In order for speech-language pathologists to work effectively with individuals who stutter, they need knowledge and skills in the many dimensions of a stuttering disorder. This presentation will review the nature of a stuttering disorder, as well as best practices for comprehensive assessment and intervention.

Learning Outcomes: As a result of this conference, participants will be able to:

- Describe the experience of a person who stutters in motor, social, cognitive/affective domains.
- Summarize research on epidemiological issues related to stuttering including causes, prevalence, incidence, and persistence and recovery.
- Identify best practices for assessment of stuttering across multiple domains including speech, social, and cognitive/affective components.
- Utilize speech modification strategies including identification, desensitization, modifying stuttering, and fluency shaping skills.
- Create goals for individuals who stutter to improve communication and quality of life across speech, social, and cognitive/affective domains.

Louisiana Speech-Language-Hearing Association Annual Convention

Lafayette, LA. June 10-11, 2016
Part One

Understanding Stuttering

Scope: The purpose of this portion of the presentation is to give participants a firm understanding of what a stuttering disorder is. First, we will discuss what separates a stuttering event from a stuttering disorder. We will talk about what distinguishes stuttering-like disfluencies from typical disfluencies, and what additional components beyond speech disruption make up a stuttering disorder. Current epidemiological research in stuttering will be presented related to incidence and prevalence, factors associated with persistence and recovery, and causes of stuttering.

Outline

I. It is important for us to define stuttering in order to have a shared meaning about the nature of the disorder.
   A. Opening activity
      1. What comes to mind when you think of “stuttering”? What are the key components of the disorder?
      2. If you, as a speech-language pathologist, really helped a person who stutters as a result of your therapy, how would you know? What would be different about the client at the end of successful therapy?
   B. There is a difference between a stuttering event and a stuttering disorder.
      1. The event is the speech disruption itself (e.g., repetitions).
      2. The disorder includes the effects of the speech disruption in multiple areas of life.
   C. Very often in clinical situations, clients describe their biggest concerns being related to feelings, thoughts, reactions, and social limitations that result from speech disruption, rather than the disruption itself (e.g., “I am really afraid to talk with someone new”).

II. What are some of the key characteristics related to the surface features of stuttering (i.e., speech disruption)?
   A. Fluency in speech involves appropriate rate, continuity, and tension/effort.
   B. A “disfluency” in speech is anything that interrupts the process of smooth, forward moving speech.
      1. Everyone has disfluencies in their speech. These “typical disfluencies” include hesitations, revisions, multisyllabic word repetitions, phrase repetitions, and interjections.
2. We would not be worried about these types of disfluencies because they are very common and usually do not detract from communication.

C. “Stuttering-like disfluencies” (SLDs) are specific types of disfluencies that are more frequent in the speech of people who stutter (PWS).
   1. SLDs are much more common in the speech of PWS.
   2. Repetitions are multiple iterations/productions of sounds, syllables, or monosyllabic words.
   3. Prolongations are audible stretching of sounds without transitioning to the following sound.
   4. Blocks are disfluencies in which no air or voice seems to be coming out at all, and the articulators or larynx are held in a fixed or tight posture.

D. These physical speech disruptions, or “primary features” of stuttering are perhaps the most overtly noticeable features of stuttering. However, “secondary features” that arise from the speech disruptions are also often noticeable and can be very distracting.
   1. Physical secondary behaviors include things like head jerking, facial contortions, limb movements, losing eye contact, etc.
   2. Verbal secondary behaviors include things like circumlocutions, word changes, and fillers.
   3. Although secondary behaviors are used to break free or escape from a moment of stuttering, they often become more noticeable and distracting to listeners than the core stuttering behaviors themselves.

III. What are the other characteristics of a stuttering disorder besides speech disruption?
   A. Stuttering is often associated with physiological activity similar to a stress response including increased heart rate, perspiration, and nervous stomach.
   B. Stuttering can lead to negative emotions such as fear, panic, dread, embarrassment, humiliation, frustration, anger, shame, guilt, and resentment.
   C. Cognitively, stuttering can influence thoughts about oneself. For example, thoughts such as “I am worthless,” or “People will think I’m stupid if they hear me stutter” could be experienced. Sometimes PWS are aware of these thoughts, and sometimes they are so automatic that they go into the background and are not consciously perceived.
   D. Socially, PWS may limit what they say to escape or avoid the possibility of stuttering and negative social reactions from others. PWS may also avoid people, places, and situations altogether in order minimize exposure to negative reactions, either from others or themselves. Ultimately, societal participation and achievement of life goals can be severely compromised because of stuttering.
   1. Stuttering usually manifests in social situations in which it is important to communicate a message to someone else.
2. It is a physical disorder, but it plays itself out in the social realm. There are certain social situations where the physical trait becomes more of a challenge.

3. This may help explain why stuttering is such a variable disorder. It can change drastically over brief periods of time, and across different speaking situations.

