

IVA+Plus Clinician's ADHD Report

Prepared for Sample Test on 5/11/2006

Test Date: 3/1/2004 **Test Time:** 3:23:00 PM **Age:** 18 years 3 months **Sex:** M **On Meds:** Y
Diagnosis: **Group Code:** **ID Code:**
Medications:
Comment:
End Note: 4,80

This Clinician's Report was created in order to help the examiner prepare a summary of the IVA+Plus test results. For this report, only deficits for Standard Scales having a quotient scale score less than or equal to 60 are reviewed. Strengths were identified in this report for quotient scale scores that are greater than or equal to 120. Scales specific to the Special Analyses are included only if relevant to the strengths and deficits identified in the Standard Scales. An in-depth interpretation of the relevant scale scores is provided.

VALIDITY OF TEST RESULTS

This individual demonstrated sufficient understanding of the task for the test results to be considered valid in both the auditory and visual modalities for the Global, Primary and Attribute scales. The Fine Motor Regulation Quotient and Comprehension scales are also considered valid. All of the IVA+Plus Global, Primary and Attribute scales will be included in the analysis and interpretation of these test results.

Both Auditory and Visual Persistence quotient scale scores were found to be valid. This individual's responses during both the Warm-up and Cool-down sections indicate that he was able to maintain his effort after the end of the main test. Also, both the Auditory and Visual Sensory/Motor quotient scale scores were identified to be valid. He responded sufficiently either during the Warm-up and/or Cool-down period such that it was possible to calculate his simple reaction time for both auditory and visual stimuli. These scales will be discussed below.

The validity of the IVA+Plus CPT is assessed by determining whether an individual's responses are characteristic of random responding. An individual may randomly respond for a number of reasons. For example, some individuals may forget the test rules as the test progresses. Other individuals may "give up" or have very low motivation to perform to the best of their abilities. It is also possible that individuals may fail to comprehend and remember the test rules fully or be cognitively incapable of performing the test task.

There are two validity checks for IVA+Plus. Test responses to the auditory and visual stimuli are separately evaluated for their validity. In interpreting the test results, it is best if both sensory modalities are valid. However, it is possible to interpret an individual's test responses if he responds validly only in one sensory modality.

The validity check is based on a statistical calculation. The test is considered valid only when the individual's decision to click to targets and inhibit clicking to non-targets is based on self-directed responses in accordance with the test rules. Statistically, the test results for a specific sensory modality are considered invalid when the probability of the individual's response pattern being self-directed in accordance with the test rules is less than 1 in 1000.

IVA+Plus DIAGNOSTIC INTERPRETIVE GUIDELINES

A working diagnosis of **Attention-Deficit/Hyperactivity Disorder, Combined Type** was supported by the IVA+Plus test data. His global Response Control quotient scale score indicated a extreme impairment. In addition, his global Attention quotient scale score fell in the severely impaired range. These impairments on the IVA+Plus test indicate that his pattern of responding is likely to impair his functioning and performance in the home or school environment.

IDENTIFIED DEFICITS

Global Scales

The Full Scale Response Control Quotient is a global measure of the overall ability for this individual to regulate his responses and respond appropriately. Factors that load on this scale include the ability to inhibit responses to foils (i.e., 2s), the consistency of recognition reaction times and the person's ability to maintain his mental processing speed during the IVA+Plus test.

This individual's overall global quotient scale score for the **Full Scale Response Control** scale was 49 (PR=1). This score fell in the extremely impaired range.

The Full Scale Response Control Quotient is a global measure of the overall ability for this individual to regulate his responses and respond appropriately. Factors that load on this scale include the ability to inhibit responses to foils (i.e., 2s), the consistency of recognition reaction times and the person's ability to maintain his mental processing speed during the IVA+Plus test. His **Auditory Response Control** quotient scale score was 55 (PR=1). This global scale score fell in the extremely impaired range. This individual's **Visual Response Control** quotient scale score was 55 (PR=1). This global scale score fell in the extremely impaired range.

The Full Scale Attention Quotient provides a measure of an individuals overall ability to make accurate responses, stay focused and sustain his attention. This global scale's factors include the ability to be attentive and accurately respond under low demand conditions, remain focused and stay reliably "on task," and, at the same time, respond quickly when appropriate. His **Auditory Attention** quotient scale score was 60 (PR=1) and this global scale score fell in the extremely impaired range.

