# MEDICAL POLICY

**SUBJECT:** NEUROPSYCHOLOGICAL TESTING  
**POLICY NUMBER:** 2.01.50  
**CATEGORY:** Contract Clarification  
**EFFECTIVE DATE:** 02/01/01  
**REVISED DATE:** 04/25/02, 03/27/03, 02/26/04, 04/28/05, 08/31/06, 06/28/07, 06/26/08, 10/28/09, 08/26/10, 08/25/11, 08/23/12, 08/22/13, 08/28/14, 12/10/15, 06/22/17  
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- If a product excludes coverage for a service, it is not covered, and medical policy criteria do not apply.  
- If a commercial product, including an Essential Plan product, covers a specific service, medical policy criteria apply to the benefit.  
- If a Medicare product covers a specific service, and there is no national or local Medicare coverage decision for the service, medical policy criteria apply to the benefit.

## POLICY STATEMENT:

I. Neuropsychological testing is considered **medically appropriate** to establish or confirm the diagnosis of brain damage or brain disease when there has been a **significant** mental status change, behavior change, memory loss or organic brain injury, within the preceding 6 months to one year, under any of the following conditions *(please see Guidelines section also)*:

   A. Moderate or severe head injury (e.g., an open or closed injury associated with more than a brief change in mental status or consciousness or any head injury associated with an abnormality on cranial imaging); when there is evidence of cognitive change to plan acute post injury rehabilitation;

   B. Cerebrovascular accident;

   C. Brain tumor;

   D. Cerebral anoxic or hypoxic episode;

   E. CNS infection (e.g., herpes encephalitis, HIV infection);

   F. HIV-associated neurocognitive disorder (HAND), including AIDS dementia complex (ADC);

   G. Demyelinating disease (e.g., Multiple Sclerosis);

   H. Extrapyramidal disease (e.g., Parkinson’s or Huntington’s disease);

   I. Metabolic encephalopathy (associated with hepatic or renal disease);

   J. Metabolic insult to brain that is suspected/detected;

   K. Exposure to agents known to be associated with cerebral dysfunction (e.g., lead poisoning, intrathecal methotrexate, cranial irradiation); or

   L. To provide diagnostic clarification such as:
      1. To provide a differential diagnosis from a range of neurological and psychological disorders that present with similar constellations of symptoms (e.g., the differentiation between severe depression and dementia) when the diagnosis has been unable to be made by a complete psychiatric and/or psychological assessment and when carried out by a qualified mental health professional, including (but not limited to) the consulting neuropsychologist during an initial consultation. The medical record must indicate the presence of or signs of the mental illness for which neuropsychological testing is being requested as an aid in the diagnosis and therapeutic planning or;

      2. To make a diagnosis that can not be made based on careful history, physical exam/lab/imaging, as well as collateral contacts of a change in behavior or cognition, when it will clearly alter the treatment plan.

II. Neuropsychological testing is **medically appropriate** when the significant mental status change, behavior change, memory loss or organic brain injury occurred more than one year prior to the request AND there is no record of prior testing since onset on the change in mental status.

III. Neuropsychological testing is considered **medically appropriate** as part of a pre-operative evaluation prior to brain surgery (e.g., epilepsy surgery, tumor resection, deep brain stimulation) to establish a baseline. Neuropsychological testing is considered **medically appropriate** when performed post-operatively to determine if it appears that cognitive dysfunction has occurred. There must be an appropriate interval (3-6 months) to allow for healing and attenuation from the acute operative injury and after ruling out an acute delirium.
IV. Neuropsychological testing for the evaluation or diagnosis of concussion or post-concussive syndrome is not generally considered medically necessary except in cases for which there has been significant functional impairment and which have not progressed as expected after 3-6 months of standard care. In these cases, there is an expectation that the testing will alter the medical treatment plan.

V. The use of neuropsychological testing for the diagnosis of chronic traumatic encephalopathy (CTE) is considered investigational. CTE is a relatively recently recognized phenomenon occurring in some individuals after multiple concussions. At this time, understanding of CTE is evolving. It is not established that any specific neuropsychological testing can predict which individuals may develop CTE, nor is it clear how NPT will benefit or inform treatment in individuals’ status post-concussion.

VI. Use of a computer-based neuropsychological assessment of a sports-related concussion (e.g., ImPACT, CogState Sport®, HeadMinder), in order to determine if an athlete is fit to return to play, is considered not medically necessary (please see Guidelines section also).