E. Importantly, stuttering is experienced as a loss of control over the speech production process. It is scary to feel that one is losing control of one’s body in front of other people. Essentially, the experience is like being frozen in time. A person knows precisely what they want to say and really wants to say it, however the person is unable to move from one sound to the next. Stuttering is related to difficulty moving into and away from sounds and words.

IV. What does the most current research on stuttering tell us about the nature of a stuttering disorder?

A. The prevalence is approximately 1% of the population, but the incidence is around 5%.

B. The prevalence of stuttering is highest in young children, and it decreases as age increases.

C. Many young children who stutter naturally recover early in childhood (about 80%). In addition, it is rare that the onset of stuttering occurs in later childhood or after.

D. Stuttering runs in families. A PWS has a little over a 60% chance of having either an immediate or extended family member who stutters. Fewer than 10% of people who do not stutter have someone who stutters in their family.

E. By the time of adulthood, there are 4 males for every 1 female who stutters. Although earlier in childhood, the ratio is about 2 males for every 1 female.

F. Recent longitudinal research studies have provided critical information about the nature of the onset of stuttering in early childhood. The results of these research studies challenge more traditional notions from the past.

1. The typical range for stuttering onset is between 16 and 60 months. The mean onset time is at 33 months of age. Although possible, it seems to be rare for the onset of stuttering to occur after the age of 5.

2. The majority of onsets occur immediately (within one or a few days), or within a week or a few weeks.

3. At onset, children who stutter demonstrate considerably more SLDs in their speech than do children who do not stutter.

4. At onset, over half of children will demonstrate at least one physical secondary feature.

5. At onset, the majority of children demonstrate either severe or moderate stuttering.

G. How does stuttering develop over time?
1. Approximately 80% of children who start to stutter will recover naturally. For the 20% who do not recover naturally or with early therapy, the diagnosis becomes “chronic stuttering.”

2. Children who demonstrate noticeable decreases in stuttering within the first 6-12 months are at lower risk for persistence. Children whose stuttering severity remains relatively stable or consistent over time are more likely to persist.

3. Although it is true that at onset, there is about an 80% chance of natural recovery, those odds sharply decrease as the child gets older. For example, after two years there is only a 57% chance of recovery, and after three years this falls to 16%. If the child has been stuttering for 5 years or more, the odds of recovery are quite small and the stuttering is considered chronic.

4. Females are more likely than males to recovery naturally.

H. What are the primary factors associated with stuttering recovery and persistence?
1. Family history is the most important risk factor. Children with family members who have persisted in stuttering are also more likely to persist.

2. Males are more likely than females to persist in stuttering.

3. Children who do not show a substantial drop in stuttering during the first year are more likely to persist.

4. As the child has been stuttering for longer periods of time, the less likely it is that natural recovery will occur.

5. The later the age of onset of stuttering is, the more likely the child is to persist.

6. Longer durations of stuttering moments (e.g., more repetitions, longer prolongations, and blocks) also predict persistence of stuttering.

7. The presence of more prolongations and blocks appears to be a risk factor for increased persistence of stuttering.

I. Children who stutter are more likely to have phonological disorder and language disorders than children who do not stutter.

J. Stuttering is an equal opportunity disorder. It is present across different socio-economic levels, cultures, and geographic regions.

V. Are we any closer to understanding the causes of stuttering?

A. Recent gene studies have identified mutations in specific genes on chromosomes 10, 12, and 16 that seem to be responsible for stuttering in some PWS. The genetic mutations are associated with lysosomal storage disorders and intracellular trafficking.

1. However, at most, only about 20% of PWS show any one of these mutations.

2. Genetic studies are conflicting, and there is likely more than one chromosomal locus.

3. It is still not well understood how these genetic mutations are impacting speech, and what precisely is being inherited.
4. These genetic studies have made big news headlines in the past few years. It seems that most of the public is surprised that stuttering can be inherited genetically rather than being learned, or having roots in psychological trauma.

5. The implications of these genetic findings are that stuttering is no one’s “fault.” However, we must be clear with clients that “genes are not destiny.”

B. There are neuroanatomical differences between PWS and those who do not stutter.
   1. Wernicke’s area is smaller in the left hemisphere in PWS.
   2. There are more gyri in the perisylvian region of the left hemisphere in PWS.
   3. PWS appear to have increased white matter volume in the right hemisphere, however reduced white matter integrity in the left hemisphere.

C. There are also neurophysiological differences that distinguish PWS from individuals who do not stutter.
   1. PWS exhibit over-activation of motor areas, particularly in the right hemisphere.
   2. PWS exhibit lower activity in auditory areas of the brain bilaterally.
   3. PWS demonstrate anomalous right hemisphere activity and lateralization during speech.
   4. PWS exhibit reduced white matter density connecting speech relevant areas of the left hemisphere. Importantly, pre-motor areas appear to have atypical activation.

