Clinical Policy Title: Neuropsychological testing

Clinical Policy Number: 09.01.08

Effective Date: October 1, 2015
Initial Review Date: June 17, 2015
Most Recent Review Date: July 20, 2017
Next Review Date: July 2018

Policy contains:
- Neuropsychological test.
- Psychometric tests.

Related policies:

CP# 09.01.02  Immediate post-concussion assessment and cognition testing (ImPACT)
CP# 15.02.02  Cognitive rehabilitation for traumatic brain injury
CP# 08.03.01  Bariatric surgery for children and adolescents

ABOUT THIS POLICY: Keystone First has developed clinical policies to assist with making coverage determinations. Keystone First’s clinical policies are based on guidelines from established industry sources, such as the Centers for Medicare & Medicaid Services (CMS), state regulatory agencies, the American Medical Association (AMA), medical specialty professional societies, and peer-reviewed professional literature. These clinical policies along with other sources, such as plan benefits and state and federal laws and regulatory requirements, including any state- or plan-specific definition of “medically necessary,” and the specific facts of the particular situation are considered by Keystone First when making coverage determinations. In the event of conflict between this clinical policy and plan benefits and/or state or federal laws and/or regulatory requirements, the plan benefits and/or state and federal laws and/or regulatory requirements shall control. Keystone First’s clinical policies are for informational purposes only and not intended as medical advice or to direct treatment. Physicians and other health care providers are solely responsible for the treatment decisions for their patients. Keystone First’s clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, Keystone First will update its clinical policies as necessary. Keystone First’s clinical policies are not guarantees of payment.

Coverage policy

Keystone First considers the use of neuropsychological testing (NT) to be clinically proven and, therefore, medically necessary to determine the functional consequences of known or suspected brain dysfunction when the following testing and clinical criteria are met:

- Criteria for NT (all criteria must be met):
  - Standardized NT is based on published national normative data with scoring that result in standardized or scaled scores. NOTE: Brief rating scales and standardized questionnaires are not considered NT regardless of how administered.
  - NT is administered by an appropriately state licensed provider or by a trained technician who is under the direct supervision of the provider. NOTE: Provider must have professional training and expertise in the types of NT/assessments being requested (e.g., board certified neuropsychologist or neuro-behavioral psychiatrist).
  - NT consists of:
- Record review.
- Neurobehavioral status exam (CPT 96116).
- Test selection.
- Test administration (CPT 96118, CPT 96119, or CPT 96120).
- Feedback session (CPT 96118).

- Clinical criteria (any are considered medically necessary):
  - To assist diagnosis when neuropsychological data can provide a more comprehensive profile of cognitive function along with clinical, laboratory, and imaging data.
  - To document cognitive impairment as a requirement of the diagnosis (e.g., post-concussion syndrome, Alzheimer’s disease, or intellectual disability).
  - To quantify cognitive or functional potential, particularly when the information will be useful in determining a prognosis (e.g., to predict recovery from medical or surgical treatment that may affect brain function or functional status).
  - To determine the patient’s ability to comprehend and participate effectively in complex treatment regimens (e.g., surgeries to modify facial appearance, hearing, or tongue debulking in craniofacial or Down Syndrome patients; transplant or bariatric surgeries in patients with diminished capacity).
  - To assess cognitive or functional deficits in children and adolescents based on an inability to develop expected knowledge, skills, or abilities as required to adapt to new or changing cognitive, social, emotional, or physical demands.
  - To assess the impact of medical therapies that may cause cognitive impairment (e.g., radiation, chemotherapy or antiepileptic medications).
  - To characterize the cognitive strengths and weaknesses of an individual with a known or suspected central nervous system (CNS) disorder, as a guide to treatment or rehabilitation planning.
  - To monitor the progression of cognitive impairment secondary to CNS disorders.

