clinician. This is the main reason why borderline cases seen for evaluation are infrequent. Furthermore, according to a recent study, a substantial majority of preschoolers seen for initial stuttering evaluation exhibit moderate or severe stuttering that makes for unmistakable diagnoses (Yairi & Ambrose, 2005). Regardless,

several disfluency measures, to be discussed later in the chapter, may be applied to make reasonably clear differentiation between normally fluent and stuttering.

Other Key Diagnostic Issues

The initial evaluation of preschoolers who stutter is different in several significant aspects from that of adults who stutter. Key aspects include the role of parents, the accuracy of stuttering history information, the lack of clarity regarding emotional factors, the possibility of concomitant disorders, and the challenge of eliciting representative speech samples to observe the stuttering.

The Parent Role

Whereas adults are typically self-referred for consultation and therapy and are the main source of information about themselves, parents are the ones who bring the child to the clinician out of their own worries, and the role of informant falls to them, typically the mother. Not only do they provide the background information, they also collect important data from the child. Being so close to the problem, parents become a second major focus of the evaluation. Their own background or family’s experience with stuttering, their personality, the atmosphere they create at home, and their attitude and reaction to the child’s stuttering are important for an understanding of the child’s problem and factors that may aggravate it. Of course, potential positive parental resources also can be revealed and tapped for more effective handling of the problem. Finally, it is the parents who ultimately make the decision about the nature and timing of clinical intervention.

Accuracy of Information

Because of the short history of the disorder, information about onset and surrounding circumstances should be accessible from parents in greater detail and better validity than what typically is obtained for older clients. For some children such information may be only a few days or a few weeks old. Additionally, in the early years of life, most of a child’s relatives are alive and available to provide extra information, greatly enhancing the accuracy of the history and familial incidence of stuttering that are important details for prognostic purposes.

The Emotional Domain

Whereas most adults are willing to share and verbalize their feelings about stuttering, assessing the emotional reactions of the young child is difficult. On the one hand, the child may not have such reactions. On the other hand, if emotional reactions do exist, preschoolers are often incapable of verbalizing them. True, some children clearly express their awareness and frustration. For many others, however, we simply do not know what goes on inside their minds. Age is a factor in the domain of emotional reactions. The percentage of children 4 to 5 years of age who appear to be aware of their stuttering is certainly greater than among 2-year-olds (Ambrose & Yairi, 1994). Other factors, such as severity of stuttering or environmental reactions to the child’s speech, probably play a role. We may assume that the stronger the environmental reactions and the more severe the stuttering, the higher the likelihood for the child to respond emotionally. Unfortunately, the information available for this domain is very limited.

Concomitant Disorders

All children in the preschool age range undergo fast developmental growth in multiple domains. An appreciable number of them may exhibit either slowness or more serious problems in one or more of these domains. Therefore, the initial evaluation of a young child who stutters must also include comprehensive testing of hearing, language, phonology, motor, and cognitive skills that constitute an integral part of standard speech-language-hearing evaluations of children. This point is particularly important in light of information that a wide range of disorders, especially those of phonology and language, are present concomitantly with childhood stuttering more frequently than in children who do not stutter (e.g., Amdt & Healey, 2001; Blood, Rideout, Qualls, & Scheffer-Hammer, 2003).

Speech Elicitation and Stuttering

Not infrequently, eliciting an adequate speech sample from the young child is not a simple matter. Children may remain quiet during the first visit or two, speak little, and be uncooperative during the administration of various tests. Hence several visits are sometimes required to accomplish a comprehensive evaluation. Even if the child is cooperative, on a "good day" he or she may exhibit little stuttering, way below the typical level as described by parents. Thus at least two or three speech samples may be necessary, including one at home.

Objectives for the Initial Evaluation

Here is a list of specific objectives for the initial evaluation:

1. Obtain from parents a thorough history of the disorder: (a) exact time, circumstances, and type of onset (sudden, gradual, etc.), (b) description of the initial stuttering characteristics, including physical behaviors and emotional reactions, and (c) description of changes in the stuttering characteristics and severity from onset to date.
2. Describe/quantify the various aspects of the child's disfluency and other features of stuttering, including their fluctuation in response to various conditions.
3. Examine the child's language, phonology, motor skills, and hearing.
4. Identify other factors relevant to the stuttering (e.g., familial history of stuttering and current home environment conditions).
5. Assess the current stuttering in light of its history and the potential risk factors in order to reach a prognosis and suggested course of action.
6. Share findings and recommendations with parents.
7. Provide parents with information about stuttering and guidance for handling it at home, day care, and in other settings.

Setting and Preparations

In our experience, a comprehensive evaluation of a preschool child may require three sessions, depending on the child's cooperation and availability of a second clinician to assist with the testing. Keep in mind that it is necessary to record speech samples over at least two different days, and administer language, phonology, motor, and other tests in addition to the evaluation of stuttering. Also, initial parent interview

may require a whole session, and, similarly, the parent conference at the completion of the evaluation. As with the evaluation with adults, both audio and video recordings are desired. Special attention should be given to the child's typical daily schedule especially in regard to naps, snacks, or other routines. Having the child scheduled for the evaluation at the time when he or she is most alert during the day can make a appreciable difference. Parents should be advised to bring with them notes about their child's developmental progress, birth and health history, the incidence and course of stuttering among the extended family, and, if possible, a recorded speech sample of the child. They may also bring along favorite quiet toys and/or books that the child would be inclined to want to talk about.

The evaluation is structured in three parts: the case history interview with parent observing and testing the child, and a concluding conference with parents.

The Case History

The initial case interview with one or both parents is conducted without the child present so that the parent and clinician can focus on an open and comfortable sharing of information. The case history includes four components: (1) personal and family information, (2) time and circumstances of onset, (3) symptomatology: onset and at the present, and (4) general child development and health. Specific information items and interview questions are presented in our Case History Form. Comments on specific items are inserted at the end of each section.

Case History Form: Preschool Children

Part I: Client and Family Information

Client Information

Child's Name _____ Last _____ First _____ File # _____

Address _____

Home Phone (____) _____ Parent's Work Phone (____) _____
email _____

Child's date of birth _____ Age _____ Gender _____

Race/Ethnicity _____

Informant _____ Relation to child _____

Referral _____

Date of Evaluation _____ Clinician: _____

(continued)

Family Information

Parents Married Divorced If yes, child lives with _____
 Language(s) at home _____

Mother: Name _____ Age _____ Education Level _____

Occupation _____

Stuttering History: No Yes When/How long _____

Relatives on mother's side (her parents, siblings, nieces and nephews) who have had stuttering history: For each one who stuttered, indicate if/when recovered or if persists:

Father: Name _____ Age _____ Education Level _____

Occupation _____

Stuttering History: No Yes If yes, when/how long? _____

Relatives on father's side (his parents, siblings, nieces and nephews) who have had stuttering history: For each one who stuttered, indicate if/when recovered or if persistent:

Siblings: List siblings by gender and age. Indicate if sibling has had a stuttering history:

Comments on Part I

Items referring to familial history of stuttering serve two purposes. First, they are critical in relation to the child's prognosis. As explained in earlier chapters, a child has about a 65% chance of matching the pattern of family history for stuttering. If there is a family history of recovered stuttering, there is about a 65% chance to follow the same pattern; if there is a family history of persistent stuttering, there is about 65% chance of following that same pattern. Hence both parents should be urged to check with the relatives of their respective families about stuttering history. Questions about familial history should be raised in subsequent opportunities because new

information may surface. Telephone calls to these relatives may add significantly to the reliability of claims. A helpful means for tracking familial history of stuttering is to draw a pedigree (a family tree) that includes the relatives of both parents. A second purpose for pursuing this topic is that it may shed light on the feelings and attitude toward stuttering at home.

The importance of urging parents to ask questions of their relatives about stuttering must be underscored. It should not be assumed that stuttering would have been mentioned had it occurred. In our experience, relatives often do not offer the information until someone else raises the topic. For example, one young mother, who herself stuttered, was surprised when she learned that her own grandmother, with whom she was close, was someone in the family who had stuttered. She remarked how she might never have known this fact if she had not initiated a discussion of the topic.

Part II: Time and Circumstances of Onset

1. When was the stuttering first noticed? Probe for an accurate date through surrounding circumstances.

Approximate date of onset _____ Child age at onset _____

Child current age _____ Time since stuttering onset _____

Notes regarding parent's estimation of date of onset: _____

2. Who first noticed the child's stuttering? _____

3. Was the onset sudden or gradual?

Sudden: 1 day _____ Gradual: 2 weeks

Sudden: 2-3 days _____ Gradual: 3-4 weeks

Sudden: 1 week _____ Gradual: 6 weeks or more

4. Were there any illnesses, accidents, or physical traumas when he/she began stuttering or shortly (2-3 weeks) before that time?

No Yes Which/When _____

5. Were there any identifiable emotionally upsetting events in the child's or the family's life just prior to or at the time of the stuttering onset?

No Yes Which/When/Explain? _____

(continued)

Family Information

Parents Married _____ Divorced _____ If yes, child lives with _____

Language(s) at home _____

Mother: Name _____ Age _____ Education Level _____

Occupation _____

Stuttering History: No _____ Yes _____ When/How long _____

Relatives on mother's side (her parents, siblings, nieces and nephews) who have had stuttering history. For each one who stuttered, indicate if/when recovered or if persists:

Father: Name _____ Age _____ Education Level _____

Occupation _____

Stuttering History: No _____ Yes _____ If yes, when/how long?