D. Recent brain imaging research with children has helped us to learn what is happening in the brain closer to the onset of stuttering. This is important because it helps differentiate potential causes of stuttering from the effects of living with stuttering.
   1. Both persistent and recovered children demonstrate reduced gray matter density in left hemispheric speech areas compared to children who do not stutter.
   2. However, only the children who persisted demonstrated reduced with matter integrity.
   3. Right hemisphere over-activation is not seen in children who stutter like it is seen in adults. This suggests that the right hemisphere over-activation is a compensatory effect of stuttering, not its cause. It is more likely that there are structural and connectivity deficits in speech related areas of the left hemisphere in PWS.

E. The genetic and neurological components of stuttering described above appear to be leading to the more obvious sensory/motor deficits observed in PWS.
   1. Slower vocal and manual response times have been observed in PWS.
   2. Abnormal movement patterns (even in fluent speech) and increased variability have been observed in the articulators and larynx (hyper- and hypo-tonic).
   3. Articulatory coordination of speech appears to be particularly destabilized when PWS are faced with increased language demand.
   4. Overall, it appears that the visible speech disruption (motor dysfunction) of a stuttering disorder is caused by an unstable/unreliable neuromotor speech movement preparation system. Specifically, the timing and sequencing of
underlying movements necessary for speech appear to be disrupted. The manifestation of these deficits seems to vary in PWS across differing linguistic and social demands.

F. Although evidence demonstrates that stuttering is a neurodevelopmental disorder with a strong genetic component, changes in the brain do occur as a result of successful therapy.

1. Often, PWS and their families are relieved to hear that stuttering is not a psychological problem.

2. However, they may be depressed that a “damaged brain” means that they cannot change their speech.

3. This conclusion is not valid. Biology is not the same as destiny. Therapy can help to change brain function patterns. More typical brain patterns can be seen following therapy for stuttering.

Further Reading:
For a discussion of stuttering as a multidimensional disorder:


**For current information regarding the genetic bases of stuttering, epidemiology, neuroimaging, and evidence related to brain functioning changes in PWS following stuttering therapy:**


Part Two

Comprehensive Assessment of Stuttering

Scope: This portion of the presentation will describe a comprehensive approach to the assessment of a stuttering disorder. We will first discuss the identification of risk factors for persistent stuttering. Then, we will review how to thoroughly analyze and quantify speech disruption, and a variety of other aspects of speech. We will review some of the most popular standardized tests to measure level of speech disruption. A video and speech sample analysis will be shown as an example of how to analyze disfluencies in a detailed manner. Finally, we will review the importance of measuring cognitive, affective, and social components of the disorders and the effect that stuttering has on quality of life and social participation. Validated scales, as well as informal assessment techniques intended to measure these aspects of stuttering will be reviewed.

Outline

I. When assessing a young child who stutters, parents will often ask clinicians whether or not the child is likely to “outgrow it” on their own. Although it is not possible to predict this with certainty, evidence from longitudinal research tells us that there are several important risk factors for persistent stuttering.

A. As described in Part One (section IV-H) risk factors include: family history of stuttering, gender, age of onset, history of stuttering persistence, patterns of change, and disfluency type or length

B. Although the following variables are not necessarily strong predictors of stuttering persistence, we still may want to take them into account to guide our clinical decisions:
   1. Awareness of stuttering by the child
   2. Negative emotional reactions demonstrated by the child
   3. Parental distress and concern
   4. The presence of concomitant language or phonological disorders

C. Clinicians should ask questions of the child and/or caregiver to obtain the information above in order to provide a proper prognosis and rationale for treatment.

II. Regardless of the particular assessment method or evaluation given, it is important to obtain a speech sample in order to thoroughly evaluate the speech of the client.

A. A speech sample should include a minimum of 300 syllables or words. It would be ideal, although not necessary, to have an even larger sample (up to 500 or 700 syllables or words) in order to capture the stuttering that may be less common.
B. It is very much recommended that speech samples be obtained across different settings and with different people, across time, so that the variability of stuttering can be captured.

C. After obtaining a speech sample, the clinician would count the disfluencies and give a percentage of stuttering-like disfluencies for the speech sample. If multiple samples are collected, these numbers can be averaged.

D. The frequency of stuttering moments is not the only important thing to take into consideration. The clinician should also measure duration of stuttering moments, physical concomitant behaviors, and speech naturalness. These are important to consider because even if the percentage of stuttering in a speech sample is small, the presence of long, physically strained disfluencies can indicate severity.

E. In most cases, the diagnosis that a person is stuttering is relatively easy to make. However, there are occasional borderline cases, especially in pre-school years, in which a clinician may be ‘on the fence’ about whether or not to make a diagnosis of stuttering based on the child’s speech disruption. In these cases, use Yairi and Seery’s (2015) minimal diagnostic criteria, as shown on the back of your assessment handout.

F. The Stuttering Severity Instrument (SSI)-4 (Riley, 2009) is perhaps the most widely known and most often used normative assessment for evaluating severity of speech disruption. It measures frequency of stuttering-like disfluencies, duration of stuttering moments, physical concomitant behaviors, and speech naturalness of PWS.

III. There are some important limitations in assessments like the SSI-4, and I have often used my own methods, and methods I have learned from other experts in the area of stuttering, to obtain the most detailed picture of a client’s stuttering behaviors.