VII. Use of neuropsychological testing for the initial assessment of a suspected dementia or mild cognitive impairment (MCI) prior to a referral to, and assessment by, a neurologist is not considered medically necessary. Neuropsychological testing for suspected dementia is medically appropriate when a prior neurologic or psychiatric examination documents evidence of functional impairment in memory or other cognitive domains (e.g., executive function, language) by thorough history, collateral input from family, friends, employers and/or low score on a cognitive screening test, such as the MOCA or MMSE. The standard of care in the community supports that except in highly complex cases, 8 hours of NPT is sufficient to make a diagnosis of MCI.

VIII. Neuropsychological testing is considered medically necessary in order to assist in diagnosis of dementia only in cases for which a differential diagnosis remains highly uncertain despite assessment by a neurologist. The assumed benefit of this testing is in large part to provide information to family in order to assist in development of future plans for support. Dementias are known to be chronic and progressive illnesses. From a research standpoint, ongoing monitoring of the patient’s cognitive status may be of value, however from a clinical perspective, such ongoing monitoring is rarely medically necessary. Repeat neuropsychological testing in less than 2 year intervals is not considered medically necessary in most cases, unless the original diagnosis is brought into question.

IX. The routine use of neuropsychological testing is considered not medically necessary for diagnosing the following conditions, as more suitable approaches such as clinical exam with collateral input and/or developmental testing are available:
   A. autism spectrum disorders;
   B. Attention deficit hyperactivity disorder; or
   C. Tourette’s Syndrome.

X. Neuropsychological testing is medically appropriate when a child presents with significant failure to progress cognitively and behaviorally at a normal neurodevelopmental pace (e.g., due to suspected intellectual, developmental or learning disability), AND other tests and diagnostic techniques (e.g., a careful history, parent/child interview, behavioral observation, school-based testing, developmental testing):
   A. Have not been sufficient to provide/inform a diagnosis, OR
   B. More detailed information about specific cognitive abilities (e.g. memory, executive function) is necessary to guide treatment planning or patient management.

It is important to note that school psychologists use standardized tests of cognitive and emotional function to determine levels of academic performances and support educational services, including (but not limited to) the Individualized Educational Program (IEP) and early interventions. In many cases, results of school-based testing may be sufficient to inform diagnoses by a clinician of intellectual disability, autism spectrum disorder, developmental disability and learning disability. The routine use of neuropsychological testing therefore is considered not medically necessary when school –based testing is sufficient to allow a clinician (e.g., pediatrician, other specialist, clinical psychologist) to make these diagnoses.

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XI. Neuropsychological testing is considered not medically appropriate under the following circumstances:

A. when the patient has a substance abuse history and either of the following apply:
   1. the patient continues to use such that test results would be inaccurate, or
   2. the patient is not yet 14 or (optimally) more days post-detoxification; or

B. when the patient is on certain daily medications that have a sufficiently intoxicating effect (e.g., high-dose benzodiazepines, opiates) to confound interpretation of results, and the drug effects have not been ruled out.

Refer to Corporate Medical Policy #2.02.16 regarding Genetic Testing for Familial Alzheimer’s Disease.

Refer to Corporate Medical Policy # 3.01.02 regarding Developmental Evaluation and Testing.

Refer to Corporate Medical Policy # 3.01.06 regarding Psychological Testing.

Refer to Corporate Medical Policy #6.01.07 regarding Positron Emission Tomography (PET) Non-Oncologic Conditions.

POLICY GUIDELINES:

I. Neuropsychological testing is usually not medically necessary when similar testing has been performed in the last 12 months. However, more frequent testing may be considered medically necessary when it is being utilized to assess therapeutic interventions, intercurrent injuries or unexpected changes in mental status that require objective confirmation to guide treatment and management (e.g., acute, unexpected cognitive decline in a patient with MS, signaling the need for more aggressive therapy).

II. There is an expectation that the results of neuropsychological testing will have an impact on treatment or modify patient management.

III. A psychiatric/mental health assessment is required prior to advancing to neuropsychological testing if there are co-occurring symptoms or diagnoses (e.g., anxiety disorder, mood disorder, depressive symptoms) along with a significant cognitive impairment.

