

RELIABILITY AND VALIDITY OF A NEW COMPUTERIZED COGNITIVE SCREENING BATTERY

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“CNS Vital Signs” is a new, computerized screening battery developed by the authors. The battery is designed to be used by physicians and psychologists to detect mild cognitive dysfunction. It is comprised of seven familiar tests: Verbal and Visual Memory, Finger Tapping, Symbol Digit Coding, the Stroop test, Shifting Attention and the Continuous Performance Test. These seven tests generate “domain scores” in five areas: memory, psychomotor speed, reaction time, attention and cognitive flexibility. The test battery is self-administered on an ordinary Windows-based PC, and takes about 30 minutes. A report is generated upon conclusion of the test. Timed responses are recorded with millisecond accuracy.

Reliability: The tests in the “Vital Signs” battery are as reliable as the conventional tests upon which they are based ($r = 0.65-0.85$, $N=81$, interval 12 days).

Standardization: Age-based norms were developed in a sample of 471 normal individuals (drug-free, no active neurological or psychiatric disorders), age 8 to 89. The data indicate performance differences by age and gender, precisely as observed in the parent tests.

Concurrent validity is demonstrated in two studies, comparing the Vital Signs battery to two commonly used computerized tests (NES-2, TOVA), and to conventional neuropsychological tests.

Diagnostic sensitivity: The battery generates distinct profiles for patients with ADHD, traumatic brain injury and dementia. Clinical data is presented for more than 1,000 patients with neurocognitive and psychiatric disorders.

Drug Sensitivity: The Vital Signs battery is also sensitive to the neurocognitive effects of various drugs, as is demonstrated in a companion presentation at this meeting.

This new computerized battery may prove to be suitable as a screening instrument for mild cognitive dysfunction of various etiologies. It is also appropriate to use as a follow-up instrument for patients who are in treatment programs, or who have been administered centrally-acting medications.