A. I record (ideally videotape) and transcribe my speech samples. I transcribe them in a way that if someone read it, they could act it out. I triple space the document and have extra large margins on the right side. I go line by line and keep a running total of three different numbers in the right margin: 1) Stuttering-Like Disfluencies, 2) Other types of disfluencies, and 3) Total number of words (or syllables). This way, I can keep track of these numbers easily and then just add the columns at the end.

B. I find it very useful to quantify each type of disfluency (stuttering-like disfluencies and non stuttering-like disfluencies). For example, separating blocks, prolongations, and repetitions in terms of their frequency and percentages can help to give a detailed description of the type of speech disruption the client is demonstrating. Then, I rank them in order of frequency. It is more time consuming but worth the effort because you can better evaluate outcomes over time the more specific you are in your assessment. Some norm referenced tests (e.g., the Stuttering Severity Scale – 4) are limited because they are not designed to take this information into account.

C. In addition to describing the types of disfluencies and their frequencies, I always make sure to describe the particular secondary physical or verbal behaviors that are
present, the amount of tension present in speech, as well as the naturalness of the client’s speech.

D. Although I believe that the method described above in section III provides the most comprehensive and detailed picture of a client’s speech disruption, I am aware that there are situations in which a clinician may want a faster approach. There are many other methods for conducting fast assessments on speech disruption including:

1. Tracking fluent vs. disfluent words or syllables online (in real time) using charts is a faster approach. Dots (or a symbol of your choice) could be used to indicate fluent words/syllables, and slashes (or a symbol of your choice) could be used to indicate a disfluent word/syllable. This method would allow you to obtain information about % of words/syllables stuttered, but you would not be able to report on the frequency of different types of disfluencies. If you wanted this information using this online method, you could obtain it by recording a code for a certain type of disfluency (e.g., “P” for prolongation) in a box in the chart. This is valuable information, however, many clinicians (including myself) have a difficult time documenting this in real time while also being present with the client.

2. Counting disfluencies online (in real time) by either using some kind of digital or manual counter is probably the least labor intensive way to get a rough estimate of a person’s speech disruption. In this method, the clinician simply pushes a button or counter to indicate that a disfluency has occurred in a certain time limited speaking activity. For example, a clinician might have a client speak for one minute and count the number of times s/he produced disfluencies in that time.

IV. In assessment of a stuttering disorder, it is crucial that speech-language pathologists do not confuse severity of speech disruption with life impact of stuttering. It is of the utmost importance that clinicians also take into account the other dimensions of a stuttering disorder including impact of stuttering on emotions, thoughts, social and communicative participation and functioning, and achievement of life goals.

A. It is possible for a person to stutter severely (i.e., demonstrate severe speech disruption) and speak his/her mind and achieve what they want in life regardless of stuttering.

B. It is also for a person to stutter very mildly (even to the point where a clinician doesn’t believe the person stutters at all), and have intense negative emotional reactions and thoughts, avoid speaking or social situations, and not pursue their goals in life due to anticipation or fear of stuttering.

C. If only speech disruption is measured, it won’t be possible to take into account other important aspects of the disorder and monitor them over the course of treatment. Therefore, speech-language pathologists should assess multiple components of a stuttering disorder, rather than focusing solely on severity of speech disruption.
D. There are many scales available to measure the more hidden aspects of stuttering that are beneath the surface (see the reference list at the end of Section Two). I will discuss in detail those that are most current and have established psychometrically sound properties and research evidence behind them.

1. The Overall Assessment of the Speaker’s Experience of Stuttering (OASES) (Yaruss & Quesal, 2010) is a norm referenced test that follows the International Classification of Functioning (ICF) provided by the World Health Organization (WHO), and measures domains of activity limitations and participation restrictions, environmental factors, and affective and cognitive factors related to stuttering. It has 100 items and impact scores are obtained across four different sections. There are three different versions of the OASES for different age groups (7-12, 13-17, and 18+).

2. The Self-Stigma of Stuttering Scale (4S) (Boyle, 2013; 2015) measures internalized stigma experienced by PWS. The scale has only been used with adults so far. It measures areas of how much stigma a PWS feels from the public, their endorsement of stereotypes about PWS, and how much they apply the stigma to themselves personally. It is a relatively brief scale (33 items) that does not take long to complete. The 4S can be used as a criterion referenced test (i.e., comparing the PWS to him or herself over time), or scores can be compared to normative data presented in research publications (Boyle, 2013; 2015).

3. The Behavior Assessment Battery (BAB) for School-Age Children who Stutter (Brutten & Vanrycheghem, 2007) is a norm referenced test that can evaluate children age 6-13 on dimensions of communication attitudes, emotional reactions and speech disruption experienced in different speaking situations, and a behavioral checklist.

4. The KiddCat: Communication Attitude Test for Preschool and Kindergarten Children who Stutter (Vanrycheghem & Brutten, 2007) is a norm referenced test that can evaluate children age 3-6 on communicative attitudes.