Limitations:

All other uses of NT are not medically necessary, including:

- Medical indications (e.g., migraine headaches, myocardial infarction and chronic fatigue syndrome) without suspected cognitive dysfunction.
- In members with no clinical diagnosis or neurocognitive symptoms/behaviors suggestive of the need for this testing.
- In uncomplicated cases of suspected attention deficit disorder with/without attention deficit hyperactivity disorder (ADHD). NPT may be considered medically necessary for neurologically complicated cases of ADHD (e.g., post head trauma and seizures).
- In members with insufficient neurological and cognitive ability to participate in a meaningful way in the testing process.
- NT that will not directly contribute to or impact patient management.
• Members who are actively abusing substances, are having acute withdrawal symptoms or have recently entered recovery, because test results may be invalid.
• Used as screening tests for asymptomatic individuals (e.g., for Alzheimer's disease and baseline testing for sport-related concussion).
• Administered for non-medical purposes (e.g., educational or vocational purposes that do not establish medical management, driving risk, forensic applications or to solely evaluate malingering).

Up to 10 hours of NT is authorized for a person with acute brain insult when brain damage is suspected; up to eight hours of NT is authorized for persons with other neurological conditions and suspected or demonstrated cognitive impairment (e.g., brain tumor in remission or slowly progressing, dementia, multiple sclerosis).

The need for retesting will be reviewed on an individual, case-by-case basis to determine medical necessity. Repeat testing is generally limited to one testing episode per 12 months, but may be performed earlier to evaluate unexpected changes in neurocognitive symptoms occurring within the last four months, to evaluate response to new treatment or when retesting is planned as part of the treatment plan to reassess functioning.

NT is generally not considered medically necessary for pre-surgical clearance. However, an evaluation by a psychologist or psychiatrist may be required in certain circumstances (see CP #08.03.02 Bariatric surgery for adults).

NT requested for the evaluation of a mental health diagnosis (e.g., serious psychiatric illness, alcohol and/or drug abuse) is considered medically necessary through the mental health benefit. If NT or physical therapy (PT) is requested for evaluation of a medical diagnosis (e.g., traumatic brain injury (TBI), stroke, differentiation of brain damage from a depressive disorder, epilepsy, hydrocephalus, Alzheimer's disease, Parkinson disease, multiple sclerosis or AIDS), it is considered medically necessary under the medical benefit.

**Alternative covered services:**

• Psychological testing (CPT 96101, 96102, 96103).
• Assessment of aphasia (CPT 09105).
• Developmental screening (CPT 96110).
• Developmental testing (CPT 96111).

**Background**

Neuropsychology is a clinical field with specialized knowledge and training in the applied science of brain-behavior relationships (American Board of Professional Psychology [ABPP], 2015). Clinical
neuropsychologists employ psychological and behavioral methods to evaluate patients’ cognitive and emotional strengths and weaknesses, and relate these findings to normal and abnormal central nervous system functioning. They use this knowledge in the assessment, diagnosis, treatment, and rehabilitation of patients across the lifespan who have developmental, neurological, medical, or psychiatric conditions.

Critical to the neuropsychological assessment are a thorough clinical interview with the patient, collateral interview with caregivers and family and a review of relevant medical records. NT, also called psychometric assessment, provides an objective assessment of the presence of brain damage, injury, or dysfunction and any associated functional deficits (Schwarz, 2014). In other words, NT provides unique information on abilities, motivation and potential for future outcomes. NTs are performance-based in that they are structured to require individuals to exercise their skills in the presence of an examiner/observer (Harvey, 2012).

Neuropsychological evaluations vary in content depending on their purpose but typically assess multiple neurocognitive and emotional functions. NT comprises measures that can be standardized or targeted to the individual, scored objectively, and has established psychometric properties. The American Academy of Clinical Neuropsychology (AACN) lists the following primary cognitive domains (AACN, 2007):

- Intelligence.
- Academic functioning (e.g., reading, writing and math).
- Receptive and expressive language skills (e.g., verbal comprehension, fluency, confrontation naming).
- Problem-solving and reasoning abilities.
- Simple and complex attention.
- Working memory.
- Speed of processing.
- Learning and memory (e.g., encoding, recall, and recognition).
- Visuospatial skills.
- Fine motor skills.
- Executive functioning.

