The CNS Vital Signs Neurocognitive Testing Report

...is auto-scored from computerized versions of **VENERABLE NEUROPSYCHOLOGICAL TESTS**. The results measures the **MILLISECOND PRECISE SPEED** and **ACCURACY** of a patient's response. **TOTAL TESTING TIME** depends on the number of tests and rating instruments selected.

### CNS Vital Signs Report
- **Patient ID:** PatientExample
- **Age:** 50
- **Language:** English (United States)
- **Test Date:** March 28, 2015 11:20:03

### CNSVS Duration: 26:16 (min:sec)

#### Patient Profile:

<table>
<thead>
<tr>
<th>Domain Scores</th>
<th>Subject Score</th>
<th>Standard Score</th>
<th>Percentile</th>
<th>VI**</th>
<th>Above</th>
<th>Average</th>
<th>Low Average</th>
<th>Low</th>
<th>Very Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurocognition Index (NCI)</td>
<td>NA</td>
<td>78</td>
<td>7</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Composite Memory</td>
<td>94</td>
<td>93</td>
<td>32</td>
<td>Yes</td>
<td></td>
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</tr>
<tr>
<td>Verbal Memory</td>
<td>52</td>
<td>99</td>
<td>47</td>
<td>Yes</td>
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<tr>
<td>Visual Memory</td>
<td>42</td>
<td>90</td>
<td>25</td>
<td>Yes</td>
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<tr>
<td>Psychomotor Speed</td>
<td>127</td>
<td>89</td>
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<td>Yes</td>
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<tr>
<td>Reaction Time*</td>
<td>761</td>
<td>87</td>
<td>19</td>
<td>Yes</td>
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<tr>
<td>Complex Attention*</td>
<td>16</td>
<td>70</td>
<td>2</td>
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<tr>
<td>Cognitive Flexibility</td>
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<tr>
<td>Processing Speed</td>
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<tr>
<td>Executive Function</td>
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<td>77</td>
<td>6</td>
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<tr>
<td>Simple Visual Attention</td>
<td>40</td>
<td>107</td>
<td>68</td>
<td>Yes</td>
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<tr>
<td>Motor Speed</td>
<td>98</td>
<td>84</td>
<td>14</td>
<td>Yes</td>
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</tr>
</tbody>
</table>

#### Domain Dashboard:
- Above average domain scores indicate a standard score (SS) greater than 109 or a Percentile Rank (PR) greater than 74, indicating a high functioning test subject. Average is a SS 90-109 or PR 25-74, indicating normal function. Low Average is a SS 70-79 or PR 2-8, indicating a deficit and impairment. Reaction times are in milliseconds. An * denotes that "lower is better", otherwise higher scores are better. Subject Scores are raw scores calculations generated from data values of the individual subtest.

#### VIV** - Validity Indicator:
- Denotes a guideline for representing the possibility of an invalid test or domain score. "No" means a clinician should evaluate whether or not the test subject understood the test, put forth their best effort, or has a clinical condition requiring further evaluation.

<table>
<thead>
<tr>
<th>Test Date: March 28, 2015 11:20:03</th>
<th>Test Date: March 28, 2015 11:20:03</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Percentile Rank</strong></td>
<td><strong>Standard Score</strong></td>
</tr>
<tr>
<td>&gt; 74</td>
<td>25 - 74</td>
</tr>
<tr>
<td>&gt; 109</td>
<td>90 - 109</td>
</tr>
</tbody>
</table>

#### Verbal Memory Test (VBM):
- **Correct Hits - Immediate** | Score | Standard Score | Percentile | 13 | 104 | 61 |
- **Correct Passes - Immediate** | 14 | 96 | 40 |
- **Correct Hits - Delay** | 9 | 93 | 32 |
- **Correct Passes - Delay** | 15 | 110 | 75 |

#### Visual Memory Test (VMT):
- **Correct Hits - Immediate** | Score | Standard Score | Percentile | 12 | 101 | 53 |
- **Correct Passes - Immediate** | 11 | 98 | 45 |
- **Correct Hits - Delay** | 9 | 96 | 18 |
- **Correct Passes - Delay** | 10 | 95 | 37 |