Relatives on father's side (his parents, siblings, nieces and nephews) who have had stuttering history. For each one who stuttered, indicate if/when recovered or if persistent:

Siblings: List siblings by gender and age. Indicate if sibling has had a stuttering history.

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No _____ Yes _____ Which/When _____

5. Were there any identifiable emotionally upsetting events in the child's or the family's life just prior to or at the time of the stuttering onset?

No _____ Yes _____ Which/When/ Explain? _____

(continued)

6. Did the time when the child began stuttering coincide with the arrival of a new baby, pregnancy of the mother, or other sibling rivalry?
 No Yes Explain: _____
7. Was the child undergoing toilet training, giving up thumb-sucking, or changing other habits at the time?
 No Yes Explain: _____
8. In general, was the child under some pressure/stress during the period when he/she began stuttering?
 No Yes Explain: _____
9. Generally, based on the above, the clinician estimates the manner of stuttering onset as:
 _____ Sudden, following emotionally stressful event
 _____ Sudden, following physical illness
 _____ Sudden, uneventful
 _____ Gradual, following emotionally stressful events
 _____ Gradual, following physical illness
 _____ Gradual, uneventful
10. Was the onset of stuttering associated with noticeable changes or development in the child's general speech and language skills?
 No Yes Explain _____
11. In your opinion, what was the most important cause of the stuttering? What other factors contributed?

Comments on Part II

Question 1 ("When was the stuttering first noticed?") is the most important item because it provides the estimated time elapsed from onset to the date of the evaluation. This information is critical to determine the current status of the disorder, prognosis, and consideration of possible intervention. If the post-onset interval is short, say less than 6 months, and stuttering has slightly declined, an additional waiting period is a reasonable option in light of the possibility of natural recovery. The shorter the interval, additional waiting is more justified. However, as the post-onset interval increases, particularly when it is 9 months or longer, the smaller is the chance for natural recovery, and intervention may be given greater consideration. Also, there is a trend for children who had onset at an early age to have a greater chance for recovery as compared to those who reported late onset (Buck, Leecs, &

Cook, 2002; Yairi & Ambrose, 2005). Parents should be guided to identify the time of onset with questions that systematically narrow the possible time range. To this end, they are encouraged to recall the onset in reference to other events, such as birthdays, holidays, trips, or illnesses. For example, if the child began stuttering in the winter, urge parents to recall whether the child had already stuttered during Christmas or was it closer to the end of winter (e.g., the month of March). Or, if the child began stuttering during summer, was it before or after the Fourth of July, before or after a birthday or other significant events.

Question 3 ("Was the onset sudden or gradual?") is pertinent in revealing the circumstances and the degree of parents' confidence in their diagnosis. It is not surprising that our data show that stuttering associated with sudden onsets tend to be perceived as more severe. Perhaps it is the severity that calls it more immediately to the parents' attention. Also, some significant differences have been found between children who experienced sudden and those who experienced gradual onset, such as a tendency for parents of the latter group to report recent spurts of language growth (Walkins, 2005). As we discuss later, rapidly emerging or precocious language skills is a potential risk factor for persistent stuttering.

Questions 4 through 8 are straightforward, helping the clinician assess physical health and emotional factors possibly contributing to the problem. The clinician asks questions that may lead parents to recall and consider stressors that either facilitated or complicated the onset. At the very least, the answers may shed light on the child's home environment and parents' evaluation of, and reaction to, the events that are discussed.

Question 11 is a broad wide-open question that invites parents to present their point of view and look at parameters that have not been discussed. Conditions, processes, and behaviors such as advanced language skills, nutrition, apparently unrelated medical issues, and other life factors, might surface. Although many of these explanations are typically rejected by most scientists, they should be evaluated for their merit in each case.

Overall, the very task of the parents analyzing the child's stuttering and its background might produce secondary therapeutic values, helping them take a good look and reassess their home environment and family style. Johnson et al. (1959) were convinced that the lengthy parent interviews they conducted for their study of stuttering onset were instrumental in the eventual improvement reported for many of the children.

Part III: Symptomatology at Onset and at Present

12. Describe and demonstrate the child's speech when he/she first began stuttering:

_____ (continued)

13. Indicate which of the following speech disfluencies were observed near onset and now:

Disfluency	Onset	Now
Repeating sound/syllable (ba-ba-baby)	_____	_____
Repeating short words (and-and)	_____	_____
Repeating phrases or longer words (going to-going to)	_____	_____
Prolonging vowels (aaaah)	_____	_____
Prolonging consonants (ssss, mmm)	_____	_____
Silent blocks (b-abv)	_____	_____
Incomplete words (ba-i)	_____	_____
Revisions (it was, it went)	_____	_____
Interjecting (ah, um)	_____	_____
Other _____	_____	_____

14. Classify the main disfluency type at the time of onset and now:

Onset: ___ Repetitions ___ Prolongations ___ Blocks ___ Interjections
 Now: ___ Repetitions ___ Prolongations ___ Blocks ___ Interjections

15. Were there secondary characteristics associated with the stuttered speech?

Secondary Characteristics	Onset	Now
Facial grimaces	_____	_____
Eyes closing/blinking	_____	_____
Eyes wide open	_____	_____
Lip tension (e.g., on /p, b, m/)	_____	_____
Lip tremor	_____	_____
Tongue tension (e.g., on /t, d, s, z, l, n/)	_____	_____
Mouth wide open	_____	_____
Jaw tremor	_____	_____
Throat tension	_____	_____
Respiratory irregularities	_____	_____
Upward swings in vocal pitch	_____	_____
Head tilting	_____	_____
Arm/leg movement/tension	_____	_____
Other _____	_____	_____

Parent Scale of Stuttering Severity

16. Rate the severity of the **earliest** stuttering at onset (may select midpoint):

0 1 2 3 4 5 6 7
 Normal Mild Moderate Very Severe

17. Rate the **current** severity of the stuttering (may select midpoint):

0 1 2 3 4 5 6 7
 Normal Mild Moderate Very Severe

18. Where in the speech stream did the stuttering occurred at onset? Now?
 At onset: ___ First word primarily ___ Words throughout the sentences
 Now: ___ First word primarily ___ Words throughout the sentences

19. Were there indications of the child being aware or reacting negatively to the stuttering soon after onset? Currently?

At onset: ___ Not aware ___ Somewhat aware ___ Clearly aware and bothered
 Describe: _____
 Now: ___ Not aware ___ Somewhat aware ___ Clearly aware and bothered
 Describe: _____

Comments on Part III

Questions 12 through 19 are designed to provide detailed information about the stuttering characteristics both at onset and at the present. Requesting an imitation of the child's stuttering is a good way to obtain a more valid description. The direct comparison of past and present characteristics is an excellent way to evaluate the child's progress in relation to the length of the stuttering history. Neither the description of the initial stuttering nor the present stuttering, each in and of itself, is as meaningful as the comparison of the type, amount, and direction of the differences that have taken place over time. The disorder's progression over time is a key component in the assessment and prognosis. For example, a current severity rating of 5 (on our 8-point 0 to 7 scale) should be alarming if the case history reveals that when stuttering began it was rated by the parent as 2. The same rating of 5, however, would be viewed as a positive sign, if the stuttering severity at onset was rated by the parent as 7 because of the apparent progress. Having this information may have a significant impact on the prognosis for the child and the counseling given to parents concerning decisions for intervention.

Although parents are initially encouraged to describe in their own words the general course of stuttering and changes they have observed in overt stuttering characteristics as well as the child's reactions, checklists of speech and secondary characteristics are used because many parents often are unable either to recall or express all the details. It is important to differentiate carefully between parent descriptions of stuttering at onset and at the present. When rating the severity of stuttering on the 8-point scale, parents should be instructed to evaluate their overall impression. The clinician makes sure to define 0 as normal speech, 1 as borderline stuttering, 2 as definite but mild stuttering, 3 as mild+, 4 to 5 as a range of moderate, 6 as severe, and 7 as very severe. Parents are allowed to choose points halfway between numbered intervals. Comparison can also be made with the clinician's rating.

Part IV: General Development and Health History

20. Were there physical illnesses or emotional problems that the mother experienced during pregnancy that caused concern or required treatment?