Ideally, assessments should also include measures designed to assess personality, social-emotional functioning, and adaptive behavior (Harvey, 2012). The Standards for Educational and Psychological Testing (2014) produced jointly by the American Psychological Association (APA), the American Educational Research Association, and the National Council on Measurement in Education provide additional guidelines for test selection.

Testing can be performed on an outpatient or inpatient basis; the duration of testing depends on the question for which the referring practitioner seeks an answer as well as clinical complexity. An evaluation generally takes between two and five hours to complete, but can take up to eight hours. Measures typically are administered by paper and pencil, although computer-based assessments are
increasingly employed. Because of the influence of demographic variables (age, sex, years of education, and race), scores are compared with normative samples that resemble those of the patient’s background as closely as possible (Schwarz, 2014).

Interpretation of test scores depends on expectations of how a patient should perform in the absence of neurologic or psychiatric illness (i.e., based on normative data and performance-based estimates of premorbid functioning). The overall pattern of intact scores and deficit scores can be used to form specific impressions about an individual’s diagnosis, cognitive strengths and weaknesses, and strategies for intervention (Schwarz, 2014).

**Searches**

Keystone First searched PubMed and the databases of:
- UK National Health Services Centre for Reviews and Dissemination.
- Agency for Healthcare Research and Quality’s National Guideline Clearinghouse and other evidence-based practice centers.
- The Centers for Medicare & Medicaid Services (CMS).

We conducted searches on June 20, 2017. Search terms were: “Neuropsychological Tests (MeSH).”

We included:
- **Systematic reviews**, which pool results from multiple studies to achieve larger sample sizes and greater precision of effect estimation than in smaller primary studies. Systematic reviews use predetermined transparent methods to minimize bias, effectively treating the review as a scientific endeavor, and are thus rated highest in evidence-grading hierarchies.
- **Guidelines based on systematic reviews**.
- **Economic analyses**, such as cost-effectiveness, and benefit or utility studies (but not simple cost studies), reporting both costs and outcomes — sometimes referred to as efficiency studies — which also rank near the top of evidence hierarchies.

**Findings**

NT is well-established for a range of mental health and medical conditions, as reflected in the high volume of systematic reviews; therefore, search results were limited to evidence-based guidelines. We identified 22 evidence-based guidelines for this policy, and their recommendations are summarized below (see References).

Guidelines support the use of standardized NT:
- With established psychometric properties based published national normative data, with scoring resulting in standardized or scaled scores.
- In patients:
- With an illness or injury known to be associated with impairments in cognitive or brain development (e.g., degenerative dementias or traumatic brain injuries).
- With reported impairments in cognitive functioning.
- In whom evaluations of cognitive function are part of the standard of care for treatment selection and treatment outcome evaluations.
- In whom documentation of cognitive impairment is a requirement of the diagnosis (e.g., post-concussion syndrome, Alzheimer’s disease, or intellectual disability).

- To help distinguish between cognitive disorders and malingering or factitious disorders. Complex neuropsychiatric conditions with the potential to induce changes in mood or motivational states can result in secondary impacts on cognitive functioning; these cognitive changes require a neuropsychological assessment that incorporates other factors potentially contributing to impaired cognitive functioning.
- For a range of mental health and medical conditions with typical patterns of cognitive deficits including Alzheimer’s disease, schizophrenia, bipolar disorder, major depressive disorder, and autism.