The Combined Sustained Attention quotient scale score provides a global measure of a person's ability to accurately and quickly respond in a reliable manner to stimuli under low demand conditions. In addition, it includes the ability to sustain attention and be flexible when things change under high demand conditions. This global measure of sustained attention is comprised of the following scales: Acuity, Dependability, Elasticity, Reliability, Steadiness and Swiftiness. These are reported as separate scale scores for both the auditory and visual modalities.

This individual's global quotient score on the **Combined Sustained Attention** scale was 0 (PR=1). This score fell in the extremely impaired range.

The Combined Sustained Attention quotient scale score provides a global measure of a person's ability to accurately and quickly respond in a reliable manner to stimuli under low demand conditions. In addition, it includes the ability to sustain attention and be flexible when things change under high demand conditions. This global measure of sustained attention is comprised of the following scales: Acuity, Dependability, Elasticity, Reliability, Steadiness and Swiftiness. These are reported as separate scale scores for both the auditory and visual modalities. His global **Auditory Sustained Attention** quotient scale score was 15 (PR=1) and it fell in the extremely impaired range. This individual's global **Visual Sustained Attention** quotient scale score was 26 (PR=1). This score was found to fall in the extremely impaired range.

Prudence And Reliability

Prudence is a measure of impulsivity as defined by errors of commission. It is an important measure of performance related to response control, and thus, a Primary scale. Three types of commission errors load on this scale. The first type of error occurs when an individual clicks to a 2 during the test period when the 1s are prevalent. The second type is the propensity error of commission which is defined as clicking to the foil, a 2, immediately after a 1 is presented during the period of the test when the 2s are prevalent. The third type is a subtle impulsivity error called a "mode shift" error of commission. A visual mode shift error occurs when the individual clicks to a visual 2 that immediately follows a minimum of two auditory 2s. The auditory mode shift error is defined as clicking to an auditory 2 that immediately follows a minimum of two visual 2s. All of these prudence errors reflect difficulty in making the correct response to an unexpected change in environmental stimuli.

This person's **Visual Prudence** quotient scale score of 38 (PR=1) fell in the extremely impaired range. This individual clicked impulsively numerous times to the non-target visual stimuli. This weakness in response control suggests that this person is likely to be overreactive and/or easily distracted in his daily life by any changes in his visual environment. Problems with shifting mental sets combined with his inability to inhibit impulsive reactions to environmental changes that are visual in nature are likely to impact his functioning. This individual may also have significant tendencies to rush and make careless errors when doing school-type activities. Poor anger control and low frustration tolerance are likely to be factors which negatively impact his ability to function in life. In some cases, his extreme difficulties with impulse control are likely to manifest as negative behavior toward others, irritability and inappropriate

verbalizations. These emotional problems are likely to significantly affect social interactions with peers. The effect of this behavior on others is likely to lead them to minimize contact with him or avoid him altogether; resulting in his feeling not disliked by others and alienated. Given the severity of his problems, appropriate medications and/or intensive therapeutic interventions may need to be considered to help this individual meet the demands of his life.

He exhibited problems with respect to the **Visual Reliability** scale. His quotient score on this scale was 70 (PR=2), which falls in the moderately to severely impaired range. Errors on the Reliability scale occur when the individual clicks to a 2 under low demand conditions. This pattern of responding indicates periods of random, idiopathic, impulsive clicks to non-target visual stimuli. This type of response is not indicated, as the test does not "pull" for it. The impact of this deficit may be significant, manifesting as impulsive responses to visual stimuli in his home and/or school environments. He may be prone at times to make unusual careless errors, have difficulty remembering and following rules, and he may become frustrated with himself due to the problems that occur as a result of his poor inhibition control to visual stimuli.

This degree of severity of idiopathic errors to visual stimuli is somewhat unusual for a person of his age. These errors may indicate varying motivation or a negative attitude toward the test. A mild neurological problem or cognitive deficiency could also lead an individual to perform in the moderately to severely impaired range. In some cases, this individual may have forgotten or not been consistent in following the rules during the test, indicating problems with working memory. The examiner will need to consider these possible factors for the problems observed on the Visual Reliability scale. If it can be determined that he was reasonably motivated and the other factors mentioned above have been ruled out, this score on the Reliability scale is considered to be due to moderately to severely impaired impulse control problems for visual stimuli.

As demonstrated by the low scores on the Prudence scale, significant impairment involving impulsivity was found for both auditory and visual stimuli. When impulsivity occurs for both sensory modalities, the individual's problems are considered to be more severe and are likely to have a greater negative impact on his day-to-day functioning. A person with this profile is likely to be overreactive, easily distracted and frustrated since he has no relative strength in one or the other sensory modality to help him compensate.