21. What medications, drugs, and other medical treatments did the mother have during pregnancy with this child?

22. Were there any problems related to delivery?
 No _____ Yes _____ Explain _____
23. Did the child require special medical attention at or immediately after birth?
 No _____ Yes _____ Explain _____
24. Were there any medical problems noted in the child, at birth or shortly after, at a level to cause concern?
 No _____ Yes _____ Explain _____
25. Has the child had any serious health problems since birth?
 No _____ Yes _____ Explain _____
26. Has the child ever had any facial tics, jerks of other body parts, or any other type of involuntary muscle movements?
 No _____ Yes _____ Explain _____
27. Is the child on any medication now?
 No _____ Yes _____ Explain _____
28. In general do you regard the child's health now as:
 _____ Good _____ Fair _____ Poor
29. Has the child ever had a behavioral or psychological problem? (ADHD, ADD), depression, BI), others)
 No _____ Yes _____ Explain _____
30. Indicate age in months when the child acquired the following skills:
 Sat without support _____ Crawled _____ Walked without support _____
31. Overall, how do you regard the child's motor development?
 Below Average _____ Average _____ Above Average _____

32. Child's handedness:
 Right _____ Left _____ Mixed _____ Undetermined _____
33. In terms of speech, at what age did the following occur?
 Babbling _____ First word _____ Combined 2 or 3 words _____
34. Overall, would you say that the child's speech development was:
 Below Average _____ Average _____ Above Average _____
35. Aside from stuttering, has the child ever had any speech/language problem? If so, describe.
 No _____ Yes _____ Explain _____
36. Has the child ever had hearing problems? If yes, describe.
 No _____ Yes _____ Explain _____
37. Has the child ever received any treatment for speech, language, or hearing disorders?
 No _____ Yes _____ Explain _____
38. Has the child ever exhibited any of the following at a level to cause concern, or at age-inappropriate levels?
 _____ Sleeping problems _____ Separation anxiety
 _____ Eating difficulties _____ Excessive crying
 _____ Unusual fears _____ Refusal to talk
 _____ Destructiveness _____ Withdrawn behavior
 _____ Temper tantrums _____ Restlessness
 _____ Excessive shyness _____ None of the above
38. In comparison to other children, how much energy does the child have?
 _____ Below average _____ Average _____ Above Average
39. In terms of overall maturity is this child:
 _____ Below Average _____ Average _____ Above Average

Comments on Part IV

Research has not found any consistent factors, or a tendency for medical factors in general, to be present in the health histories of children who stutter. Yairi and Ambrose (2005) reported that only 14% of cases reported any physical stress associated with stuttering onset. Sometimes stuttering does coexist with other developmental or

health problems that should be considered in the clinical recommendations and intervention planning. The clinician, therefore, must discuss and take into consideration the medical and health history. But clinicians should realize there are many variations in pregnancy, delivery, and health histories that occur in the general population without any resultant stuttering. If, in one case, a mother had 2 weeks of confinement to bed rest during pregnancy, or, in another case, there was jaundice at delivery, there should be no assumption these were causes of the child's speech problem. The health history helps the clinician understand the client and the speech difficulty in the larger context of the whole person's individual issues and needs.

Collecting Clinical Data

Obtaining Speech Samples

After obtaining a comprehensive case history of the onset and development of stuttering, as well parental description of the stuttering and judgment of its severity, the clinician proceeds to observe and test the child to obtain more objective as well as quantifiable data. A considerable portion of this part of the evaluation is similar to typical speech-language-hearing evaluations of preschool children seen for other communication problems. The standard tests of phonology, language skills, hearing, motor, and other domains are administered. The main difference is the need to obtain recorded speech samples that will be used to quantify the stuttered speech. A few opportunities to observe the child talking may arise in the waiting room and hallways when the child talks to the parents or responds to the clinician's greetings. Hence having a small handheld tape recorder is advisable to secure these brief moments of spontaneous speech before entering the examination facility. Permissions for audiovisual recording are obtained beforehand.

The more formal recording procedures for young children require similar equipment as specified in Chapter 10 for adults but call for extra flexibility. For example, some children may respond well when sitting at a small table in the recording room; others do better sitting on the floor, interacting with the clinician or parent. This condition, however, makes it difficult to adapt video recordings, resulting in a loss of useful information. To be effective, the camera should be focused on the child's head and upper body. We have had excellent experience obtaining speech samples with the child "confined" to a chair-table setting in a small test room yielding both good speech output and high-quality video and audio recordings. A small tie-tack microphone attached to the child's shirt is ideal. But if the child will be free to move, an inexpensive, omnidirectional microphone can detect speech quite well.

Quiet play materials, such as plastic clay or interesting action pictures, are preferable. Plastic and wooden toys generate noise that interferes with the quality of the recording. The clinician or parent initiates conversation about what the child is making with clay; then moves on to open-ended questions regarding the child's favorite toys or TV shows. Find out from parents about topics that particularly excite the child, such as particular pets, toys, TV programs, or events. Stuttering increases

with heightening emotion, such as excitement or frustration. These topics often stimulate longer responses that are also more likely to trigger stuttering. Avoid and minimize questions that invite "yes" or "no" because they stop the conversation and typically are not stuttered as often as words in phrases. After the child says something, questions such as "What happened next?" and prompts such as "Tell me more about it" are quite useful to get the child going. Additionally, single-word responses are less desirable for analysis.

Preschool age children who stutter, especially in early stages of the disorder, tend to exhibit considerable fluctuations in their stuttering (Varuss, 1997b). An evaluation that happens to be conducted on a "good day" could underestimate the magnitude of the problem. Therefore, two or three speech samples recorded over different days should be the target, especially when the stuttering is seen as mild. If the child exhibits severe stuttering, a single sample provides much of the needed information because there is more interest in the potential severity than in how mild it may be at times. Also, due to expected fluctuations, home speech samples are particularly desired for the young child who stutters. We provide parents with a handheld recorder and ask for 15 to 20 minutes of speech recorded in three to four brief (e.g., 5-minute) segments.

Recording in the clinical setting, the goal is to obtain at least 500 to 600 syllables and ideally close to 1000 syllables of conversational speech. The higher figure can often be achieved over two recording sessions, 15 to 20 minutes each, separated by a few days.

As indicated in Chapter 9, data by Sawyer and Yairi (2006) show that in four consecutive 300-syllable segments taken from continuous 1200-syllable speech samples of 20 children who stutter, the greatest amount of disfluency tended to occur in the last two segments, especially the fourth one. Had they used only the first 300 syllables, some or much of the children's disfluency would not have been reflected in the data. Several disfluency types, such as sound prolongations/blocks or complex disfluent events (e.g., those containing four or more repetition units), might occur in low frequency and cannot be adequately tapped in short samples, if at all. In other words, the validity and reliability of the data may be questioned. The risk with short speech samples is greater when the stuttering appears to be mild or mild to moderate.

It is desirable to record one of the sessions when the child interacts with a parent and another one with the clinician. Of course, the interaction during the recording of longer samples also provides more time to observe the child's behavior, reaction, and interaction.

Other Related Assessments

Two other aspects of stuttering: secondary body movement and tensions involved with disfluencies, and the child's awareness and emotional reactions should be

included in the direct initial evaluation of preschool children. In our experience, too often these do not receive sufficient attention. The child should also be assessed for the possibility of other concomitant speech, language, or hearing problems.

Secondary Characteristics

For a long time these were regarded as late phenomena, emerging in late developmental stages of stuttering. During the past 20 years, however, research that employed videotape analyses of young stuttering children's speech demonstrated head and neck movements near the onset of stuttering (Conture & Kelly, 1991; Throneburg, 1997; Yairi, Ambrose, & Niemann, 1993). Additionally, direct observation of nearly 150 children near stuttering onset revealed secondary characteristics, such as head turn, lip pursing, and eye blinking, in 75% of the children (Yairi & Ambrose, 2005). Hence clinicians should look for, and note, the type and severity of secondary characteristics. The same list of secondary characteristics that appears in Chapter 9 is reproduced below. The clinician indicates which ones are observed. At the end, assign a severity rating based on the global impression of these secondary behaviors (mild, moderate, or severe).

Awareness and Emotional Reactions

This aspect of the initial evaluation of preschool-age children who stutter is quite different than it is with older children or adults. As we discussed in Chapter 3, recent experimental data, as well as clinical observations and parental report, have indicated that some children do project various levels of awareness. Thus it may be possible to obtain important information for those children. Toward this end, we suggest three potential procedures.

First is *parental report*. Simply ask parents if they have noticed any indication that the child is aware of the stuttering and/or visibly reacting to it emotionally. If the answer is positive, pursue in more detail: What is the evidence for it? Let the parents

Secondary Characteristics Checklist

_____ Head jerks	_____ Head turns (side, up, down)
_____ Forehead tension	_____ Nostrils flaring/constricted
_____ Eyes closed, squinting	_____ Eyes widely open
_____ Facial contortions	_____ Lips pressured
_____ Lip tremor	_____ Jaw tremor
_____ Jaw closed tightly	_____ Teeth grinding
_____ Jaw wide open	_____ Rotational or sideways jaw movement
_____ Tongue protrusion	_____ Throat tightened
_____ Body swaying	_____ Hand and/or arm movements
	Estimated Severity: _____

respond first, and note whether they refer to a clear verbal expression, such as "I cannot talk," or a nonverbal display of frustration during moments of stuttering. Also, ask them to evaluate the frequency and strength of the child's expressions of awareness and affective reactions. Second is *direct questioning*. Ask the child if he or she is a good talker or ever makes mistakes when talking. Perhaps better, the clinician may stutter on purpose (e.g., "Do you like t-t-t-ice cream?") and then proceed to ask the child, "Who else talk likes that?" and "Do you sometimes talk like that?" Note the verbal reply and other possible reactions. The third procedure is the *puppet test* (see Ambrose & Yairi, 1994). The clinician holds two identical puppets, one on each hand. Each puppet says an identical sentence, with one speaking fluently and the second one stuttering. The child is asked which puppet talks the way she or he talks. This should be repeated several times, changing the order and hand of the stuttering and the fluent puppets. The level of accuracy and consistency provides some information. A discussion of the methods with the parents beforehand may be helpful to ensure that they will be comfortable with the method used by the clinician to explore awareness.