Other clinical conditions for which NT may be medically necessary include, but are not limited to:
- Cerebrovascular disease (in the recovery/rehabilitation phase following significant clinical recovery when there is still evidence of cognitive impairment or as a guide to rehabilitation and treatment planning).
- Other forms of dementia.
- Parkinson’s disease.
- Human immunodeficiency virus encephalopathy.
- Multiple sclerosis.
- Epilepsy (as part of pre-surgical treatment planning).
- Neurotoxic exposure.
- Hypoxic brain injury.
- TBI.
- Chronic pain (when used to assess personality and mood or to perform a cognitive assessment if symptoms indicate intellectual disturbances after discontinuation of pain-relieving or psychotropic medications).
- Neurologic disease (when used as an adjunctive personality assessment for identified or suspected brain disorders, such as brain tumors and hypoxic brain injury).

Guidelines do not support the use of NT for:
- Diagnosing uncomplicated ADD/ADHD. Heterogeneous neuropsychological profiles of ADHD and lack of meaningful associations between ADHD symptoms and neuropsychological deficits limit the predictive value and diagnostic utility of NT. However, NT may be medically necessary for persons with emotional or behavioral (e.g., anxiety, depressive, oppositional defiant, and conduct disorders), developmental (e.g., learning and language disorders or
other neurodevelopmental disorders) and physical (e.g., tics and sleep apnea) conditions that may coexist with ADHD.

- Screening for cognitive deficits in asymptomatic populations.
- Assessing the functional importance of changes on advanced neuroimaging (e.g., detection of “silent” ischemic changes or degenerative changes) in the absence of neurocognitive dysfunction, as there is insufficient evidence to correlate any functional importance to these clinical changes.

**Who may perform NT?**

The widespread use of NT has led to questions about who should administer the tests and who should interpret the results. A licensed psychologist, who has explicit training in neuroscience and neurological bases of behavior in accordance with APA standards of practice, typically conducts or supervises NT (AACN, 2007). Clinical psychologists who perform NT must demonstrate their competence through board certification (e.g., the American Board of Clinical Neuropsychology). Alternatively, a neuro-behavioral psychiatrist with certification in neurology through the American Board of Psychiatry and Neurology, or accreditation in behavioral neurology and neuropsychiatry through the American Neuropsychiatric Association may provide NT when both of the following criteria are met (AACN, 2007):

- The provider has professional training and expertise in the types of tests/assessment being requested.
- The provider can conduct test administration, scoring, and interpretation in accordance with currently prevailing national professional and ethical standards regarding provision of NT services.

The licensed psychologist or other qualified care provider must have face-to-face contact with the patient being tested, at a minimum at both an initial intake interview visit and at the testing feedback visit, and they must interpret the test and write (and sign) the report (Puente, 2006; AACN, 1999). However, an appropriately trained psychometrist or psychometrician may administer and score testing under their supervision (Puente, 2006; AACN, 1999).

**Policy updates:**

We identified one new guideline from the Canadian Task Force on Preventive Health Care (CTF) (Pottie, 2016). Building on previous U.S. Preventive Services Task Force (USPSTF) recommendations for screening older adults for cognitive impairment (Moyer, 2014), the CTF found insufficient evidence to support screening for cognitive impairment in older asymptomatic adults. Screening for cognitive impairment is associated with a potentially high false-positive rate, and treatment of mild cognitive impairment that may be detected on screening has not shown to produce a clinically meaningful benefit. These results do not change previous findings, and no changes to the policy are warranted.
In 2017, we identified one new joint guideline from the Department of Veterans Affairs and Department of Defense Evidence-Based Practice Working Group (VA/DoD, 2016) on the management of concussion-mild TBI (mTBI). In this population, they recommend a limited role for neuropsychological testing in the immediate post-concussive period, instead favoring symptom-based clinical guidance and best practices in most cases. The diagnosis of mTBI is a clinical diagnosis, which, in many cases, relies on history alone, and most symptoms of concussion will develop immediately after the concussion. Well-controlled, long-term natural history studies after concussion injuries are lacking, and the diagnostic utility of information on cognitive functioning in the post-acute period is not clear.