Consistency

The Consistency scale is a measure of an individual's ability to respond reliably based on his reaction time. Consistency is a Primary scale, and is considered an important measure in understanding and evaluating response control. It specifically excludes rare cases in which the individual drifts off or suffers a momentary attention lapse, unless these episodes are highly frequent. Consistency is considered indicative of an individual's ability to sustain his attention in order to produce responses that reflect stable, reliable, integrated brain functioning.

This individual was extremely impaired in his ability to be consistent in his responses to auditory stimuli. His **Auditory Consistency** quotient scale score was 52 (PR=1). This variability reflects a delay in his optimum response time that is likely to significantly impact his ability to process information. Problems in memory due to erratic information processing may be prevalent. This individual may have difficulties learning new tasks in the school environment. Repetition of instructions or information presented to him may help him to better understand new material. It may be necessary to provide a more restrictive environment with less distractions to enable this individual to be more consistent in his mental processing. A slower pace in the presentation of new concepts may also facilitate his ability to master new ideas. This individual needs to be encouraged and reinforced to review and check his work as he is likely to be prone to make careless errors. Cognitive behavioral exercises designed to improve auditory processing and sustained attention need to be considered in order to enhance his ability to process instructional material and to help improve his memory functioning. In some cases, medication may also need to be considered by the appropriate health professional as an intervention to help him be more consistent and reliable in his auditory functioning.

The inconsistency of this individual's responses to auditory stimuli on the Consistency scale will, to some degree, be compensated for by his relative strength in the visual domain. Visual materials are likely to enhance his ability to learn new information and should be used to supplement verbal instructions or lectures. He should be encouraged to rely on his more consistent visual processing in order to control for careless errors in his auditory processing. Specific cognitive training in the auditory domain will need to be targeted in his treatment program.

Focus, Dependability And Stability

The Focus scale reflects an individual's ability to sustain attention reliably and not "drift off" or "tune out." It is a Primary scale that is an important contributing factor in the assessment of global attentional functioning. Impairments in Focus result from relatively frequent slow response times to test stimuli. These delays in response may occur due to momentary lapses in attention, confusion caused by deficits in working memory, episodic mental fatigue or gross problems in sustaining attention.

This individual's **Auditory Focus** quotient scale score of 54 (PR=1) fell in the extremely impaired range. Frequent delays in his response times to auditory test stimuli were found. This is likely to significantly impact his ability to process information. These lapses in auditory attention may lead to problems involving recall that affect the performance of this individual in a school environment. Learning new tasks, particularly when presented verbally, is likely to be very challenging for him and it will be necessary to review the material to help this person "fill in any gaps" in his learning experience. It may become evident that this individual "tunes out" when given verbal instructions. Accommodations may need to be made to help him stay alert in the school environment. This individual also needs to be encouraged to check the notes he takes during lectures or meetings, as "gaps" in accuracy are likely to occur. Problems with emotional functioning may lead to learned helplessness, and assigned activities may be incorrectly done due to incomplete comprehension of verbal instructions. Cognitive behavioral exercises can help this person recognize in a supportive way when he momentarily loses his attention when listening. These exercises can also

help this individual develop his ability to better sustain attention and to inhibit internal distractions and negative thoughts that preoccupy him. Medication may prove beneficial in helping him stay better focused. The potential benefit of medication will need to be considered by the appropriate health professional within the framework of a comprehensive evaluation and treatment plan.

He showed problems with respect to the **Auditory Dependability** scale. His quotient score on this scale was 49 (PR=1), which falls in the extremely impaired range. This individual's problems with maintaining his effort in his speed of responding to auditory stimuli were clearly evident when little demand was placed on him to maintain sustained attention. When he is not actively engaged in a task, he becomes more variable in his attentional functioning. This pattern of responding suggests a lack of intrinsic motivation and indicates that either environmental conditions will need to be modified to help him stay on task or external reinforcements will need to be implemented.

Significant problems were found for him with respect to the **Auditory Stability** scale. His quotient score on this scale was 54 (PR=1), which falls in the extremely impaired range. His problems involved maintaining his processing speed reliably under high demand conditions when the 1s were prevalent. Thus, he showed variability in his responses when required to perform quickly. This pattern of responding indicates that he is likely to be erratic in his response time to auditory stimuli and make frequent errors when the demand for him to perform is high. Systematic cognitive training to improve his processing speed and reliability in responding is likely to be the best approach to help him.