Anxiety, Temperament, and Personality

Recent research by Conture and colleagues (Karass et al., 2006) has implicated a role for temperament in the disorder of stuttering (see discussion in Seery et al., 2007). They found that compared to nonstuttering children, a significant proportion of preschool children who stutter tended to (1) become more emotionally aroused, (2) settle down less easily after arousal, and (3) show less emotional control during everyday stressful and challenging situations. If these initial observations are valid, then an evaluation of temperament may aid intervention planning. Instruments of assessment include the Children's Behavior Questionnaire (CBQ; Rothbart, Ahadi, Hershey, & Fisher, 2001) and the Behavioral Style Questionnaire (BSQ; McDevitt & Carey, 1978), which have been used in research with children who stutter (Anderson, Pellowski, Conture, & Kelly, 2003). Considering typical results of a temperament assessment, clinicians might work together with parents to discourage overly exciting environmental conditions for their child to talk in, provide more reassurances and calming encouragements to their child, and/or make a special point of preparing the child for what to expect before new or potentially fear-evoking situations (e.g., medical exams, fire drills, sitters, travel, etc.).

Language, Phonology, Motor, and Hearing

The initial evaluation of children who stutter, like that of other children, should include comprehensive testing of the speech mechanism, phonology, language, and hearing domains. Motor and other skills may be added according to case needs. Standard tests or tape-recorded conversational speech samples can be used for phonological and language analyses. Because deficits in these domains may impact decisions of whether to initiate therapy, and what approach is selected (Byrd, Wolk, & Lockert Davis, 2007), careful assessment must be pursued in addition to the primary focus on stuttering. These aspects of the evaluation, however, are not discussed in this book.

Analyzing Clinical Data

Disfluency Frequency and Types

After securing a tape-recorded speech sample, the next task is to identify and quantify the characteristics of stuttering. In most respects, the procedures and parameters involved are identical to those employed in the initial evaluation of adults as described in Chapter 9. Again, clinicians are faced with the choice of metric. Some clinicians prefer making categorical judgments of each word or syllable as either stuttered or not, and then calculate the percentage of stuttered words or syllables. This is the easiest method of quantifying stuttering that provides general information. It is also the method used in the Stuttering Severity Instrument (SSI-3; Riley, 1994). As we already explained, however, this metric does not yield specific descriptive data about the characteristics of the person's stuttering: How did he or she stutter? Did the stuttering contain repetitions, prolonged sounds, blocks, or other behaviors? If the client repeated a word, how many times was the word repeated: one, four, or seven times? Measures of percentage of stuttered words or syllables simply do not address such questions because they report a single number of "stutterings." Because there is a growing body of information showing the significance of specific disfluency types, as well as the length of disfluency in terms of the range and mean number of repetition units¹ in differential diagnosis and prognosis of stuttering (e.g., Ambrose & Yairi, 1999; Schwartz & Conture, 1988; Throneburg & Yairi, 2001), we believe that reporting the frequency-type-length of disfluency is a preferred method even though it requires more analysis time. Furthermore, changes over time in the specific disfluency types and their extent or length, rather than just changes in the percent of stuttering events, is of great value in monitoring important aspects of the child's progress.

The importance of specific disfluency data is illustrated with the following example. Suppose one clinician counted 15% stuttered syllables at the initial evaluation of a child. Three months later, the child again scored 15% stuttered syllables, leading to the conclusion that no change had occurred. Consider a second clinician who saw the same child at each of those same times but analyzed sample data differently. She noted 20 stuttering-like disfluencies (SLD) per 100 syllables at the initial evaluation (more than one disfluency, e.g., repetition flowing by prolongation, may occur on the same syllable). Among these, 5 were sound prolongations and 15 were part-word or word repetitions. The mean number of repetition units was two (e.g., bu-bu-but). At the 3-month follow-up, the child again scored 20 SLDs per 100 syllables, however, 15 were sound prolongations and only 5 were part-word repetitions. Furthermore, the mean

¹As we discussed in Chapter 12, repetition units refer to the number of extra productions of a syllable or a word. For example, in "bu-but," the number of repetition units is 1. In "bu bu-but" there are 2 units, and in "bu-bu-bu-but" there are 4. To calculate the range and mean of the number of repetition units, data for monosyllabic part-word and whole word repetitions are combined.

number of repetition units was four (bu-bu-bu-but). In contrast with the first clinician, she infers that the child's speech is worsening, not stable. In conclusion, when total SLD or overall disfluency remains constant, there may still be significant changes in the stuttering characteristics both in type and length of the disfluent events. These could show a significant worsening or improvement of the problem. Such information is missed by the methods of counting employed by the first clinician.

The same procedures for disfluency analysis described in Chapter 9 for adult speech samples should be followed when analyzing the samples of little children. These procedures involve careful transcription, replaying the video-recorded speech phrase by phrase or word by word, identifying and classifying each disfluent event according to the six disfluency types listed here, then calculating the respective frequencies as guided by the following chart.

Disfluency Type	Number in Sample	Per 100 Syllables
Part-Word Repetition	_____	_____
Monosyllabic Word Repetition	_____	_____
Di-syllabic Word Repetition	_____	_____
Dysrhythmic Phonation	_____	_____
SLD Subtotal	_____	_____
Interjection	_____	_____
Revision	_____	_____
Phrase Repetition	_____	_____
Other Disfluency Subtotal	_____	_____
Overall Disfluency Total	_____	_____

Disfluency Length

The following three measures of the extent, or length, of disfluencies are worth consideration for inclusion.

Repetition Units

In addition to estimating the mean repetition unit, it is quite important to keep track of the number of word or part-word repetitions (per 100 words or syllables) that contain three or more units. It is perhaps the most powerful information for differentiating early stuttering from normal disfluency (Ambrose & Yairi, 1993, 1999). Repetitions of this size are extremely rare in the speech of normally fluent children. In fact, even instances of two repetition units are infrequent in normally fluent children as reported by Ambrose and Yairi (1999) and by Yairi and Lewis (1984). Hence their conspicuous presence in a speech sample is a strong diagnostic sign of stuttering.

Rate of Repetitions

The temporal characteristics of the child's repetitions also provide diagnostic clues because children who stutter tend to repeat syllables and words considerably faster

than normally fluent children. The repetitions are faster because the intervals between the iterations are shorter. Conversely, the repetitions of normally fluent children are slower because the intervals between their iterations are about twice as long as those of children who stutter. Investigators have reported that interval duration alone was sufficient to differentiate children who stutter from normally fluent peers with 72% to 87% accuracy (Thronburg & Yairi, 1994; Yairi & Hall, 1993). Such measurements may be too difficult to execute in a clinical setting. Nevertheless, clinicians should make a point to note the tempo with informal observation.

Sound Prolongations

The length of sound prolongations is measured in terms of time duration. Because most of these disfluencies are sustained only up to 1 second (Bloodstein, 1995), it is useful to obtain and document the mean of only the three longest prolongations. The presence of prolongations longer than 1 second is also a strong sign of stuttering (Zebrowski & Conrue, 1989). A few such events can easily increase the overall severity rating.

Speech Rate

Speaking rate is of diagnostic interest because of its negative correlation with the amount of disfluent speech. It is, however, often difficult to assess with reasonable accuracy in young children in the clinical setting because of their high frequency of both short utterances and long silences. Thus some clinicians may opt to spend more of their assessment time on other measures. Regardless, if deemed desirable, speech rate data can be extracted from the spontaneous speech sample. Reasonable estimates of *overall speech rate* can be obtained by measuring several minutes of conversational speech using a stopwatch. As explained in Chapter 9, it is considerably more complicated to accurately measure *articulatory rate*, which is based only on fluent portions of the speech sample, and it is more reliably obtained with sophisticated equipment for acoustic analysis. The limited research with preschool children has shown that close to stuttering onset, children who stutter tend to exhibit somewhat slower articulatory rates than normally fluent peers. The respective means were 8.43 and 11.42 phones per second and standard deviations (SD) were 1.16 and 2.77 (Hall, Amis, & Yairi, 1989) for children 3 and 4 years of age. In another study conducted by Meyers and Freeman (1985), 4- and 5-year-old children who stutter had mean articulatory rates of 3.5 syllables per second compared to nonstuttering controls who had rates of 4.04 syllables per second.

Interpreting Clinical Data

Although a subjective determination that the child presents with stuttering can probably be made during the examination, and although it will most likely be correct and in agreement with the parents' diagnosis, the clinician should continue to apply a careful evaluation of all the information gathered, starting with the speech data, comparing the client with other children who stutter and with normally fluent children. As we stated earlier, in most cases of stuttering, the purpose of the initial evaluation is to

describe the problem and understand all contributing and complicating factors. Hence, after the formal evaluation, the clinician should be able to provide a rather comprehensive description of the problem, determine its severity, assess prognosis, formulate recommendations, and inform the parents.

Disfluency Status

As in other standard speech-language evaluations, the client's performance is compared against available data starting with those pertaining specifically to stuttering: percentage of stuttered words or syllables, or the type/frequency of disfluency, the extent and/or duration of disfluency, and secondary characteristics. Table 13.1 displays disfluency data for large groups of stuttering and normally fluent preschoolers.