IV. In regards to the testing of school-age youth, it is important to note that school districts have a significant number of resources in this area, including (but not limited to) the Individualized Educational Program (IEP) and early intervention. Most school districts in NYS have the ability to look at cognitive and emotional function through school psychologists and through the use of such standardized testing as the WESCHLER (WIAT2), Woodcock Johnson (WJ3), Connors or Vanderbilt self reports/questionnaire, WWPPSI, BASCII, Stanford-Binet and FBA (functional behavioral analysis). Such tests are within the ability of and regularly performed by school psychologists.

V. Neuropsychological testing requires significant time, skill set and resources. It is one tool in a treatment plan, and typically not the initial evaluation. Self-referral is not appropriate, and referrals should include a careful neurological and mental status exam, history, and input from collaterals and school district, with a focused request that testing should help delineate.

VI. Neuropsychological testing may be performed only by practitioners who are appropriately credentialed to perform this testing.

VII. The gold standard for the diagnosis of developmental disorders and Autism Spectrum disorders is the Autism Diagnosis Observation Scale (ADOS) and evaluation by developmental pediatricians or psychologist. While some providers consider that this testing falls under the category of neuropsychiatric testing, CPT coding and descriptions do not support this. The appropriate codes for the ADOS and similar developmental evaluations should be used.

VIII. Simple screening tools, mobile apps, Lumosity, administered by other than a neuropsychologist, neurologist or psychiatrist are ineligible for coverage.

IX. Neuropsychological testing, including computer-based testing, when done for any of the following reasons, is usually contractually excluded and ineligible for coverage:

A. vocational purposes that are primarily related to employment;
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XII. Neuropsychological testing performed as stand-alone self-administered and/or self-scored inventories, or screening tests such as the AIMS, Folstein Mini-Mental Status Exam, MOCA, Mini-Cog, etc., is considered inclusive of an Evaluation and Management service and is not separately payable as psychological testing, unless these tests are performed as part of a comprehensive neuropsychological evaluation.

XI. Use of a computer-based neurological test as the sole method performed for a neuropsychological assessment still requires administration by a NPT trained individual. If the tool is entirely done by patient, and the score and interpretation is provided by the computer programming, then billing for report writing and interpretation cannot be done.

XII. A complete neuropsychological evaluation with test batteries generally takes between 2 and 8 hours to complete, including, administration, scoring and interpretation. This is based on numerous sources. Occasionally it is necessary to complete the evaluation over 2 or more sessions. Requests for more than 8 hours of testing will require a detailed list of the testing battery and rationale for the extended time. Supporting documentation in the medical record must be present to justify greater than 8 hours per patient per evaluation. If the testing is done over several days, the testing time should be combined and reported on the last date of service. If the testing time exceeds eight (8) hours, medical necessity for extended time should be documented. Medical records may be requested.

DESCRIPTION:

Neuropsychological testing uses standard techniques to objectively test behavioral and cognitive abilities comparing the patient’s results to established normal results. The need for neuropsychological testing is indicated when there have been notable behavioral and/or cognitive changes associated with severe head trauma or brain disease, or associated with uncertain cause. Whereas neuro-imaging procedures such as CT scans, PETs and MRIs report on the structural and physiological scope of brain injury, neuropsychological test data provides information on cognitive and intellectual functioning. Cognitive deficits can also have non-organic, transient roots, and may be associated with depressive conditions, anxiety disorders and severe psychological trauma.

Components of neuropsychological testing include:
I. obtaining information on a patient’s cognitive status by providing a clinical assessment of the patient’s thinking, reasoning and judgment (neurobehavioral status exam); and/or
II. having the patient undergo a specific battery of tests that assess attention, language, memory and executive function.

There are many neuropsychological testing batteries. Combinations of evaluation instruments are often utilized to devise a “battery” Neuropsychological testing does not rely on self-report questionnaires or rating scales such as the Hamilton Depression Rating Scale, or projective techniques such as the Rorschach or Thematic Apperception Test (TAT).