This individual showed significant impairments for both the Auditory and Visual Focus scales. These low scores in both sensory modalities are likely to lead to compounded errors of functioning due to lapses in attention. Problems with sustaining attention and "tuning out" may be due to episodic mental fatigue, gross deficits in sustaining focus, emotional factors, or mental confusion resulting from impairments in working memory. The resulting gaps in processing information are likely to impair memory as well.

This individual's quotient scores showed that he was extremely impaired in auditory focus and was severely impaired in visual focus. Given that significant impairment was found in both sensory modalities, his problems are likely to be more pronounced than they would be if he was only impaired in only one modality.

The low scores found for both sensory modalities are likely to lead to difficulties in processing new information accurately. On written tests and in note-taking, he is prone to make careless errors due to his problems with focus. It is recommended that accommodations suggested above for both the visual and auditory modalities need to be considered in order to help him. In addition, a comprehensive cognitive training program can be utilized to help this individual learn to be better focused. Any appropriate medications that can improve focus will also need to be considered by his health professional.

Comprehension

The Comprehension scale is a measure of idiopathic errors both of commission and omission occurring under both low and high demand conditions. It is one of the three Symptomatic scales and, thus, is useful in identifying factors that may impact performance and possibly reflect the test-taker's motivation toward taking and understanding the IVA+Plus test. These errors occur when an individual clicks to a 2 or does not click to a 1. These idiopathic errors are divided into separate auditory and visual scales. In designing the test, the test authors identified specific trials under both high and low demand conditions when these types of errors may occur. There are a number of possible causes for these errors.

When an individual responds in a random, impulsive manner to test stimuli, there will be a high frequency of idiopathic errors of commission. This random pattern will be evident to the examiner in most cases, because the individual's Reliability quotient score will be very low. As discussed above, the Reliability scale is a measure solely of idiopathic errors of commission. An extremely high degree of random, impulsive responding may result in an invalid test profile for either the auditory or visual sensory modality or for both. When one or more of the sensory modalities is found to be invalid, the Comprehension score is still reported and in almost all cases, will fall in the extremely impaired range.

When the Comprehension scale quotient score is very low, it may also be the result of very careless responding or extreme inattention. In some cases, when an individual frequently fails to respond to test targets or stops responding altogether, this response pattern will invalidate the IVA+Plus results due to the very high degree of idiopathic errors of omission. The Steadiness scale provides a measure of these idiopathic errors of omission. It needs to be pointed out that errors on the Prudence and Vigilance scales do not "load" in any way on the Comprehension scale. Comprehension errors may be described as "oddball" errors and are not specifically pulled for by the IVA+Plus test pattern design.

The Comprehension scale is a composite scale based on the Steadiness and Reliability scales. The Steadiness scale is comprised of idiopathic errors of omission that occur under high demand conditions; in other words, the individual fails to click to a 1 when the 1s are frequent. The Reliability scale is comprised of idiopathic errors of commission that occur under low demand conditions. For example, a Reliability error occurs when the individual clicks one or more times to a 2 under low demand conditions.

This individual's **Auditory Comprehension** quotient scale score of 48 (PR=1) fell in the extremely impaired range. Significant and severe problems were identified for this individual with respect to the Auditory Comprehension scale. He made a large number of idiopathic errors, showing significant problems with test performance and difficulties in following the test rules. His problems are clarified and explored below in a review of the Steadiness and Reliability scales, the two scales that comprise the Comprehension scale.

His **Auditory Steadiness** quotient scale score was 42 (PR=1). This quotient score fell in the extremely impaired range. This impairment is very likely to impact his ability to respond appropriately to auditory stimuli when the demand to perform is high. This pattern of responding indicates that this individual was either negligent, indifferent, impaired in working memory or had some mental confusion that resulted in his failure to respond accurately to auditory stimuli under high demand conditions. He needs to be evaluated clinically to determine whether this extreme deficit in Comprehension is due to one of these causal factors or is the result of other emotional or psychological factors that impair his functioning. In either case, this individual's performance on both the Auditory Comprehension and Steadiness scales reflects gross attentional dysfunction to auditory stimuli.

On the **Auditory Reliability** scale, he had a quotient score of 5 (PR=1). This quotient score was in the extremely impaired range. He exhibited problems with respect to the Auditory Reliability scale. This pattern of responding indicates periods of random, idiopathic, impulsive clicks to non-target auditory stimuli. The impact of this deficit is likely to be significant, manifesting as idiopathic impulsive responses to auditory stimuli in his home and/or school environment. He may be prone to making unusual careless errors and to have difficulty remembering and following rules. He may become frustrated with himself due to the problems that occur as a result of his poor inhibition control to auditory stimuli.