E. Using validated assessment measures like those described above is a great way to keep track of cognitive, affective, and social aspects of stuttering with hard numbers. Of course, informal assessment and open ended questions tapping into these areas can also be very helpful. It is recommended that the clinician supplements these quantitative tests with qualitative information obtained from interviews. What questions might you ask a client or family member to address life impact of stuttering?

V. There are some other published tests and assessments for stuttering that address different components of a stuttering disorder. Some examples are described below.

A. The Test of Childhood Stuttering (TOCS) (Gillam, Logan, & Pearson, 2009) is a norm referenced test that can evaluate children who stutter age 4-12 on speech
fluency across a variety of different speaking tasks (rapid picture naming, modeled sentences, structured conversation, narration), and also includes observational rating scales (speech fluency, and disfluency related consequences), and supplemental clinical assessment activities.

**B.** The Cognitive, Affective, Linguistic, Motor and Social (CALMS) Assessment for School-Age Children who Stutter (Healey, 2012) is a criterion referenced test that measures the dimensions described in the title using several different questions with response options from 1-5. Progress of the child in these various domains can be tracked over time with these ratings.

**VI.** The take-home message about assessment is that since the disorder of stuttering is multidimensional, the assessment should also be multidimensional. Information is needed on a range of aspects of the disorder, not just fluency and speech disruption. At the end of a thorough assessment, the clinician should be able to generate goals that would address any domains of the disorder that need attention (e.g., speech change, work on attitudes or emotions, social communication, secondary behaviors, etc.).

**Further Reading:**
Some of the popular assessment instruments for stuttering available for purchase that we discussed include:


For access to scales that have been published in peer-reviewed journals or books:


For other helpful articles describing assessment of the various components of stuttering:


Part Three

Comprehensive Treatment of Stuttering

Scope: This portion of the presentation will outline what the major goals of therapy are with PWS. Making changes to the way a person speaks is the most obvious treatment objective, however, there are many other objectives that can be just as important, if not more important, as increasing fluency and reducing stuttering frequency. We will discuss the steps of therapy including, education about speech and stuttering, strategies for increased fluency, strategies for changing how a person stutters, and addressing cognitive, emotional, and social factors. We will conclude with a discussion of goal writing and examples of goals that could be used with PWS that cover the multiple dimensions of the disorder that we have discussed in this seminar.

Outline

I. A good first step in therapy with PWS, regardless of the approach taken, is to discuss the normal speech production process with the client. This can be done with clients of any age, even very young ones, but the vocabulary used will need to be modified accordingly.
   A. Describe how speech is produced and what is necessary for fluent speech (e.g., breath, air moving, vocal fold vibrations, shaping the voice with the articulators to make sounds).
   B. Simple diagrams with the “speech helpers” labeled can be very useful.
   C. It is also helpful in the early stages to discuss, in a very neutral and objective fashion, how we can interfere with talking. It is ideal to have a back and forth dialogue with the client.
   D. There are many reasons to begin therapy with this step.
      1. It can increase behavioral awareness of speech and speech disruptions.
      2. Talking about speech in a neutral and objective way can reduce the emotionality associated with it.
      3. The process can be desensitizing because the client is now talking about, and approaching, what s/he would otherwise avoid.
      4. It can help to instill in the client the belief and awareness that speech is the end product of something you do, and you can manipulate the speech mechanism.

II. One of the most well-known therapy objectives is to change how a PWS produces speech. This approach is often called “fluency shaping” or deliberate/controlled fluency. It is important for you and your client to note that this is not the same thing as
spontaneous fluency. Rather, the client must do something consciously different from what s/he would normally do. There are many well-known strategies to change how a person talks.

A. Easy onsets are slower, softer, and more physically relaxed starts to a word or sound. These help create smoother speech with fewer hard vocal onsets. They are very useful at the beginning of an utterance and with words starting with vowels and continuants.

B. Light contacts/touches involve using very loose and light articulatory contacts when producing sounds. These are particularly helpful for plosives and stop sounds (e.g., contact of lips or tongue) that require air obstruction. The key is that tension and constriction of articulators are reduced.

C. Using an overall slower rate of speech can induce fluency. Slower speech is not the end goal of therapy, but it can be a helpful means for generating smoother speech, especially when the client is learning a new skill. There are many ways to reduce speech rate.

1. Pause more frequently at natural junctures, and produce fewer words between the pauses. Use fewer words per exhalation. A very helpful way to demonstrate this is by reading aloud and putting marks at the pauses. It is also helpful to have the client pause before responding.

2. Another way to reduce speech rate is to prolong vowel sounds in an exaggerated manner. Clients can be taught to say the vowel “long and strong.”

3. It is also possible to teach the client to combine more frequent pausing and fewer words per utterance with vowel prolongation. This is often called Easy Relaxed Approach Smooth Movement (ERASM). The key is to keep the speech turned on throughout the utterance. Words and sounds should be linked together and be smooth and connected, not choppy.