As you can see, there are large differences between children who stutter and normally fluent children both in absolute and relative measures of each of the three SLD components. It is very important to examine the total SLD. Note that it is almost 10 times larger for CWS than for CWNS. Also note that whereas the total SLD constitutes approximately two thirds, or 66%, of the CWS's *overall disfluency* (10.37/15.78), it is only a quarter, or 24% (1.33/5.65), for CWNS. Although the standard deviations indicate a wide range for all but one item in the table, the data do

Table 13.1: Mean and Standard Deviations of Stuttering-Like Disfluencies, Other Disfluencies, and Number of Repetition Units per Repetition per 100 Syllables*

Type	CWS		CWNS	
	Mean (SD)	Proportion	Mean (SD)	Proportion
SLD				
Paraword repetition	5.29 (4.20)	0.34	0.56 (0.40)	10
Single-syllable word repetition	3.34 (2.14)	0.21	0.60 (0.60)	12
Diphthongic plosive(s)	1.75 (2.00)	0.11	0.09 (0.12)	02
Total SLD	10.37 (6.42)	0.66	1.33 (0.83)	24
Repetition units	1.54 (0.39)		1.10 (0.12)	
OD				
Interjection	2.55 (2.20)	0.16	2.08 (1.89)	0.37
Reversion	1.97 (1.09)	0.12	1.80 (0.85)	0.37
Multi-syllable/Phrase Repetition	0.89 (0.63)	0.06	0.44 (0.44)	0.08
Total OD	5.41 (2.75)	0.34	4.32 (2.28)	0.76
Overall disfluency	15.78			5.65

*2005, the proportion of each disfluency type in the overall number of disfluencies for children who stutter and normally fluent children ages 2 to 4. CWS, children who stutter; CWNS, children who do not stutter; OD, other disfluencies; SLD, stuttering-like disfluencies.

Source: Reproduced with permission from "Terminative Disfluency Data for Early Childhood Stuttering," by H. Azenbush and L. Van der Lely, in *Speech Language and Hearing Review*, 5, 42-50, 1999. Copyright 1999 by American Speech-Language-Hearing Association. All rights reserved.

provide meaningful guidelines. Next, look at the line for repetition units. Although the numbers are small, they are extremely revealing. The mean of 1.10 for the CWNS tells us that these children mostly repeat once per instance (bu-bu). By contrast, the mean of 1.54 tells us that most repetitions by CWS contain two or more units (bu-bu-bu). Matching the client's data against these published normative values and by adding observations on the presence of secondary characteristics, the disfluency analysis provides an anchor for the diagnosis and offers a clear picture of the essential features of the child's stuttering. The clinician is then in a position to also estimate the severity of the stuttering.

Stuttering Severity

Having observed, recorded, quantified, and described the child's speech and associated behaviors, a general overall rating of the severity of stuttering is in order. As we discussed in Chapter 9, there are several ways to arrive at such a rating; the simplest one by means of a perceptual rating scale spreads over a range of intervals. This may be the same 8-point scale used earlier to obtain the parent's rating and is displayed here again. Or, it may be another scale with a different interval range, such as those discussed in relation to the evaluation of adults and school-age children who stutter. When a perceptual scale is employed for assigning a global severity rating, the rater presumably takes into account all the parameters that are typically analyzed in the evaluation of stuttering: frequency and length of disfluent events, the degree of muscular tension and effort involved, and the type and number of secondary characteristics. Either a specific scale number or an in-between number (e.g., 4.5) may be selected. Using the identical scale and method as the parent has the advantage of allowing direct comparison between the clinicians and the parent's perception.

Rating Scale of Stuttering Severity

0	1	2	3	4	5	6	7
Normal	Mild	Moderate	Moderate	Very Severe			

A subjective severity rating can be made online, that is, while the clinician watches and listens to the child talking with the parent. Severity can also be evaluated during the face-to-face interaction by the clinician with the child. It would be wise to assign a separate rating for the two speaking situations. Another option is to delay the rating until after completing the quantified analysis of the recorded speech sample. If desired, a formal instrument can be used, such as the Stuttering Severity Instrument-3 (Riley, 1994) or the University of Illinois Stuttering Severity Scale (Yairi & Ambrose, 2005). The Illinois scale scores four components of disfluency: The first three, frequency, duration, and tension, are rated from 0 to 6 where 0 = normal, 1 = borderline, 2 = mild stuttering, and 6 = severe stuttering. These three scores are added and averaged (a maximal mean of 6). The fourth component, accessory characteristics, is rated only from 0 to 1, and this number is added to the mean of the first three. Thus, in total, the maximum score is 7 (very severe stuttering).

Borderline Cases

The real diagnostic challenge in terms of identifying the problem are those children, a very small number in our extensive experience, who present clinicians with some difficulties in determining their fluency status, stuttering or normal, because too few disfluencies occurred in their speech sample. Group means and standard deviations are not too useful in such cases. The clinician should review again parents' detailed descriptions and their imitations of the child's stuttering at home that can provide very useful hints. If parents report and imitate occasional daily stuttering such as "who-when," or /a-a-ah/ ("T"), the case should not be dismissed even if the speech sample recorded in the clinic contained only isolated disfluent events that could have been perceived as stuttering. As stated earlier, the extra repetition units are perhaps the most powerful sign. The clinician must consider what constitutes minimally sufficient criteria for classifying the child as exhibiting stuttering.

The differential diagnosis of stuttering from normal disfluency requires familiarity with the nature of speech characteristics at the margins of both. No single speech characteristic, observed only once, is sufficient to confirm stuttering. Such a basis could cause mistakes of overdiagnosis. Requiring validation from too many instances or types of speech characteristics, however, could lead to an underidentification of cases. Adopting a careful approach, clinicians should look for data at the very low end of the range of children who stutter where there is still no, or only minimal, overlap with normally fluent children. There are two questions: (1) What are the minimal disfluent speech characteristics associated with very mild stuttering? and (2) What are the upper limits for normal?

Several differentiating protocols (i.e., Adams, 1977; Pindzola & White, 1986; Van Riper, 1971) are, for the most part, outdated. They do contain a few worthwhile hints, however. For example, among the few quantified items listed by Van Riper (1971), he required at least (1) two syllable repetitions and/or (2) one sound prolongation of 1 second or longer per 100 words. Van Riper's concept of minimal three stutterings appears to be nearly equal to what, in our terminology, would be 3 SLDs per 100 words except that we believe the measure should be derived per 100 syllables. This figure seems to be consistent with what is widely accepted in clinical and research matters (Conture 2001; Ingham, 1999; Webster, 1980b). Yairi and Ambrose (2005, p. 114) reported that mean SLD (core) disfluency per 100 syllables for 103 preschool children who stutter, ages 23 to 59 months, was 11.30 (SD = 6.64). Calculation of 1 SD below the mean yields a value of 4.6. Data for normally fluent children, ages 27 to 58 months ($N = 52$) revealed a mean SLD disfluency frequency per 100 syllables of 4.48 (SD = 2.41). That is, the 4.6 SLD for children who stutter mentioned above just exceeds the average range for their normally fluent peers.

A set of seven minimal diagnostic criteria specifically for young children (ages 2 to 5 years) who appear to be borderline cases was reported by Yairi and Ambrose (2005,

P. 338) based on a careful analysis of their data. Each of the following is assessed at a minimal occurrence per 100 syllables:

- Part-word repetition (PW) 1.5
- Single-syllable word repetition (SSW) 2.5
- Dysrhythmic phonation 0.5
- Total SLD 3.0
- Weighted SLD² 4.0
- Mean repetition units 1.5
- PW + SSW with 2 or more extra units 2.0

It was concluded that the presence of *at least three* of the seven features on the list is necessary to establish stuttering. Finally, the parents' description and rating of stuttering severity should be considered. If the child does not exhibit stuttering in the clinic but parents describe speech characteristics at home that raise suspicion of stuttering, home speech samples should be secured for further analysis.

Making Prognosis

Having completed the data-gathering, analysis, and diagnosis stages of the initial evaluation, the clinician is faced with the challenge of assessing the likely future development of the child's stuttering, that is, making a prognosis. It should first be understood that a diagnosis of stuttering based on the characteristics described previously does not imply an unfavorable prognosis, particularly when the identification is made soon after stuttering onset. Thus the initial severity of stuttering observed does not predict the outcome for the child (Yairi & Ambrose, 2005). However, when a child has been stuttering without any indication of a decline for at least a year, the chances for recovery without treatment are substantially reduced, and prognosis becomes more guarded or negative. Once a child has stuttered for 3 or 4 years, the prognosis is "persistent" or "chronic" stuttering. With strong evidence that approximately 75% or more of children who begin stuttering can be expected to exhibit natural recovery (e.g., Andrews & Harris, 1964; Ryan, 2001; Yairi & Ambrose, 2005), the ability to make early predictions as to who will recover and who will develop persistent stuttering could be a tremendous asset to clinicians and a major factor in the clinical strategy recommended to parents. It also raises several serious ethical and practical issues.

The challenge of prognosis is highlighted by the example of a clinician who assesses a child as having good chances for natural recovery and recommends a waiting period rather than immediate intervention. What level of accuracy in prediction should be acceptable, and how long should the waiting period be, if the child continues to stutter

² Weighted SLD is a measure that reflects three dimensions of disfluency—frequency, type, and extent—in a single score. It is calculated by adding together the frequency of part- and single-syllable word repetitions per 100 syllables (PW + SSW) and multiplying that sum by the mean number of repetition units (RU), and then adding twice the frequency of dysrhythmic phonation (DP), blocks and prolongations per 100 syllables. See Andrews and Yairi (1999, 2005).

3, 6, 9, 12 months, or even longer? Placing a child in unnecessary therapy poses a burden to the family, in terms of time, cost, and concern. Additionally, it unjustifiably places a strain on professional and public resources while children with other pressing needs compete for the same opportunity. It should be obvious that if all 5% of preschool children who begin stuttering are in line for treatment, resources could quickly be exhausted. Health insurance companies, too, would probably resist footing the bill for this high proportion of controversial cases.