The number of idiopathic auditory response control errors that he made reflects significant problems. These idiopathic errors suggest variability in motivation or a negative attitude toward the test. A significant neurological problem or gross cognitive deficiency could also cause an individual to perform poorly. He may have forgotten the test rules, which would also lead to a low Reliability score. The examiner will need to consider these possible causes for the problems reflected on the Auditory Reliability scale. If it is determined that he was "trying his best" and the other causal factors listed above have been ruled out, this score on the Reliability scale may be attributed to extremely impaired idiopathic impulse control problems for auditory stimuli.

This person's **Visual Comprehension** quotient scale score of 45 (PR=1) fell in the extremely impaired range. Significant and severe problems were identified for this individual with respect to the Visual Comprehension scale. He made a large number of idiopathic errors, showing significant problems with test performance and difficulties in following the test rules. His problems are clarified and explored below in a review of the Steadiness and Reliability scales, the two scales that comprise the Comprehension scale.

His **Visual Steadiness** quotient scale score was 45 (PR=1). This quotient score fell in the extremely impaired range. This impairment is very likely to impact his ability to respond appropriately to visual stimuli when the demand to perform is high. His pattern of responding indicates that he was either negligent, indifferent, impaired in working memory or had some mental confusion that resulted in his failure to respond accurately to visual stimuli under high demand conditions. He needs to be evaluated clinically to determine whether this extreme deficit in Comprehension is due to one of these causal factors or to other emotional or psychological factors that impair his functioning. In either case, his performance on both the Visual

Comprehension and Steadiness scales reflects gross attentional dysfunction to visual stimuli.

On the **Visual Reliability** scale, he had a quotient score of 70 (PR=2). This quotient score was in the moderately to severely impaired range. He exhibited problems with respect to the Visual Reliability scale. His pattern of responding indicates that there were periods of random, idiopathic, impulsive clicking to non-target visual stimuli. The impact of this deficit is likely to be significant, manifesting as impulsive responses to visual stimuli in his home and/or school environment. He may be prone to making unusual careless errors at times and to have difficulty remembering and following rules. He may become frustrated with himself due to the problems that occur as a result of his poor inhibition control to visual stimuli.

The number of idiopathic errors to visual stimuli that he made reflects significant problems. His errors may have occurred due to poor motivation or a negative attitude toward the test. A mild neurological problem or mild cognitive deficiencies could also cause an individual to perform in the moderately to severely impaired range. He may have forgotten the test rules or was not able to follow these rules consistently during the test. The examiner will need to consider these possible causes for the problems reflected on the Visual Reliability scale. If it is determined that he was reasonably motivated and the other causal factors mentioned above have been ruled out, his score on the Reliability scale may be attributed to moderately to severely impaired "oddball" impulse control problems for visual stimuli.

IDENTIFIED STRENGTHS

Readiness

The Readiness scale is an attribute scale that is used to compare the test-taker's mean recognition reaction times under high vs. low demand conditions. The Readiness scale is based on the ratio of the mean recognition reaction time under high demand conditions (Quickness) to the corresponding reaction time under low demand conditions (Swiftness). This raw score is expressed as a percentage. Generally, most individuals react somewhat slower under low demand conditions and are relatively faster under high demand conditions. Readiness is defined as an attribute scale and, thus, is a measure of a person's differences in functioning relative to himself rather than a comparison with a normative sample. Consequently, a quotient score less than 85 does not indicate any impairment, but reveals that a person was faster under high demand conditions relative to low demand conditions for their mean recognition reaction time. Likewise, a quotient scale score of 116 or above shows that an individual is faster in their mean recognition reaction time under low demand conditions as compared to high demand conditions. In addition, a person can be generally slow overall in responding to test stimuli as measured by the Speed scale (indicating difficulty in general mental alertness), but not function differently under conditions of high or low demand.

This individual's **Auditory Readiness** quotient scale score was 132. His recognition response time to auditory stimuli under low demand conditions was much quicker than it was under high demand conditions. In other words, his response times to auditory stimuli are clearly slower when he is required to make rapid, repeated responses. In this case, the mean reaction time

under low demand conditions is considered to be an accurate measure of his optimal mental processing speed, and he is less able to respond when the pressure to perform is high. In some cases, this response pattern could be a subtle indication of auditory attention problems that would be manifested in life as difficulty "keeping up the pace" and listening accurately when verbal information is presented rapidly. When individuals have this attribute of having better auditory mental processing speed when the demand is low, it may be useful to accommodate them by giving them more time or help in processing verbal instructions or lectures.