Computerized neuropsychological testing is also referred to as automated or computer-based testing. Computer-based testing can entail either the adoption/translation of conventional paper and pencil neuropsychological tests such as the Wisconsin Card Sorting Test or newly developed computer-based testing to measure unique cognitive functions. There are features in computer-based testing that are absent in the traditional form of neuropsychological testing, including: timing of response latencies, automated analysis of response patterns, transfer of results to a database for further analysis or the ease with which normative data can be collected or compared to existing databases. Computer-based neuropsychological assessment of a sports-related concussion involves an abbreviated test battery, lasting approximately 20-30 minutes. These types of tests are given prior to commencement of a sports season to obtain a baseline and then are repeated as needed after a concussion to guide medical decisions about a player’s return to active participation in the particular sport. They usually provide a measurement of attention, processing speed and reaction time and can be
administered by a team coach, athletic trainer or a physician with minimal training. Several of these computer-based tests are available and include, but are not limited to: ImPACT (Immediate Post Concussion Assessment and Cognitive Testing), CogState, MicroCog®, Automated Neuropsychological Assessment metrics (ANAM®), CNS Vital Signs, CANTAB®, Mindstreams®, Cognivue, and HeadMinder.

Chronic traumatic encephalopathy (CTE) is a progressive degenerative disease found in people who have had a severe blow or repeated blows to the head. The disease was previously called dementia pugilistica (DP), "punch-drunk," as it was initially found in those with a history of boxing. This trauma triggers progressive degeneration of the brain tissue, including the build-up of an abnormal protein called tau. These changes in the brain can begin months, years, or even decades after the last brain trauma or end of active athletic involvement. The brain degeneration is associated with memory loss, confusion, impaired judgment, impulse control problems, aggression, depression, and, eventually, progressive dementia. Currently, CTE can only be definitively diagnosed by direct tissue examination, including full autopsies and immunohistochemical brain analyses.

Pursuant to New York State law, effective November 1, 2012, each contract providing physician services, medical, major medical, or similar comprehensive-type coverage must provide coverage for the screening, diagnosis, and treatment of Autism Spectrum Disorders when prescribed or ordered by a licensed physician or a licensed psychologist for medically necessary services. Treatment includes services provided by a licensed or certified speech therapist, occupational therapist, physical therapist, and social worker when the policy generally provides such coverage. Therapeutic treatment must include care that is deemed habilitative or non-restorative. The law prohibits the imposition of limitations that are solely applied to the treatment of Autism Spectrum Disorder. However, as long as the visit limit is not imposed solely on services required to treat Autism Spectrum Disorder, a visit limit continues to be permissible, as long as such visit limit also passes the testing requirements under the Mental Health Parity Addiction and Equity Act of 2008.

RATIONALE:

Neuropsychological tests, when used to assess brain dysfunction and cognitive deficits, have proven to be highly accurate with predictive accuracy in the 80%-95% range. Neuropsychological tests provide quantifiable results that indicate the amount of deviation from baseline norms. Through a comparison of patient responses to established norms, the clinician can determine the scope and severity of cognitive impairments, thereby assisting in development of a program/plan of care best suited to the patient’s needs.

Studies demonstrate that neuropsychological testing used as part of a pre-operative evaluation provides important information on the risks for post-operative neuropsychological deficits and also provides confirmatory evidence of seizure onset laterality in patients whose seizures originate in the temporal lobes.

There is no specific diagnostic test for ADHD, but rather its diagnosis is based upon clinical assessment with the parent/child interview being the cornerstone in the assessment of ADHD. Similarly, there are no specific diagnostic tests for autism or Tourette’s syndrome, rather the diagnosis is usually made based upon the clinical assessment and interview process. The American Academy of Pediatrics clinical practice guidelines and the practice parameter from the American Academy of Child and Adolescent Psychiatry related to the diagnosis and evaluation of ADHD state neuropsychological and psychological test batteries are not routinely indicated to make a diagnosis unless there are coexisting conditions that may complicate a routine assessment. Uncomplicated cases of ADHD are best diagnosed through a careful history, parent and teacher reports, and the use of structured clinical interviews.

Neuropsychological testing beyond a standard parent interview and direct structured behavioral observation is rarely needed for diagnosing autism (Practice Parameter for Screening and Diagnosis of Autism from the American Academy of Neurology and the Child Neurology Society).

K Wild and colleagues (2008) conducted a systematic review of computerized cognitive testing, focusing on its ability to detect cognitive decline in the aging population. The heterogeneity across selected studies and test batteries made a meta-analysis impossible. The study included review of 11 test batteries that were either developed to screen for cognitive decline in the elderly or have been applied to that function. In slightly more than half the tests, normative data for elderly
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<td>CPT:</td>
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<td>Neurobehavioral status exam (clinical assessment of thinking, reasoning, and judgment, e.g., acquired knowledge, attention, language, memory, planning and problem solving and visual spatial abilities), per hour of psychologist’s or physician’s time, both face-to-face time the patient and time interpreting test results and preparing the report</td>
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Codes may not be all inclusive as the AMA and CMS code updates may occur more frequently than policy updates.