D. It is important to know that fluency shaping normally starts more exaggerated and slow, and eventually, the clinician helps the client “shape” the techniques to approximate normal sounding speech. You would not want the client talking like a robot outside of therapy, and the client will likely not want to talk like that.

III. Another approach in therapy is to change how the person stutters. The goal is to modify the stuttering moment to be less tense and disruptive. This is often called “stuttering modification.” It is a totally different approach than fluency shaping. With stuttering modification, the goal is not to change the overall production of speech, but rather the person continues to speak as they normally do. During stuttering moments however, they implement certain strategies to help them get through the stutter more easily.

A. Exploration of stuttering is an important first step. Explore the client’s stuttering together.
1. At this first stage, you are simply asking the client to notice and be aware, you are not critically evaluating anything. Asking questions like “did you notice any stuttering there?” or “what did you do on that word?”

2. If the therapist talks to the client in a calm, neutral, and accepting way, the exploration of stuttering can help establish trust and a bond between client and client. Normally, talking is difficult for the client, especially talking about stuttering, so this can be a desensitizing aspect of treatment as well. But tone is everything, if said in a harsh or critical way, it can destroy the therapeutic bond. You need to establish a good relationship with them beforehand. This is why talking about talking at the very beginning is a critical step.

3. This exploration can also create behavioral awareness of speech for the client, and perhaps reduce the emotional response. This is crucial because in order for the client to make speech change, s/he first has to know what to change, and when and how to do it.

4. After trust is established between client and clinician, the clinician might consider sitting the client in front of a mirror to better explore visually what is happening during stuttering.

B. After exploration, a more systematic identification phase begins. The goal is for the client to become adept at identifying moments of stuttering as they occur. This can be very difficult at first, and emotionally challenging, so it is helpful to use a hierarchy of difficulty.

1. Off-line therapist: The therapist records her voice reading a passage, or discussing a topic, inserting voluntary stutters periodically. The therapist plays the recording for the client, and the client signals when stuttering moments occur. The client can, for example, hold up a finger to identify stuttering moments. Or, the clinician could give the client the text of what is being spoken, and the child can underline the stuttered words.

2. Off-line child: The same exact process is followed, except that now it is the client’s recorded voice that is being analyzed.

3. On-line therapist: The therapist is speaking in front of the client in real time, and the client holds up a finger to indicate when the therapist stuttered.

4. On-line child: The client is speaking in front of the therapist in real time and is instructed to raise a finger when s/he first starts to feel getting stuck. This is a very confrontational activity because the client is voluntarily shining a spotlight on their stuttering, something that is normally avoided at all costs. In this exercise not only is the client allowing him or herself to stutter, but they tell you about it afterward. This can be very empowering but may take some time to reach.

5. When doing identification techniques, at first the client will likely be slow in identifying moments of stuttering. But, over time the goal is to increase accuracy and speed of identification. This is because if the clients will be able to grab and
modify their own moments of stuttering as they occur, they will first need to identify them quickly.

6. Interestingly, after clients learn about talking, explore talking and stuttering, and learn to identify stuttering moments, they may begin to self-modify their stuttering without any direct instruction. This is likely because they are now behaviorally more aware, with less emotional reaction.

C. Traditionally, the first step in modifying stuttering directly is the use of a cancellation. Cancellation is when the client finishes producing a stuttered word, stops to think about what s/he did to interfere with speaking, plans a new smoother and slower production, and says the word again in the new way.

1. This is actually a form of self-punishment because the client does not allow himself to finish completing his thought until he produces the stuttered word again in an easier way. Note that fluency is not the goal here, but rather a looser, easier form of stuttering.

2. This can be very difficult for clients to do because they need to stop and back up, which often interferes with the flow of conversation. Many clients may not want to do cancellation outside of therapy, but some have found it to be incredibly empowering. Regardless, it is a very valuable tool to use while practicing with the therapist.

D. A pullout is the next strategy, in which the client grabs a moment of stuttering on the fly and eases out of it slowly and gently, rather than backing away from it or blasting out of it with tension. This stems from being to identify moments of stuttering. The clinician can help by raising a fist to indicate the client’s stuttering moment. The client then releases the tension and moves forward easily with the word when the clinician unclenches her fist.

E. A preparatory set is the final stage of stuttering modification. This is when a client anticipates having difficulty being able to say a word, and uses that anticipation as a cue to do an easy slide in to the word. Normally, if a client anticipates having difficulty on a word, tension will escalate and stuttering will occur. The preparatory set acts as a pre-emptive strike against escalating tension.

F. Finally, it should be mentioned that although fluency shaping and stuttering modification approaches are very different, they can actually be used together. For example, a client might want to use fluency shaping skills, however, if they encounter a stuttering moment, they could use a pullout to reduce the tension. If the client is not able to do a pullout in time, a cancellation could be used to go back and re-produce the word in an easier manner.

IV. Sometimes, a client may have difficulty making speech changes outside of the therapy room. Consistent speech change across all settings and speaking situations is extremely difficult to achieve. In addition, the client may have thoughts or feelings about speech or
him/herself that are impeding the ability to make, or even attempt to make, changes to speech. There are several desensitization activities that can be used that can help to reduce some of the emotionality associated with stuttering.