For persons with refractory symptoms persisting 30 to 90 days after mTBI, they made a weak recommendation for referral, as appropriate, for a structured cognitive assessment or neuropsychological assessment to determine functional limitations and guide treatment. For patients who present to care with symptoms or complaints potentially related to brain injury, they recommended strongly against using comprehensive and focused neuropsychological testing, including Automated Neuropsychological Assessment Metrics (ANAM), Neuro-Cognitive Assessment Tool (NCAT), or ImPACT, routinely in diagnosis and care. They acknowledged a need for diagnostic accuracy studies of cognitive and neuropsychological testing in persons with concussion-mTBI (VA/DoD, 2016). These results are consistent with the current policy. No policy changes are warranted.

Summary of clinical evidence:

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<tr>
<th>Citation</th>
<th>Content, Methods, Recommendations</th>
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| Pottie (2016) for the Canadian Task Force on Preventive Health Care Screening asymptomatic older adults for cognitive impairment | **Key points:**
  - Updated literature search based on the USPSTF search strategy (Moyer 2014) published from December 8, 2012 to November 7, 2014 for randomized controlled trials (RCTs). No RCTs found.
  - Recommend against screening asymptomatic adults ≥ 65 years for cognitive impairment based on lack of high-quality evidence of the benefits/harms of screening, evidence of treatment ineffectiveness for mild cognitive impairment, and on the potentially high rate of false-positive screens.
  - Practitioners should consider cognitive assessment for patients with signs and symptoms of impairment or when family members or patients express concerns about potential cognitive decline. |
| VA/DoD (2016) Management of concussion-mild TBI (mTBI) | **Key points:**
  - Strong recommendation against performing comprehensive neuropsychological/cognitive testing during the first 30 days following mTBI.
  - For patients with symptoms persisting 30 to 90 days and have been refractory to treatment for associated symptoms (e.g., sleep disturbance, headache), weak recommendation for being referred, as appropriate, for a structured cognitive assessment or neuropsychological assessment to determine functional limitations and guide treatment.
  - For patients with new symptoms that develop more than 30 days after mTBI, weak recommendation for a focused diagnostic work-up specific to those symptoms only. |
For patients identified by post-deployment screening or who present to care with symptoms or complaints potentially related to brain injury, strong recommendation against using the following tests in routine diagnosis and care of patients with symptoms attributed to mTBI: comprehensive and focused neuropsychological testing, including ANAM, NCAT, or ImPACT.

References

Professional society guidelines/other:


**Peer-reviewed references:**


**CMS National Coverage Determination (NCDs):**

No NCDs identified as of the writing of this policy.

**Local Coverage Determinations (LCDs):**


**Commonly submitted codes**

Below are the most commonly submitted codes for the service(s)/item(s) subject to this policy. This is not an exhaustive list of codes. Providers are expected to consult the appropriate coding manuals and bill accordingly.

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<td>96116</td>
<td>Neurobehavioral status exam (clinical assessment of thinking, reasoning and judgment, eg, acquired knowledge, attention, language, memory, planning and problem solving, and visual spatial abilities), per hour of the psychologist's or physician's time, both face-to-face time with the patient and time interpreting test results and preparing the report</td>
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<td>96118</td>
<td>Neuropsychological testing (eg, 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 administering tests to the patient and time interpreting test results</td>
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<td>96119</td>
<td>Neuropsychological testing (eg, 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</td>
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<td>96120</td>
<td>Neuropsychological testing (eg, Wisconsin Card Sorting Test), administered by a computer, with qualified health care professional interpretation and report</td>
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<td>96125</td>
<td>Standardized cognitive performance testing (eg, Ross Information Processing Assessment) per hour of a qualified health care professional's time, both face-to-face time administering tests to the patient and time interpreting these test results and preparing the report</td>
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