Prior to the advent of highly active antiretroviral therapy (HAART), dementia was a common source of morbidity and mortality in HIV infected patients. With HAART, a less severe dysfunction, mild cognitive motor disorder, has become more common than AIDS dementia complex (ADC). Early signs and symptoms are subtle and may be overlooked. Cognitive screening tests should be part of the routine care of HIV infected pts. Changes in the management of the patient, based on the cognitive findings, center around use of different antiretroviral therapy, including HAART. Cognitive screening tools have been developed (e.g., MoCA, HDS, IHDS) that can assist in determining those pts at higher risk; but based on their sensitivity and specificity, traditional neuropsychological testing (NPT) still appears to be the gold standard and is required to provide a definitive diagnosis.

The routine use of neuropsychological testing to differentiate Alzheimer’s disease from other neurocognitive disorders is usually not necessary as more suitable approaches are available. However, neuropsychological testing may be considered necessary for complicated cases when the usual diagnostic techniques are not adequate to provide a diagnosis and the diagnosis will alter the course of treatment. There are cases of neurocognitive decline which for which etiology may be unclear. At the current time there is no simple, reliable, accurate test to make the diagnosis of Alzheimer’s disease or many other neurocognitive disorders. Diagnosis of these conditions should be based on several pieces of information: including basic laboratory, history taking (including mental health, and substance use issues), with input from collaborating others, neurologic and mental status examination, as well as imaging. Many practitioners utilize a brief screening tool like MMSE, MOCA, Mini-Cog, CamCog to make an estimate of deficits. Some diagnoses are then confirmed by brain biopsy (e.g., CNS vasculitis). Conclusive diagnosis of Alzheimer’s disease still is based on brain tissue, and neuropsychological testing may not have specificity need to change patient management or improve health outcomes. Many diagnoses of Alzheimer's disease are made without neuropsychological testing, however, if a provider has a highly unusual case (e.g., cognitive decline under 55) and can document a rationale for how the testing will alter the treatment plan, this can be presented for review.

Chronic Traumatic Encephalopathy (CTE) is a relatively recently recognized phenomenon occurring in some individuals after multiple concussions. At this time, understanding of CTE is evolving. It is not established that any specific neuropsychological testing can predict which individuals may develop CTE, nor is it clear how NPT will benefit or inform treatment in individuals’ status post-concussion. Given that, in individuals with a recent or remote history of otherwise uncomplicated concussion, and for whom there has not been a recent, rapid, and significant mental status change, NPT for diagnostic assessment of CTE is considered investigational.

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Neuropsychological testing (e.g., Halstead-Reitan Neuropsychological Battery, Wechsler memory Scales and Wisconsin Card Sorting test), per hour of the psychologist’s or physician’s time, both face-to-face time the patient and time interpreting test results and preparing the report.

Neuropsychological testing (e.g., Halstead-Reitan Neuropsychological Battery, Wechsler memory Scales and Wisconsin Card Sorting test), with qualified health care professional interpretation and report, administered by technician, per hour of technician time, face-to-face.

Neuropsychological testing (e.g., Wisconsin Card Sorting Test), administered by a computer, with qualified health care professional interpretation and report.

HCPCS: No specific code
ICD9: Numerous diagnosis codes
ICD10: Numerous diagnosis codes

REFERENCES:


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Nesset M, et al. Brief tests such as the clock drawing test or Cognistat can be useful predictors of conversion from MCI to dementia in the clinical assessment of outpatients. Dement Geriatr Cogn Dis Extra 2014 Jul 11;4(2):263-70.


**CMS COVERAGE FOR MEDICARE PRODUCT MEMBERS**

Based upon review, neuropsychological testing is not addressed in a National Medicare coverage determination or policy. However, neuropsychological testing is addressed in the chapter 15, section 80.2 in the Medicare Benefit Policy Manual. Please refer to the following website for Medicare Members:


There is currently a Local Coverage Determination (LCD) for psychiatry and psychological services that addresses neuropsychological testing. Please refer to the following LCD website for Medicare Members:


**KEY WORDS:**
Cognivue, CogState, HeadMinder, ImPACT, Mindstreams, Neurobehavioral testing, Neuropsychological testing.