Some have argued that unnecessary treatment may be ethically questionable as seen in the following quotation: "[W]e should candidly entertain the proposition that it might be ethically *inappropriate* to categorically direct all cases of early childhood stuttering for treatment, as has been advocated by other clinicians. It seems that, intentionally or unintentionally, clinicians do tend to scare parents into submitting their child to treatment by presenting a bleak picture of what might happen to the child and his/her speech if therapy is not immediately initiated. Typically, they press the point that, if left untreated, stuttering will grow in severity and will acquire many additional unpleasant characteristics, such as strong fears of talking, social withdrawal, etc. Statistically, however, the reverse is true." (Yairi & Ambrose, 2005, p. 416)

Past Prediction Guidelines

Over the years, several clinicians have offered lists of danger signs and criteria for predicting persistent (chronic) stuttering in children; others published more elaborated guidelines and formal instruments. These are listed here to familiarize you with the variety of characteristics that have been proposed.

Stromsta (1965): Acoustic traces of the second formant transition were explored among the early attempts to identify predictors of persistent and recovered stuttering. In 1965, Stromsta analyzed the acoustic waveforms of disfluencies recorded from young children after they began stuttering. He reported that 89% of children whose disfluencies lacked F2 transition and/or showed irregular termination of phonations were still stuttering 10 years later. Conversely, 91% of children whose disfluencies contained normal transitions and terminations of phonation were deemed recovered 10 years later. Unfortunately, vague and unreported aspects of the procedures rendered these findings useless. Indeed, Yaruss and Conture (1993) failed to corroborate them. More recently, other investigators analyzed the *fluency* speech of children near stuttering onset and reported that those who eventually persisted demonstrated significantly smaller change in their F2 transitions than those who recovered. This implied that their oral movements, especially of the tongue, were more restricted (Subramanian, Yairi, & Amir, 2003). Thus the clinical application of acoustic data must wait for much more research.

Van Riper (1971): Four subgroups (tracks) were distinguished by Van Riper that, among other characteristics, also varied in their tendency to recover or persist.

Extracting criteria from his scheme, the danger signs for persistence include (1) blocks as the early dominant disfluency, (2) late onset, (3) sudden onset, (4) a lack of episodic cycles of stuttering, and (5) poor articulation skills.

Carlie (1980): The risk of chronic stuttering increases for cases that evidence (1) part-word repetition of two or more units on 2% or more of the words, (2) prolongations longer than 1 second, (3) involuntary blocks longer than 2 seconds, (4) secondary characteristics, (5) noticeable emotional reaction, (6) complaints of not being able to function satisfactorily, and (7) marked variation in frequency and severity of stuttering.

Conture (1990): At least two of the following characterize persistent stuttering: (1) sound prolongations or blocks that constitute more than 25% of the total disfluencies produced by the child, (2) lack of eye contact during more than 50% of conversations, (3) frequent and/or unusual use of phonological processes, (4) prolongations, blocks, or part-word repetitions on the first production of diadochokinetic tasks, and (5) oral motor or neurological screening scores indicating delayed neuromotor development.³

Riley (1981): Based on this author's *Stuttering Prediction Instrument for Young Children—SPI*: (1) presence of secondary characteristics, (2) the child's frustration with disfluencies, (3) parents' reactions to disfluencies, (4) more than three repeated units in part-word repetitions, (5) part-word repetitions repeated "abnormally," (6) presence of prolongations and blocks, and (7) Frequency of disfluencies per 100 words. Information is gathered from the parents and observation of the child's speech. In this instrument, each item is scored within a range of possible points (e.g., 0 to 4). Combining all item scores, the total score ranges from 0 to 40. A score of 10 or greater suggests a risk for chronic stuttering.

Cooper and Cooper (1985): Based on the author's *Chronicity Prediction Checklist*, the child exhibits any of the following: (1) 5% of words are disfluent for over 6 months, (2) the average duration of disfluencies is greater than 2 seconds,

(3) struggling articulatory gestures or blocks, (4) the presence of secondary characteristics, (5) the child has negative feelings about disfluencies, or (6) the parents have negative feelings about disfluencies that may be detrimental to the child. These are the most important items in the instrument that also generates scores from 0 to 27. A score from 7 to 15 indicates a need for vigilant observation; a score from 16 to 27 is predictive of chronic stuttering.

Waruss, Lasalle, and Conture (1998): Several of the following: (1) more than 10% total disfluency, (2) larger than 30% ratio of sound prolongation to repetition, (3) a score higher than 3 on the Iowa Scale of stuttering severity, (4) a score higher than 18 on the Stuttering Severity Instrument, (4) a score higher than 16 on the Stuttering Prediction Instrument.

³ Conture also believed that the use of fast speaking rate or complex vocabulary by the parents might aggravate the child's stuttering, making it more difficult to become fluent.

Review and Summary

We note with interest that the top criteria listed in these sources refer to stuttered speech: type or frequency of disfluency, acoustic features, or secondary characteristics. Overall, the main focus is on the severity of overt stuttering with some consideration of the emotional reaction to it. Van Riper also considered some information regarding onset. Unfortunately, these and other past ideas on the subject were not accompanied by scientific data sufficient to support them. For example, in the Stuttering Prediction Instrument (SPI) (Riley, 1981) some data were collected from children who were nearly 9 years old. Hence their predictive value for children near the onset of stuttering, typically between the ages of 2 and 4, when the prognosis is most needed and meaningful, is substantially diminished. Also, the sample consisted of 75% persisting and 25% recovered children, just the reverse of the expected proportion, raising more questions about the instrument. Similarly, several items on the Chronicity Prediction Checklist (Cooper & Cooper, 1985) assume the child has already stuttered for 2 years, much too long for "early" prediction.

In reviewing past criteria and the way they were derived, Yairi and Ambrose (2005) pointed out two fundamental requirements essential for establishing criteria for early prediction of the course of stuttering. First, data should be collected from *unbiased, representative samples* of many stuttering children over several years. Second, children must be observed and followed from a time as close to onset as possible, so that those who exhibit early natural recovery are taken into account. They emphasized the second point, stating, "It goes without saying that the longer the stuttering history is at the point when data are collected, the less applicable they are to predicting the course of very early stuttering, when prognosis is needed the most" (Yairi & Ambrose, 2005, p. 346).

Recent Developments: The Illinois Prediction Criteria

The large-scale longitudinal study conducted at the University of Illinois mentioned in Chapter 3 identified a substantial number of children close to the time of stuttering onset and followed them for several years. A wide range of aspects of the disorder were examined, such as type of onset, characteristics of early stuttering, language and phonology, motor skills, cognition, affective reactions, genetics, and many others (Yairi & Ambrose, 2005). Because changes over time were measured for children who eventually recovered without treatment, as well as for those who persisted in stuttering, the study is unique in its wealth of information pertaining to clinical assessment of a child's risks for persistent stuttering or the chance for natural recovery. These authors distinguished three levels of prognostic criteria according to their strength. These are listed here followed by explanations. Also, see Chapter 3, the section on predictive factors, for additional information.

Predictive Factors

Primary Factors	Secondary Factors	Tertiary Factors
Family history	Stuttering severity	Concomitant disorders
Gender	Head and neck movement	Awareness and affective reactions
Stuttering (SLD) trends	Phonological skills	
Duration of stuttering	Expressive language	
Age at onset	Acoustic features	
Disfluency length		
Sound prolongations/blocks		

Comments on Primary Factors

Familial History. At the present this appears to be the strongest as well as earliest predictor. A history of familial stuttering, however, is not sufficient information. What counts is the specific *pattern* of the history. If the child has relatives who recovered from stuttering, as stated earlier, he or she has a 65% chance for natural recovery. Conversely, a familial history of persistent stuttering gives the child a similar chance for developing persistent stuttering. A pattern of familial persistence is apt to reduce the amount of waiting time prior to intervention.

Gender. If the child is a boy, the risk for persistence is greater than if the child is a girl. Not only do girls have better prognosis for recovery, they also tend to recover sooner. When a girl fails to improve within a year, her risk for persistent stuttering increases.

Age at Onset. Late age at onset, for example, 50 to 60 months (4 to 5 years), tends to be associated with persistency. Age also presents another risk because the older the child is at the time of onset, the higher is the awareness of stuttering and the consequent emotional reactions. Additionally, the child's friends are older, and they too are more likely to react negatively to the stuttering.

Duration of Stuttering History. If stuttering has continued for 1 year, the risk for persistency increases. The longer the history, the higher is the risk. When other information is unavailable, this factor becomes more critical. Soon after onset, a child's chance for recovery is at least 75%. A year later, the chance for recovery is down to 63%, declining to 47% at 2 years post-onset, dropping to 16% at 3 years, and to only 5% at 4 years after onset. Unfortunately, except for the Yairi and Ambrose (2005) source, this critical information has been overlooked in the various prognostic schemes reviewed previously. For example, if the prognostic criteria include a certain level of stuttering as a risk factor, it has no practical meaning without reference to the duration of the stuttering history.