#### Finger Tapping Test (FTT):
- **Right Taps Average** | Score | Standard Score | Percentile | 50 | 98 | 18 |
- **Left Taps Average** | 48 | 85 | 16 |

#### Symbol Digit Coding (SDC):
- **Correct Responses** | Score | Standard Score | Percentile | 29 | 84 | 1 |
- **Errors** | 0 | 110 | 75 |

#### Stroop Test (ST):
- **Simple Reaction Time** | Score | Standard Score | Percentile | 231 | 102 | 55 |
- **Complex Reaction Time Correct** | 542 | 91 | 27 |
- **Stroop Reaction Time Correct** | 568 | 87 | 19 |
- **Stroop Commission Errors** | 6 | 33 | 1 |

#### Shifting Attention Test (SAT):
- **Correct Responses** | Score | Standard Score | Percentile | 38 | 77 | 6 |
- **Errors** | 10 | 84 | 14 |
- **Correct Reaction Time** | 1360 | 77 | 6 |

#### Continuous Performance Test (CPT):
- **Correct Responses** | Score | Standard Score | Percentile | 40 | 103 | 58 |
- **Omission Errors** | 0 | 103 | 58 |
- **Commission Errors** | 0 | 107 | 68 |
- **Choice Reaction Time Correct** | 481 | 83 | 13 |
CNS Vital Signs neurocognitive testing is a non-invasive, reimbursable clinical procedure to efficiently and objectively assess a broad-spectrum of brain function domain performances under challenge. Testing enables the measuring of important clinical symptoms, behaviors, and comorbidities salient to the evaluation and ongoing management of many neurological, psychiatric and other conditions. The colorful auto-scored reports are designed to present and share with patients and families. Computerized testing and serial evaluation of neurocognition provide a basis for patient and family feedback and can help patients and caregivers navigate problems related to daily living, school or vocational work environment.

The CNS VS reports are logical and intuitive making the interpretation by a qualified health professional relatively straightforward. CNS Vital Signs measures the severity of impairment based on a large lifespan age-matched normative comparison from ages 8 to 89. Other clinical views such as testing validity, brain domain pattern and a longitudinal view are all auto-scored in seconds following testing. Standardized evaluation of neurocognitive and behavioural issues provides a systematic and efficient method of collecting valid and reliable clinical measures currently recommended by most neuro-psych guidelines. The results are presented in a DOMAIN DASHBOARD and DETAILED TEST report format immediately following the brief testing session.

1 Evaluate Validity: The Validity Indicator (VI) helps identify the possibility of an invalid test. Embedded measures helps evaluate whether the patient is manipulating testing performance for a secondary gain or they simply did not read the test instructions. Examples of secondary gain include: drug or disability seeking, academic accommodation, malingering, symptom feigning, etc.

2 Evaluate Severity: The scores help identify cognitive deficits and their level of impairment. Assess even slight cognitive impairment (millisecond precision) providing immediate clinical insight into a patient’s cognitive deficits and level of impairment. This gives patients, family members and caregivers knowledge of cognitive domains that underpin the ability to conduct activities of daily living.

3 Evaluate Pattern: Impairment pattern helps identify pathologies and possible comorbidities. The CNS VS cognitive pattern profiles (interpretation guide) may assist clinicians in the evaluation of neurological, psychiatric, and developmental disorders. CNS Vital Signs cognitive testing procedure provides valid and reliable clinical endpoints to help in the evaluation and management of patients.

4 Evaluate Longitudinally: Track disease progression, outcomes, or treatment effects. Establish a baseline and serially assess cognitive clinical endpoints to aid in the monitoring and management of many clinical conditions and treatments e.g., measure the response to disease and treatment like MCI, MS, AD/HD & stimulants, rehabilitation efforts, and used to measure outcomes.

One Key Difference – Measuring Cognitive Speed... "CNS Vital Signs is sensitive in detecting cognitive impairment ...uses computerized forms of traditional tests such as Symbol Digit Modalities and Stroop ...are easy to use, require significantly less time to administer, produce instant scoring and can incorporate alternate forms, necessary to minimize learning effect on follow-up. ...also the capacity to accurately-automatically quantify “speed factor” via multiple parameters such as reaction time, psychomotor speed, and processing speed, increasing their sensitivity in detecting even subtle changes in information processing speed." **


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