A. Holding or tolerating a moment of stuttering (also called “freezing”) can be desensitizing. A client gets stuck while speaking and the clinician prompts the client to stay in the moment of stuttering as long as possible.

1. Muscle tension often subsides during this activity.
2. Behavioral awareness increases and emotional arousal decreases.
3. This counteracts the tendency to either back away from stuttering or blast through it with increased tension.
4. This is similar to exposure therapy for phobias in the field of psychology.
5. As an example, Charles Van Riper used to twiddle his thumbs and physically relax himself while holding onto a stuttering moment.

B. Voluntary stuttering is another strategy to desensitize the client to stuttering and also improve behavioral awareness of stuttering. The client is actually asked to feign stuttering on words that s/he does not fear or anticipate to stutter on. This can be in the form of easy repetitions (bounces), or little prolongations of sounds (stretches).

1. This weakens the link between stuttering moments and feelings of distress and loss of control. Stuttering moments can begin to be associated with something more manageable, rather than complete emotional upheaval.
2. If a client typically worries about stuttering, or what other people will think when stuttering happens, just getting it out in the open can be psychologically beneficial and relieving. This is especially true if it is used in the beginning of an interaction.
3. Doing something that you are afraid of intentionally can be very empowering.
4. This strategy is also beneficial for speech change because it can help a person manipulate a moment of stuttering and is often a precursor to being able to use pull-outs in real moments of stuttering.
5. Not all clients will want to do this outside of therapy. Even if this is the case, practice in therapy can help tremendously.
6. Voluntary stuttering can be practiced in a playful way in therapy with children. For example, having the child teach the clinician how to stutter in a variety of ways (e.g., loud, soft, easy, hard).

C. Talking about stuttering with other people can be an important desensitizing activity as well. Stuttering is often a “secret” that everyone notices but no one talks about. Being open about stuttering can help to alleviate shame and increase empowerment.

1. This might begin by the client talking about stuttering to the clinician in therapy. Then, hopefully the client may feel comfortable discussing stuttering and stuttering therapy to family and friends, acquaintances, or even strangers.
2. One aspect of talking about stuttering is being more assertive regarding client needs or desires. For example, the client can tell other people that s/he needs some
extra time to finish a thought, or that s/he prefers if the listener not look away during speech. The listener may need help in the interaction because they do not understand stuttering.

3. It is important to identify supportive people that the client can talk to when s/he starts to feel like withdrawing. We want to create a support network (friends, teachers, parents, co-workers, significant others, etc.) of people that the client feels comfortable with and who can help the client.

4. Many PWS think it is helpful to disclose their stuttering in a nonchalant and neutral way. For example, when meeting someone new or giving a speech in front of a group, a brief disclosure that the person stutters can be very helpful in reducing fear and listener misunderstanding. Some people even advertise their stuttering in public (e.g., wearing a shirt that says “ask me about my stuttering”).

5. Using humor about stuttering can reduce fear as well. Some PWS make lighthearted comments or jokes about their stuttering to lessen tension.

V. It may be necessary to talk about thoughts and feelings more directly with some clients. These individuals may have automatic negative, self-defeating thoughts that interfere with their ability to make adaptive changes to their communication. In addition, some clients may feel such strong emotions and physiological reactions that making changes to speech can be extremely difficult. Without addressing these domains, the client may never be able to make long lasting changes to communication.

A. It is valuable for the client to know about the cognitive model. This model demonstrates the connection between thoughts, feelings, and behaviors. It is important to know how thoughts and feeling can influence behavior. It also sets the foundation for the client being able to recognize their thoughts and feelings as they occur, and “talk back” to negative thoughts.

B. Once the client is able to identify thoughts and feelings they experience related to stuttering, it is helpful for the client to conduct an “experiment” to test the validity of unhelpful thoughts. For example, if the client thinks “the store clerk will laugh at me if he hears me stutter,” the client can actually find out if this is the case. A plan is then developed to find the answer to the question, in this case, to go into a store and stutter while talking to the clerk. The client needs to be instructed to monitor and evaluate the reaction of the clerk to see if their assumption is true.

1. These experiments do not have to be conducted by the client at first. In the beginning, the client might observe the clinician stuttering in front of others or using speech strategies. The client looks at people’s reactions to see if it is what they expected.

2. These activities help decrease avoidance and increase approaching feared speaking situations. Over time, this activity can be very empowering because it
can actually change the perspective of the client from wanting to escape the reactions of others, to studying the reactions of others intensely.

3. By doing this activity, the client may learn that the reactions of others may not be as negative as previously thought. It may challenge clients’ previously held assumptions, and get them into the habit of checking their negative, automatic, disempowering thoughts.

C. Working with a client on coping skills can be a very valuable way to improve their self-efficacy and confidence. If a client is overwhelmed with negative emotion (e.g., fear, panic, anxiety) or intense physiological reactions (e.g., increased heart rate, shallow breath, etc.) it can be difficult to do anything. There are several strategies that can be used to help a client feel more comfortable making changes.