SLD Trends. The frequency and severity of stuttering during the first year post-onset provide important clues. It is not the specific number of stuttering (or SLD) which is critical but its trend over time. A *downward* trend during the first year, even if the frequency remains high, is a strong sign for eventual recovery. A decline from 20 to 12 SLDs over 3 months is a good sign. A stable number of 12 SLDs over the same

period is not. For the majority of children who show such decline, however, full recovery will take 2 or 3 years postonset. However, a child who exhibits a flat or an upward trend of stuttering by the end of 1 year should be regarded as being at risk. Ideally, children should be recorded every 3 months to obtain data. Severity ratings made by the parents may also be used to analyze the trend.

Disfluency Length and Tempo. During the first year of stuttering, the *continuing* presence of disfluencies with more than one repetition unit, especially those containing three or more units (e.g., *bu-bu-bu-but*) is a sign of risk. Reduction of the repetition units typically coincides with a diminution in the frequency of stuttering. If repetitions become shorter in number of units, prognosis is more positive. Slower tempo of repetitions is also a positive sign for recovery. However, the length (duration) of blocks and prolongations early on is *not* a predictive factor. (At the early stage, however, blocks or prolongations are relevant for differential diagnosis.)

Sound Prolongation/Blocks. A substantial number of sound prolongations or blocks poses a possible risk, although *not* during the first few months of the disorder. When the percentage of sound prolongations in the total disfluency declines over time, it signals recovery. Conversely, when the percentage grows, so does the risk for persistency.

Comments on Secondary and Tertiary Factors

Stuttering Severity. Stuttering severity during the early stage of the disorder (6 months or so) is *not* a predictive sign. One year after onset, however, severe stuttering does become a risk signal.

Head and Neck Movement. Secondary characteristics are *not* an early danger sign. They become a sign of risk if, after 1 year, there is no substantial decline in their number and severity.

Phonology. During the early phase of stuttering, phonology skills below norms might be a risk. In isolation, however, it is not a strong factor. But if other signs for persistency are present, the phonology status serves to reinforce them. Poor phonology, however, should alert the clinician to look for other possible risk signs. During the second year, phonological skills lose their predictive power.

Expressive Language. The power of the child's language skills in the prediction of stuttering pathways is not clear. If at all, advanced skills may be a danger sign, especially if they remain ahead of normative expectations across time (Watkins, 2005). Delayed language, however, may complicate stuttering.

Acoustic Features. Current F2 transition data present an insufficient basis for early prediction of the course of stuttering.

Concomitant Disorders. The prognostic power of other disorders associated with stuttering, not including language and phonology discussed earlier, is unknown. The presence of concomitant disorders and medications used for treatment (particularly theophylline) may exacerbate stuttering. Thus the additional complication of various disorders or health-related problems may increase risk for persistency.

Awareness and Affective Reactions. Thus far, there is no evidence from research that a young child's awareness of, and emotional reaction to, stuttering, predict persistence. Yet it is possible that either the child's or a parent's strong reaction to stuttering might complicate the speech difficulty and negate potential recovery if other factors were favorable.

Case Studies

The predictive power of the Illinois criteria varies greatly, and no single characteristic is sufficient for valid estimates of the chances for persistence or recovery. It is the converging of several factors that clinicians must look for. A few cases will illustrate the point.

Julie was first evaluated at 29 months of age, 4 months after onset. At the time she exhibited severe stuttering, about 18 SLD per 100 syllables, mostly repetitions of two to four units with moderate tension. Being so young with a brief stuttering history and no apparent danger signs, waiting and reevaluation in 3 months was recommended in spite of the severe stuttering. At the second visit, the frequency of SLD dropped to 13 per 100 syllables and repetition units to only 2 per instance. Her mother reported similar observations. Although the stuttering was still moderate in severity, being a girl, the clear decline in frequency and length of disfluency and the continuing lack of other danger signs indicated high chances for recovery. Again, a waiting period and another reevaluation was recommended. Three months later, stuttering was mild. By 1 year post-onset, she displayed completely normally fluent speech without intervention.

Matthew was evaluated at 34 months of age, 2 months post stuttering onset. He exhibited low-moderate stuttering, about 8 SLD per 100 syllables that composed mainly of repetitions of two extra units. The boy's father had a history of stuttering and still exhibited mild-to-moderate stuttering. No other danger signs were identified. In spite of the family history of persistent stuttering, because of the very short history of the problem and the moderate stuttering, it was decided to recommend a 3-month waiting period under close monitoring. At the reevaluation, the frequency of SLD rose to 11 SLD per 100 syllables, and a few sound prolongations were observed. Hence because of the three danger signs: being a boy, family history of persistent stuttering, and the increase in the level of stuttering over time, immediate therapy was recommended.

Todd was evaluated at 58 months of age, 6 months after a sudden onset. At that time he exhibited moderate stuttering, about 12 SLD per 100 syllables, consisting of about 50% sound prolongations and 50% repetitions, mostly of two to three units, all associated with moderate tension and some secondary characteristics. Language tests revealed indicated precocious skills, but a few age-inappropriate phonological errors were noticed. There were also indications of frustration associated with stuttering

episodes. No history of stuttering was recalled by parents. The mother reported essentially consistent amount and pattern of stuttering over the past several months. In view of the multiple danger signs: being a boy, sudden and late onset, a large percentage of sound prolongations, precocious language, phonological delay, and apparently consistent, unabated stuttering patterns, Todd was viewed as having a high risk for persistent stuttering. Therapy was recommended.

Concluding Parent Conference

Having taken part in providing the background information at the beginning of the evaluation, the parents, most often only the mother, are brought back into the process for the conclusion that includes two distinct parts: (1) receiving feedback about the clinician's findings and recommendations, and (2) having an opportunity to ask questions and receive information and guidance regarding stuttering.

Diagnosis, Prognosis, and Recommendations

As in any other speech-language evaluation, the clinician should state the main findings, most often confirming the parent's diagnosis of stuttering, as well findings concerning additional problems in other areas covered in the evaluation. The clinician then outlines the main characteristics of the stuttering, such as the dominant disfluency type(s), typical length of the disfluencies, e.g., three repetition units, secondary characteristics, tension, variations in the frequency of stuttering when talking to parent and clinician, the overall level of stuttering severity, indications of awareness or emotional reactions, and whether the stuttering seems to be at an early or a more advanced stage. Of course, when warranted, parents might instead be informed that the child exhibits normal disfluency. Next, specific results of language, phonology, motor, hearing, and any other tests and observations are presented with explanations and comparisons to the normative range.

The focus then shifts to discussion of the possible future course (prognosis) of the disorder. The clinician points out to parents the fact that about 5% of all children experience stuttering for some period during the preschool years but that at least 75% of them stop stuttering on their own, a phenomenon referred to as *natural recovery*. Some experience natural recovery rather quickly within a few months to 1 year after onset; most take 2 to 3 years. Although the outlook for positive development is statistically good, parents should keep in mind that some children do not recover and develop chronic stuttering that lasts for several or many years.

The clinician should clearly caution parents that, at the present state of knowledge, it is not possible to make an accurate prediction about a specific child's eventual course of stuttering. Nevertheless, given what we do know, reasonable estimates of the relative chances of change in the near future are possible and can be helpful in making clinical recommendations and decisions. Therefore the clinician proceeds to review for the parents their child's standing in relation to the various risk factors listed and discussed earlier.

This example reviews some relevant prognostic factors as may be discussed with the parents during postassessment counseling. "The child is a boy. Boys have a poorer chance for recovery than girls, which is a negative point. Your son's grandfather, however, stuttered when he was very young but stopped after 3 years. This is a favorable sign because your son has a good chance to follow the same pattern. Still, many of the child's disfluencies are sound prolongations at half a year post-onset, another negative point. But although you have expressed concerns that the boy has stuttered for 6 months, you have noticed an overall improvement during the last 2 months from a stuttering severity rating of 6 (severe) to a rating of 4 (moderate). This is a positive point." Given the family history and the signs of improvement, the clinician would be in a position to support an additional waiting period with continued monitoring over the next 2 to 3 months. A decision to initiate intervention is appropriate, however, when the parents prefer it.

Having considered all factors with due regard to their importance, the clinician has the responsibility of either recommending a waiting period of 2 to 3 months followed by reevaluation or urging the parents to seek an immediate intervention program. When a waiting period is recommended, the child can be monitored for the prescribed duration, allowing the clinician to compare her own data over that time period. If the improvement endures, the monitoring will continue. If the stuttering is not improved, intervention options will be considered in due time. If therapy is recommended, parents should be provided with a list of local providers. The clinician may explain that whereas in the past, intervention was conducted mostly in the form of parent counseling, the past 25 years have seen a growing trend of providing direct therapy to the child while keeping the parents in the picture too. Now the clinician can proceed by pointing out the rationale for the traditional and the current approaches, explaining essential features of the major current types of therapies, as follows:

1. Practice the child in slow speech or other voluntary speech movement.
2. Reinforce fluency and discourage speech behavior that triggers disfluencies.
3. Improve parent-child relation and child's interpersonal skills.
4. Psychological play therapy.

A review of several specific therapy programs representing these approaches is presented in Chapter 14. The clinician explains that practitioners use different specific techniques under each of the categories just listed. For example, slow speech may be practiced using stretched speech or a metronome-paced speech. Reinforcing fluency can be done by praising each instance of fluent speech (e.g., the Lidcombe method; Harrison, Onslow, & Roussseau, 2007) or by reinforcing a gradually increased length of fluent utterances (e.g., the ELIJAH; Ingham, 1999). Parents, however, should be informed that although therapies sometimes appear to help either directly to reduce stuttering or indirectly to create a more favorable home

environment for fluency, there are still very few strong, well-controlled research studies confirming the clinical effectiveness for most treatment programs and strategies.

Parent Counseling

Limited immediate parent counseling in conjunction with the initial evaluation of the preschool child who stutters has been a standard practice for a long time. Already several decades ago, many authors wrote on this subject, offering general and specific advice (e.g., Brown, 1949; Johnson, 1961b; Sander, 1959; Schuel, 1949; Zivitan, 1978). Their ideas are reflected in more recent sources (see review by Yairi & Ambrose, 2005; Chapter 11). Not knowing what action parents will take or when, or in response to their queries about stuttering, the clinician should impart (1) essential information about the disorder, (2) advice about the desired home environment, (3) advice concerning responding to the child's stuttering, and (4) follow-ups. It is important, however, for the clinician and parents to understand that much of the commonly given advice lacks sufficient scientific evidence for the sake of realistic expectations. Nevertheless, much of it reflects common sense and clinical experience. A special visit without the child affords a more relaxed and open discussion. Yairi and Ambrose (2005) provide a verbatim text as an example of typical feedback and advice given to parents. Their main points, based on a review of the rich literature, are summarized here by providing answers to four questions.

What Causes Stuttering?

Parents are briefly informed of the diverse ideas regarding the cause of stuttering, representing four theoretical orientations: psychological, learning, organic, and multiple causation. Research data do not support the first two categories. For example, it has been found that people who stutter, as a group, are not emotionally maladjusted. Although it is still not known what makes a child stutter, there is evidence implicating neurological and motor components. Also, whatever is the cause, it is genetically transmitted. Once the stuttering begins, however, environmental factors come into play, shaping its features and development. Parents can contribute to improving the child's stuttering by creating a favorable home environment that might facilitate natural recovery, or, if the child develops chronic stuttering, help him or her become a well-adjusted person.

What Can Be Done at Home?

Four points of advice are presented to parents:

1. Decrease undue pressures. Knowing that stuttering tends to increase under various pressures, parents are to identify and reduce the various sources. Some are common, such as excessive demands, rules, or high expectations. Others are unique to the family.
2. Create a more relaxed home atmosphere. Physical and emotional stimulation, excitability, being in a hurry, or fatigue all tend to increase stuttering.

Parents should strive to create a more relaxed home atmosphere, avoid rushing, minimize excitement, and select slow-paced activities.

3. Slow speech and conversational exchanges. Slow speaking rate has been known to increase fluency. To this end, parents do best by slowing down their own speech, providing a model. Parents need some practice in slow speech. Hence experiment first in selected brief situations, such as telling a story when alone with the child. Then expand to other situations when possible. In particular, slow down the pace of conversational turn-taking by having a slight delay before responding to the child's statement or question (see Bernstein Ratner, 2004).

4. Build self-confidence. Stuttering has the potential to impair the child's self-image and self-confidence. This may be as handicapping as the stuttering. Simple parental behaviors, such as giving praise for performing small jobs, are suggested. Parents are also encouraged to make sure the child's communicated messages are valued even if he or she stutters.

What to Do When the Child Stutters?

After a comprehensive review of the rich literature on this topic, Yari and Ambrose (2005) settled on four suggestions that represent a passive-active mixture:

1. When stuttering is mild or moderate, wait patiently. Allow the child to finish without comments or help. Acceptance is implied and pressure is avoided.
2. When the stutter event is moderate to severe or worse, use echoing. Parent is to repeat the stuttered word in an easy, somewhat prolonged but fluent manner. This provides a model for self-correcting without applying direct pressure.
3. When severe stuttering occurs, parents may take a more direct approach, suggesting to the child to say the word again slowly and easily. Sometimes the parent may offer to say the word in unison and then let the child repeat alone. Such suggestions must be made very calmly.
4. Parents should respond with empathy and encouragement when the child is frustrated during or after stuttering (e.g., by stating, "Sometimes talking is hard, but that's okay, you will be fine"). Such attitude may help create open communication about the problem.

Clinicians may explain to parents that children often react to stuttering in whatever way listeners/parents react. If listeners are worried/concerned, or if the child's speech is interrupted or cut short frequently because of stuttering, the child will soon learn that it is not okay to say something if it might come out with "bumpy" stuttering. This can lead to more hesitation over talking and interfere with the learning process for smoothing out speech. Listeners need to show they are comfortable and patient with all the bumpy, stuck, or struggled speech, so that the child does not get upset when doing it. The listener needs to convey that there is time for the child to work it out. This means

waiting neutrally for the child to finish, with a mind focused on the child's message. Remaining neutral and comfortable, however, can be difficult when the child's struggle is particularly severe. The clinician should help parents understand that getting upset is not helpful either to the child or for themselves.

What's New?

Regardless of the clinical recommendations, whether immediate therapy or a waiting period, parents are instructed to closely monitor their child's speech, other behaviors, and reactions. Schedule a follow-up visit within a few weeks. If possible, parents should obtain audio or video speech samples and keep detailed notes concerning variations in the features and severity of the stuttering. These will be very helpful in assessing the child's progress and in making changes regarding treatment decisions. Parents are also encouraged to secure missing background details, such as the family history of stuttering.

Summary

The initial evaluation of the preschool-age child who stutters is typically initiated by concerned parents. In the great majority of cases, the evaluation ends up as a systematic process of information gathering about the various aspects or dimensions of the disorder rather than a classic diagnostic search for an unknown condition. This is so because most often parental diagnosis of the child's speech impediment as "stuttering" is shared by the speech-language clinician who backs up his or her subjective perception with objective data. Questionable, borderline cases in the gray area between normal disfluency and stuttering are few. We have provided finer diagnostic procedures and criteria for such cases.

The major parts of the evaluation include an extensive parent interview; audiovisual recording of speech; analyses of disfluency and secondary characteristics; probing into awareness, emotional reactions, and temperament; and testing for language, phonology, hearing, and motor skills. Interview materials, normative disfluency data, and stuttering severity scales were offered, as well as suggestions for additional instruments. The evaluation concludes with parent counseling, which, among other objectives, focuses on providing information about stuttering, suggestions for modifying general home environment, and advice concerning handling stuttering.

Overall, the young age of the child necessitates greater involvement of the parents at several points throughout the evaluation. The brief history of the disorder in young children allows for the collection of more reliable information, some of which, such as the familial history of stuttering, may be particularly useful for prognosis and clinical recommendations. Furthermore, because at this early stage of the disorder children have a good chance for natural recovery, the weighting of these chances for prediction purposes is an important element of the evaluation. The knowledge that

most children will outgrow the disorder without intervention presents clinicians with questions: Should children who are good candidates for recovery be directed to receive therapy or wait awhile? If waiting is recommended, for how long? Clinicians, and parents, should bear in mind that the prognostic criteria reviewed here are tools for making reasonable risk assessments. They are not, however, powerful enough for making accurate predictions. Their review is a matter of assessing probabilities and risks. Children who appear to be at low risk and are recommended for waiting should continue to be closely monitored.

STUDY QUESTIONS AND DISCUSSION TOPICS

1. What are the main differences between the initial evaluation of preschool children and adult or school-age children who stutter?
2. Why is it important to determine accurately the time of stuttering onset?
3. Why is it important to ask parents to compare the various characteristics and severity of stuttering at the time of onset and at the time of the evaluation?
4. What are the minimally sufficient disfluent speech characteristics required for the classification of a child as exhibiting mild stuttering?
5. What dimension and characteristics of stuttered speech are typically used in rating its overall severity?
6. Is it necessary to include speech and nonspeech domains other than fluency in the evaluation of stuttering in preschool children? Defend your answer.
7. What are the main criteria for assessing a child's chance for natural recovery or persistent stuttering? Briefly explain each one.
8. What are the main objectives of parent counseling at the conclusion of the initial evaluation? Explain.

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Chapter 14: Treatment of Preschool-Age Children Who Stutter

LEARNER OBJECTIVES

Readers of this chapter will understand:

- Factors related to intervention for preschool children who stutter
- The historical background of therapy for early stuttering.
- The range of treatment objectives for preschool children who stutter.
- Clinical programs representing the major treatment approaches to early stuttering.
- Research issues concerned with treatment of preschool who stutter

General Considerations

Having reviewed and discussed the treatment of stuttering in adults and school-age children, we now shift attention to general approaches, specific techniques, and programs that have been offered for the treatment of preschool-age children. Chapter 2, which focused on the distribution of the stuttering population, established that the overwhelming majority of people who stutter experience the onset of the disorder (incidence) during the preschool period, ages 2 to 5, mostly before age 3. Additionally, the data show that the prevalence of stuttering (the percentage of people who exhibit active stuttering) is also the largest in this age group.¹

In spite of these indisputable facts, systematic clinical intervention programs aimed specifically for preschool-age children who stutter have been relatively late to appear, and for a long time they lacked the breadth of treatment methods offered to adults who stutter. This trend paralleled the one seen in the research domain that, for many years, favored adults who stutter. It probably reflects several realities. First has been the lingering “hands off the child” attitude toward treatment of early stuttering that was promoted especially in the United States. Second may have been a tendency toward thinking that stuttering in children and adults was all the same. Third, university laboratories and clinics were mainly accessible to college students. Fortunately, the trend has been reversed, and the

¹One study (Yari et al., 2002), however, suggested a peak prevalence in the 6- to 10-year age group.