1. Making changes (e.g., using a speech tool in public) is scary and it takes courage to do. Clinicians need to help their clients to become courageous and deal with anxiety effectively.

2. The idea of a “worry dial” is often beneficial to think about. Imagine a dial that you could turn down in order to reduce your worries. Brainstorm with the client about some things that could be done to turn down the worry dial (e.g., deep, slow, diaphragmatic breaths, thinking positive thoughts about themselves, etc.). Then, if the client is in a stressful situation, they can implement the strategies to dial down their worry and stress.

3. Creating coping cards can also be beneficial. This can be done on index cards. On one side of the index cards you could write specific feelings or emotions (e.g., “When I am scared”) and on the opposite side of the card write down several strategies that the client could implement that are self-soothing and stress reducing. These do not have to be speech related.

VI. Because stuttering is a multidimensional disorder. Goals for clients who stutter should address multiple dimensions. From personal experience, I have found that many speech-language pathologists strictly write goals focused on reduced stuttering and increased fluency. Although this could be beneficial for the client, if it is the sole focus of therapy, many other aspects of the stuttering disorder will be neglected. These aspects (e.g., thoughts, feeling, social communication) would likely have a large impact on quality of life and communicative participation if they were addressed. Therefore, it is crucial for therapy goals for PWS to address the many different aspects of the disorder.

A. Children in schools can qualify for services if there is an adverse impact on educational performance. This does not just mean academic performance, but also oral expression. It means communication performance, and social impact in the classroom, recess, lunch room and school sponsored clubs and activities.
B. Treatment goals should not only focus on frequency of stuttering, but also address attitudes toward communication, improve emotions, being able to communicate with others, and educating others about stuttering.

C. Effective oral communication is a basic and important skill across grade levels for participation in discussions and presentations, collaborating with peers, delivering reports, retelling stories, providing explanations, participating in debates, presenting readings and performances, expressing opinions, and asking questions or getting help. If a child who stutters has difficulty with these things due to stuttering, there is an adverse academic impact.

D. Social functioning of the child who stutters can be compromised and the child may experience difficulty establishing or maintaining interpersonal relationships, introducing oneself to new people, and speaking with authority figures. The client may avoid certain social situations and events due to negative feelings and anticipation of stuttering, and the possibility of being teased or bullied about stuttering.

E. See the worksheet about goal writing for examples of goals that could be written for people who stutter that address multiple components of stuttering.

Conclusions

I want to conclude with my thoughts on what I wish some of my previous speech-language pathologists knew about stuttering. Hopefully these insights will guide you in your future practice with clients who stutter. (1) There is no cure for stuttering. There is no evidence that there is any one thing that can be done to totally eradicate a stuttering disorder for every person who stutters. Some people will persist with stuttering for life (particularly those who have persisted into the later school age years). Therefore, be realistic in your expectations and don’t expect to have a high success rate trying to eliminate stuttering, or forcing a person to be fluent in every situation all the time. (2) Stuttering is more than just stuttered speech, therefore treatment should be more than just speech focused. Addressing thoughts, attitudes, emotions, and social functioning can have a tremendous and meaningful life impact, regardless of whether the person continues to stutter. If fluency is the sole focus, clinicians set themselves up for failure. If our definition of a stuttering disorder is more than stuttered speech, and we use a broader based definition of the disorder, therapy can be much more successful. (3) Fluency should not be the only criterion for success. In fact, fluency can sometimes be a very weak, or even misleading, indicator of success. Progress should not only be measured as fluency. In fact, if a premium is placed on fluency, clients might start avoiding more to appear more fluent. If clients are taking chances and speaking more, disfluency may actually increase. (4) Stuttering is okay. If we try to fix or force fluency too quickly, or focus exclusively on reducing stuttering, many clients receive the message that stuttering is bad, and therefore so are they. If we want a
PWS to be able to communicate more effectively and even attempt to make speech change, we need to create a communicative environment where clients can risk, open up, and take chances. We can give clients options for how to make helpful changes to their communication, but we should not be sending the message that they need to, or should, speak fluently all the time. Finally, we need to communicate to clients that people can be successful and happy even if they continue to stutter, and that success means communicating and doing the things one wants to do in life.

Further Reading:
For articles describing treatment methods across various age groups, see the following:
The following are some examples of therapy programs or workbooks for stuttering across different ages:


The following websites are great resources for stuttering, and many have continuing education programs available:

The Stuttering Foundation: http://www.stutteringhelp.org/

The National Stuttering Association: http://www.westutter.org/

The Stuttering Homepage: http://www.mnsu.edu/comdis/kuster/

StutterTalk Podcast: http://stuttertalk.com/

American Board of Fluency and Fluency Disorders: http://www.stutteringspecialists.org/
To watch video clips of clinical interactions with clients who stutter, the following DVD is recommended:


Much of the content in this presentation related to working on speech change in clients who stutter is elaborated on in the following DVD: