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Coverage Policy

Effective Date	**11/10/2024**
Next Review Date	**5/15/2025**
Coverage Policy Number	**EN0258**

Neuropsychological Testing

Table of Contents

Related Coverage Resources

Attention-Deficit/Hyperactivity Disorder (ADHD): Assessment and Treatment
Autism Spectrum Disorders/Pervasive Developmental Disorders: Assessment and Treatment
Cognitive Rehabilitation

INSTRUCTIONS FOR USE

Coverage Policies are intended to provide guidance in interpreting benefit plans administered by Cigna Companies. Please note, the terms of a customer's particular benefit plan document [Group Service Agreement, Evidence of Coverage, Certificate of Coverage, Summary Plan Description (SPD) or similar plan document] may differ significantly from the standard benefit plans upon which these Coverage Policies are based. For example, a customer's benefit plan document may contain a specific exclusion related to a topic addressed in a Coverage Policy. In the event of a conflict, a customer's benefit plan document always supersedes the information in the Coverage Policies. In the absence of a controlling federal or state coverage mandate, benefits are ultimately determined by the terms of the applicable benefit plan document. Coverage determinations in each specific instance require consideration of 1) the terms of the applicable benefit plan document in effect on the date of service; 2) any applicable laws/regulations; 3) any relevant collateral source materials including Coverage Policies and; 4) the specific facts of the particular situation. Each coverage request should be reviewed on its own merits. Medical directors are expected to exercise clinical judgment where appropriate and have discretion in making individual coverage determinations. Where coverage for care or services does not depend on specific circumstances, reimbursement will only be provided if a requested service(s) is submitted in accordance with the relevant criteria outlined in the applicable Coverage Policy, including covered diagnosis and/or procedure code(s). Reimbursement is not allowed for services when billed for conditions or diagnoses that are not covered under this Coverage Policy (see "Coding Information" below). When billing, providers must use the most appropriate codes as of the effective date of the submission. Claims submitted for services that are not accompanied by covered code(s) under the applicable Coverage Policy will be denied as not covered. Coverage Policies relate exclusively to the administration of health benefit plans. Coverage Policies are not recommendations for treatment and should never be used as treatment guidelines.

Overview

This Coverage Policy addresses neuropsychological testing used to assess neurocognitive effects of various disorders and aid in clinical decision-making.

Coverage Policy

Coverage of neuropsychological testing varies across plans as does coverage for services for or in connection with an injury or illness arising out of, or in the course of, any employment for wage or profit.

A number of states have coverage mandates that require regulated benefit plans to cover services related to an autism spectrum disorder (ASD) or pervasive developmental disorder (PDD). For example, New York law requires regulated benefit plans to provide coverage for the screening, diagnosis and treatment of ASD/PDD.

Neuropsychological testing is considered medically necessary when ALL of the following criteria are met:

- The information obtained will be used for clinical decision-making.
- There are symptoms indicative of a significant decline in cognitive or behavioral functioning.
- There is a reasonable suspicion of **ANY** of the following:

    - autism spectrum disorder
    - brain tumor
    - cerebral anoxic or hypoxic episode
    - central nervous system (CNS) infection with presence of neurocognitive problems (e.g., herpes encephalitis, human immunodeficiency virus [HIV] infection, Lyme disease with CNS neurological involvement)
    - dementia (e.g., Alzheimer's disease, vascular dementia, Lewy body dementia)
    - demyelinating disease (e.g., multiple sclerosis)
    - epilepsy and seizure disorders
    - exposure to agents known to be associated with cerebral dysfunction (e.g., lead poisoning, intrathecal methotrexate, cranial irradiation)
    - extrapyramidal disease (e.g., Parkinson's, Huntington's Disease)
    - postconcussion syndrome
    - stroke or cerebral vascular injury (e.g., brain aneurysm, subdural hematoma)
    - traumatic brain injury
    - concussion (mild traumatic brain injury) and mild cognitive impairment (neurocognitive disorder) when those diagnoses are associated with a change in mental status, there is also a suspicion of an underlying central nervous system condition and standard treatment has failed

Neuropsychological testing is not covered or reimbursable for any indication not listed above, including but not limited to when it is used primarily for:

- educational or vocational assessment or training
- improving academic performance
- baseline assessment of function
- monitoring of chronic conditions when there is no significant new change in behavior, mental state or cognition
- screening purposes

Computerized neuropsychological testing for any indication that does not require a physician, psychologist, or licensed mental health professional to provide interpretation and preparation of a report is considered experimental, investigational or unproven.

Health Equity Considerations

Health equity is the highest level of health for all people; health inequity is the avoidable difference in health status or distribution of health resources due to the social conditions in which people are born, grow, live, work, and age.

Social determinants of health are the conditions in the environment that affect a wide range of health, functioning, and quality of life outcomes and risks. Examples include safe housing, transportation and neighborhoods; racism, discrimination and violence; education, job opportunities and income; access to nutritious foods and physical activity opportunities; access to clean air and water; and language and literacy skills.

Epidemiological data suggests that certain risk factors for dementia, such as hypertension, coronary artery disease, and stroke, are more common in Black individuals and Hispanics than whites. This may account for some of the racial disparities observed in Alzheimer's disease, but there is little consensus on the exact cause or causes of observed prevalence disparities (U.S. Preventive Services Task Force [USPSTF], 2020). It has also been noted that dementia prevalence varies by gender, affecting more women than men. While previous research suggested that higher rates of dementia prevalence in women were related largely to women's longer life expectancy, newer research suggests that differences in genetic factors and education levels may contribute to disparate prevalence rates by gender as well (USPSTF, 2020).

General Background

Neuropsychological Testing
Neuropsychological testing consists of the administration of a series of standardized assessments designed to objectively measure cognitive function. Neuropsychological testing is indicated when notable behavioral and/or cognitive changes have been associated with a history of moderate to severe head trauma or organic brain disease. This testing provides the basis for the conclusions regarding the neurocognitive effects of various medical disorders and aids in diagnosis. Making an assessment of preserved and compromised cognitive functions can also help to predict the effects of remediation. The testing results assist the clinician determine the scope and severity of cognitive impairments through a comparison of patient responses to established normative test values. The results of the testing may assist the clinician in developing a program or plan of care that is specific to the patient's needs, and determine appropriate adjustments to the patient's treatment.

Neuropsychological testing differs from psychological testing in that neuropsychological testing measures higher cerebral functioning, which focuses on cognitive skills and abilities (i.e., language, memory and problem-solving), whereas psychological testing is designed to provide information about a patient's personality and emotional functioning. Neuropsychological testing should be delayed until reversible medical or metabolic conditions that are adversely affecting the central nervous system (CNS) are corrected, when possible. Formal neuropsychological testing should also be delayed until any acute changes have stabilized following trauma, infections, or metabolic or vascular insults to the CNS.

The components of neuropsychological assessment include all of the following:

- assessment of higher cortical functions, which includes thought process and organization, reasoning and judgment
- assessment of attention, language, memory and problem-solving
- obtaining a developmental history, the history of medical disease, trauma and psychiatric illness, and the history of the person's cognitive decline and/or premorbid level of function

Neuropsychological tests and measures used for clinical purposes must meet standards for psychometric adequacy. These standards include (American Academy of Clinical Neuropsychology [AACN], 2007):

- acceptable levels of reliability
- demonstrated validity in relation to other tests and/or to brain status, including evidence that the test or measure assesses the process, ability, or trait it purports to assess
- normative standards that allow the clinician to evaluate the patient's scores in relation to relevant patient characteristics, such as age, gender, and socio-demographic or cultural/linguistic background

Neuropsychologists: Neuropsychological testing should only be performed and/or directly supervised by practitioners who are appropriately trained in administering and interpreting these tests (e.g.,

neuropsychologists). Neuropsychologists are doctoral-level psychologists with specialized training in assessment, intervention, and research related to the connection between the brain and behavior, cognition, and emotional functioning (Armstrong-Brine and Speer, 2023).

In 1997, the Houston Guidelines were developed by a joint task force made up of members of the Division of Clinical Neuropsychology (Division 40) of the American Psychological Association (APA) and several other examining boards and professional organizations in the field of neuropsychology. The guidelines outlined aspirational criteria for training in clinical neuropsychology, including (Society for Clinical Neuropsychology [SCN], 2023):

- "A doctoral degree in psychology from an accredited university with core psychology, clinical psychology, brain-behavior, and clinical neuropsychology coursework in addition to obtaining in-depth training in assessment, treatment, consultation, research, and teaching/supervision.
- An internship, or its equivalent, in a clinically relevant area of professional psychology that is also approved by the American or Canadian psychological associations.
- The equivalent of two (fulltime) years of experience and specialized training, at least one of which is at the post-doctoral level, in the study and practice of clinical neuropsychology and related neurosciences. These two years include supervision by a clinical neuropsychologist.
- A license in the home state or province to independently practice psychology and/or clinical neuropsychology."

Although not required to practice, neuropsychologists are typically board certified by one of three organizations: the American Board of Clinical Neuropsychology of the American Board of Professional Psychology (ABPP-CN); the American Board of Professional Neuropsychology (ABN); or the American Academy of Pediatric Neuropsychology (ABPdN). Additionally, ABPP-CN offers specialized certification in pediatric neuropsychology, which may be pursued in addition to standard ABPP-CN certification (Armstrong-Brine and Speer, 2023).

While some neuropsychological tests may be administered and scored by a psychometrist (trained technician), the supervising clinical neuropsychologist is responsible for interpreting the test results and completing the written report.

Computerized Neuropsychological Testing: Computerized neuropsychological testing is also referred to as automated or computer-based testing. This type of testing has been developed as an alternative or adjunct to traditionally administered testing methods. 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, and the ease with which normative data can be collated or compared to existing databases (Schatz and Browndyke, 2002). Limitations to computer-based testing include unfamiliarity with the equipment by the patient and the potential for inaccurate timing procedures. Some tests are a translation of existing standardized tests into a computerized administration (e.g., Wisconsin Card Sorting Test™) while others include the development of tests and test batteries of tests unique to the computer application (Wild, et al., 2008).

Many computer-based tests were developed to evaluate the presence of mild cognitive impairment or for sports-related concussion. Some of the tests have been adapted for testing in the pediatric populations, including assessment for attention-deficit/hyperactivity disorder (ADHD) (Luciana, 2003). These tests are also used in the research setting.

Examples of computerized testing include, but are not limited to:

- **BrainView NeuralScan Pro** (Medeia Inc., Santa Barbara, CA): Per the manufacturer, this product combines a neuropsychological survey with other tests (e.g., electroencephalogram [EEG], electrocardiogram [ECG]) to evaluate for cognitive impairment. The test takes 25 minutes and is marketed primarily toward primary care physicians.
- **Cambridge Neuropsychological Testing Automated Battery** (CANTAB, Cambridge Cognition Ltd, Cambridge, UK): This test is non-linguistic and culturally blind and can be administered by a trained assistant. This test includes specialized batteries that deal with specific conditions including: CANTAB Alzheimer's, CANTAB ADHD, and CANTAB's Core Cognition battery.

- **CNS Vital Signs®** (CNS Vital Signs LLC, Chapel Hill, NC): This test evaluates five domains: memory (verbal and visual recognition), psychomotor speed (i.e., finger tapping, symbol digit coding), reaction time, cognitive flexibility (shifting attention, Stroop paradigm), and complex attention. The program can be completed in 25-30 minutes, does not require an attendant to be present, and the program will produce a report.
- **CogniFit** (CogniFit Inc., San Francisco, CA): This company offers several cognitive assessment batteries, as well as brain games to "promote/encourage the general state of cognitive health". The cognitive assessments are completed online and automatically generate a report. They may be purchased and completed by any individual, without physician interaction or interpretation.
- **Cognivue** (Cognivue, Inc., Victor, NY): This is a computerized cognitive test that is intended for early detection of dementia signs. It is self-adminstered in ten minutes.
- **Computer-Administered Neuropsychological Screen for Mild Cognitive Impairment** (CANS-MCI®, Screen Inc., Seattle, WA): This test was developed as a screening instrument for detection of mild cognitive impairment. Tests include assessment of language, memory and executive function.
- **Mindstreams® Cognitive Health Assessment** (NeuroTrax, Newark, NJ): This product is intended to provide an objective measurement of cognitive function parameters. An Assessment Report is available within seconds after testing, and contains a complete accounting of performance in the cognitive domains of memory, attention, executive function, visual spatial perception, verbal skills, motor planning, and information processing speed.
    - **BrainCare™** (NeuroTrax, Newark NJ) is the current version of the original MindStreams product. BrainCare is a cloud-based software application that includes tests, reports and data-driven recommendations.

Many computerized tests do not require a professional to interpret the results or to complete a report; the computer program provides an automatically generated report. The test may not involve a visit or evaluation by a neuropsychologist and may be administered by technician.

In a joint position paper on computerized neuropsychological assessments, the American Academy of Clinical Neuropsychology (AACN) and the National Academy of Neuropsychology (NAN) made the following statements regarding the end-user administration and interpretation of such tests (Bauer, et al., 2012):

- Some computerized tests "are intended for use by providers who possess varying knowledge of psychometric principles and/or neuropsychological expertise. Although test administration is likely to be less affected by this lack of knowledge if appropriate orientation to the use of and training on the specific test is undertaken, interpretation of the data generated by the measure may be more substantially affected.
- Dependent on the intended use or application of the test, a lack of knowledge regarding psychometric properties of the measure, test behavior, associated medical or behavioral data to support interpretation, and neuropsychological expertise, may present a specific challenge to the general health care provider and create a risk to the patient with whom the test is used."
- "The appropriate process of test interpretation involves an integration of quantitative test findings with information from medical records, including disease course, functional impairment, comorbid illnesses, history, and other relevant factors. Also, an understanding that multiple factors separate from central nervous system disease or injury (e.g., premorbid abilities, general health, neuropsychiatric and emotional status, medications, fatigue, and effort) can affect performance on cognitive tests is critical to accurate interpretation of test results. Bypassing careful clinical interpretation may lead to potential misuse of the data or failure to consider potential clinical or methodological issues that could influence the results."

Neuropsychological Testing in the Educational Setting: Neuropsychological testing is also used in educational settings to provide information regarding educational planning and determine appropriate classroom placement. The testing may be used to identify specific learning disabilities and developmental disabilities.

Neuropsychological Testing—Specific Indications
Migraines: The published literature regarding the clinical utility of neuropsychological testing for patients with headaches and migraines is not conclusive. It has been suggested that there may be cognitive impairment with migraines, but this has not been proven (Baars, et al., 2010; O'Bryant, et al., 2006). There is insufficient clinical

evidence to demonstrate that neuropsychological testing is useful in clinical decision making or will improve management of migraines.

Mild Cognitive Impairment (MCI): Mild cognitive impairment is a stage between normal cognitive changes that may occur with age and more serious symptoms that indicate dementia. Symptoms of MCI can include problems with thinking, judgment, memory, and language, but the loss doesn't significantly interfere with the ability to handle everyday activities. Symptoms of MCI include mild memory loss; difficulty with planning or organization; trouble finding words; frequently losing or misplacing things; and forgetting names, conversations, and events. An individual with MCI may be at greater risk of eventually developing Alzheimer's or another type of dementia, particularly if the degree of memory impairment is significant, but MCI does not always progress to dementia. Symptoms may remain stable for several years, and even improve over time in some people (National Institute of Neurological Disorders and Stroke [NINDS], 2023).

Chronic Fatigue Syndrome (CFS): Chronic fatigue syndrome can be a disabling illness characterized by persistent fatigue and associated myalgias, tender lymph nodes, arthralgias, chills, feverish feelings and postexertional malaise. Diagnosis of this syndrome is by exclusion with no definitive laboratory test or physical findings. Evaluation for this condition often includes a detailed medical history, complete physical examination, including a mental status examination and a standard series of urine and blood laboratory tests to identify other possible causes of illness. The medical necessity for the use of neuropsychological testing in the assessment and/or management of chronic fatigue syndrome is not supported in the medical literature.

Baseline Assessment: A recent area of development for neuropsychological testing, particularly computerized testing, is baseline assessment. Baseline testing is performed in the in the absence of signs and/or symptoms, for purposes of a later comparison. One use for baseline testing that is becoming prevalent is in the assessment and management of sports-related concussion (Schatz and Browndyke, 2002). In some contact sports, an athletic program may perform a baseline assessment of an individual's cognitive performance at the beginning of the season for purposes of later comparison in the event of an injury. When these tests are performed prior to injury, or in the absence of signs and/or symptoms, this use would not be considered medically necessary.

Concussion: A mild or minor traumatic brain injury (TBI) is a temporary and brief interruption of neurologic function after head trauma, and may involve a loss of consciousness. A concussion is a type of minor TBI usually caused by acceleration-deceleration or rotational injury to a freely mobile head, and is frequently associated with contact sports. Almost all patients with minor TBI will have rapid and complete symptom resolution; with no long-term aftereffects. The majority (93%) of concussions resolve in a short (<10 day) period, although the recovery time frame may be longer in children and adolescents (Patricios, et al., 2023).

The diagnosis of acute concussion involves the assessment of a range of domains, including clinical symptoms, physical signs, behavior, balance, sleep, and cognition, along with a detailed concussion history. The cornerstone of concussion management is physical and cognitive rest until symptoms resolve and then a graded program of exertion prior to medical clearance and return to play (if associated with sports injury). The majority of patients will recover spontaneously over several days. The individual should be completely symptom free at rest and with physical exertion (e.g., sprints, non-contact aerobic activity) and cognitive exertion (e.g., studying, schoolwork) prior to return to sports or recreational activities (Centers for Disease Control and Prevention [CDC], 2020).

A past history of concussions is among the risk factors that can lead to a prolonged period of recovery. The number and date(s) of prior concussions and the duration of symptoms for each injury should be assessed. The effects of multiple mild TBIs may be cumulative, especially if there is minimal duration of time between injuries and less biomechanical force results in subsequent mild TBI (CDC, 2020).

Neuropsychological testing may be medically appropriate when the concussion is associated with a change in mental status, there is also a suspicion of an underlying central nervous system condition, and standard treatment has failed.

Postconcussion Syndrome: A small percentage of patients may report persistent symptoms (e.g., headache, sensory sensitivity, memory or concentration difficulties, irritability, sleep disturbance, depression) for extended periods after trauma. These symptoms are referred to as postconcussion or postconcussive syndrome (Papa

and Goldberg, 2023). Postconcussion syndrome (PCS) is a common aftereffect of TBI, and it is a symptom complex that includes headache, dizziness, neuropsychiatric symptoms, and cognitive impairment. PCS is most often described in the setting of mild TBI, but it may also occur after moderate and severe TBI; similar symptoms are described after whiplash injuries as well. Loss of consciousness does not have to occur for PCS to develop (Evans, 2023). Patients with persistence of symptoms may need referral for neuropsychological testing (Trofa, et al., 2020).

Computerized Neuropsychological Test Batteries for Concussion: Additional computerized neuropsychological test batteries have been used in management of concussions to facilitate decisions about safe return to play, work or school. These tests generally take about 15-25 minutes to complete. An example of computerized testing used in evaluation of concussion include is the ImPACT (Immediate Post-Concussion Assessment and Cognitive Testing) (ImPACT Applications, Inc., Pittsburgh, PA). According to the vendor website the test can be administered by an athletic trainer, school nurse, athletic director, team coach, team doctor, or anyone trained to administer baseline testing. It takes approximately 20 minutes and a clinical report is provided by the program. The question as to whether routine testing is associated with improved clinical outcomes is unclear (Kirkwood, et al., 2009). A review of the evidence for the clinical utility of the ImPACT test revealed insufficient support to suggest that use of the test is associated with modified risk. The report concluded that “for evaluating and advising concussed athletes when to return to play, ImPACT test results should not be the determining factor” (Mayers, et al., 2012).

U.S. Food and Drug Administration (FDA)
The FDA classifies computerized cognitive assessment aids as Class II devices. Several computerized cognitive/neuropsychological tests have been approved by the FDA via the 510(k) Premarket Notification and De Novo processes. Examples include the ANAM Test System: Military Battery (Vista LifeSciences, Inc., Alexandria, VA; 2015) and Cognivue (Cerebral Assessment Systems, Inc., Pittsford, NY; 2015). Per the FDA description of this type of prescription device, “the computerized cognitive assessment aid is used only as an assessment aid to determine level of cognitive functioning for which there exists other valid methods of cognitive assessment and does not identify the presence or absence of clinical diagnoses. The computerized cognitive assessment aid is not intended as a stand-alone or adjunctive diagnostic device.”

Literature Review—Computerized Neuropsychological Testing for Concussion: Although computerized neuropsychological testing has been used in the assessment of sport-related concussion, the scientific literature is not conclusive regarding the clinical utility of this testing for this purpose. The published literature generally addresses the use of computerized testing in sport-related concussion for baseline assessment and return-to-play decisions. The studies focus on a specific population and it is difficult to generalize the results to other groups.

Ivins et al. (2019) conducted a study to assess agreement between four brief computerized neurocognitive assessment tools (CNTs): Automated Neuropsychological Assessment Metrics (ANAM), CogState, CNS Vital Signs, and Immediate Post-concussion Assessment and Cognitive Test (ImPACT), by comparing rates of low scores. The study included 406 US Army service members (SMs) with (n=167) and without (n=239) acute mild traumatic brain injury. Participants completed two randomly assigned CNTs. A base rate analysis for each CNT was conducted to determine the proportions of SMs in the control and mTBI groups who had various numbers of scores that were 1.0+, 1.5+, and 2.0+ standard deviations below the normative mean. These results were used to identify a hierarchy of low score levels ranging from poorest to least poor performance. Then there was a comparison between the agreement between every low score level from each CNT pair administered to the SMs. More SMs in the mTBI group had low scores on all CNTs than SMs in the control group. As performance worsened, the association with mTBI became stronger for all CNTs. Most if not all SMs who performed at the worst level on any given CNT also had low scores on the other CNTs they completed but not necessarily at an equally low level. Limitations of the study included the relatively small numbers of SMs in each CNT pair who performed at the poorest levels; possible psychometric differences that may have contributed to differences in agreement levels between the CNTs, could not be explored; and the study used data from military service members, thus the findings may not be generalizable to other populations CNTs are used to assess, especially high school and college athletes. The authors concluded that these results suggest that the CNTs examined were broadly similar but still retained some psychometric differences that need to be better understood. The authors note that the findings represent a starting point for future research on the CNTs rather than any definitive statement about the clinical utility or superiority of any of the CNTs examined.

Broglio et al. (2018) conducted a study to evaluate the test-retest reliability of commonly implemented and emerging concussion assessment tools across a large sample of student-athletes. The study included participants (n=4874) from the Concussion Assessment, Research, and Education Consortium who completed annual baseline assessments on two or three occasions. Each assessment included measures of self-reported concussion symptoms, motor control, brief and extended neurocognitive function, reaction time, oculomotor/oculovestibular function, and quality of life. Consistency between years one and two, and years one and three were estimated. The results noted that reliability for the self-reported concussion symptoms, motor control, and brief and extended neurocognitive assessments from year one to two ranged from 0.30 to 0.72 while effect sizes ranged from 0.01 to 0.28 (i.e., small). The reliability for these same measures ranged from 0.34 to 0.66 for the year 1-3 interval with effect sizes ranging from 0.05 to 0.42 (i.e., small to less than medium). The year 1-2 reliability for the reaction time, oculomotor/oculovestibular function, and quality-of-life measures ranged from 0.28 to 0.74 with effect sizes from 0.01 to 0.38 (i.e., small to less than medium effects). The authors concluded that the investigation noted less than optimal reliability for most common and emerging concussion assessment tools.

Davis et al. (2017) conducted a systematic review of 23 prospective and retrospective studies to evaluate the evidence on the management of sport-related concussion (SRC) in children and adolescents. The outcomes assessed included the effects of age on symptoms and outcome, normal and prolonged duration, the role of computerized neuropsychological tests (CNTs), the role of rest, and strategies for return to school and return to sport. Studies were included if they were original research on SRC in children aged 5–18 years, and excluded if they were review articles, or did not focus on childhood SRC. The review concluded that the widespread routine use of baseline CNT is not recommended in the diagnosis and recovery assessment of SRC in children.

Farnsworth et al. (2017) analyzed reliability data for computerized neurocognitive tests (CNTs) using meta-analysis and examine moderating factors that may influence reliability. Studies were included if they met all of the following criteria: used a test-retest design, involved at least one CNT, provided sufficient statistical data to allow for effect-size calculation, and were published in English. The review included eighteen studies involving 2674 participants. The results included that the proportion of acceptable outcomes was greatest for the Axon Sports CogState Test (75%) and lowest for the ImPACT (25%). Moderator analyses indicated that the type of intraclass correlation coefficient model used significantly influenced effect-size estimates, accounting for 17% of the variation in reliability. The authors concluded that the Axon Sports CogState Test, which has a higher proportion of acceptable outcomes and shorter test duration relative to other CNTs, may be a reliable option; however, future studies are needed to compare the diagnostic accuracy of these tests.

Gaudet et al. (2017) reported on a systematic review of research into the prevalence of invalid baseline results and the effectiveness of Immediate Post-Concussion and Cognitive Testing (ImPACT). The review included 17 studies that included prevalence rates of invalid performances or examined the effectiveness of ImPACT's invalidity indicators. The inclusion criteria included a minimum sample of at least 20 participants; included an original data-set; the study was relational, experimental, or quasi-experimental; the use of ImPACT was for cognitive screening; and the study included the rate of invalid performances generated for the study sample, even if not the primary focus of the study. Of these studies, 12 included prevalence rates of invalid baseline results; and across this group of studies (after removing an outlier), the weighted prevalence rate of invalid baseline results was 6%. Four of the 17 studies examined the effectiveness of ImPACT's embedded invalidity indicators. ImPACT's embedded invalidity indicators correctly identified suboptimal effort in approximately 80% of individuals instructed to perform poorly and avoid detection ('coached') or instructed to perform poorly ('naïve'). The authors concluded that the findings raise a number of issues pertaining to the use of ImPACT including that invalid performance incidence may increase with large group versus individual administration, use in nonclinical settings, and among those with Attention Deficit-Hyperactivity Disorder or learning disability. The authors noted that although ImPACT's embedded invalidity indicators detect invalid performance at a rate of 6% on average, known group validity studies suggest that these measures miss invalid performance approximately 20% of the time when individuals purposefully underperform. A limitation of the review was the small sample sizes of the included studies.

Hang et al. (2015) reported on a prospective cohort study to determine if computerized neurocognitive testing (Immediate Post-Concussion Assessment and Cognitive Testing [ImPACT]) in the emergency department (ED) can be used as a prognostic tool to detect young athletes at risk of having protracted concussive symptoms. The

study included 109 subjects 11 to 18 years old who presented to an ED less than 24 hours after sustaining a sports-related concussion. ImPACT was administered in the ED, and categorization of performance was done with score of "poor" if the athlete had 3 (of 4) or greater low domain scores. Participants completed the Post-Concussion Symptom Scale (PCSS) in the ED and at one and two weeks after injury. Athletes were symptomatic if their PCSS score was more than six in males and more than eight in females. Results indicated that 60% and 36% remained symptomatic at one and two weeks after injury, respectively. "Poor" ImPACT performance was not found to be particularly useful in predicting athletes with protracted symptoms (at one week: positive predictive value, 70.8%; negative predictive value, 43.5%; at two weeks: positive predictive value, 47.8%; negative predictive value, 68.9%). In bivariate analysis, a higher ED PCSS score was associated with protracted symptoms (at one week: odds ratio, 1.1 [confidence interval, 1.0-1.1]; at 2 weeks: odds ratio, 1.0 [confidence interval, 1.0-1.1]). The authors concluded that computerized neurocognitive testing in the ED has limited usefulness in predicting protracted symptoms.

The American Academy of Clinical Neuropsychology (AACN) and the National Academy of Neuropsychology (NAN) published joint position paper on appropriate standards and conventions for computerized neuropsychological assessment devices (CNADs) (Bauer, et al., 2012). The paper included the following statements regarding CNADs:

- CNADs are subject to, and should meet, the same standards for the development and use of educational, psychological, and neuropsychological tests as are applied to examiner-administered tests.
- Developers of CNADs are expected to provide a clear definition of the intended end-user population, including a description of the competencies and skills necessary for effective and accurate use of the device and the data it provides.
- Test developers should provide users with sufficient technical information to insure that the local installation of a CNAD will produce data that can be accurately compared with that which exists in the test's normative database.
- CNADs are subject to the same standards and conventions of psychometric test development, including descriptions of reliability, validity, and clinical utility (accuracy and diagnostic validity), as are examiner-based measures.
- Professionals select scoring and interpretation services (including automated services) on the basis of evidence of the validity of the program and procedures as well as on other appropriate considerations
- Professionals retain responsibility for the appropriate application, interpretation, and use of assessment instruments, whether they score and interpret such tests themselves or use automated or other services.

Thomas et al. (2011) performed a prospective non-controlled study using 60 subjects, 11-17 years old, who presented to the emergency department (ED) immediately after a head injury. The study was designed to answer two questions: 1) is there a correlation between performance on a computer-based neurocognitive assessment (ImPACT) performed within 12 hours of head injury, and repeat assessments performed at least once, from three to ten days later; and 2) was the computerized test more sensitive to the identification of concussion severity when compared to two standard clinical grading scales. Post-concussive symptoms, outcomes, and complications were assessed via telephone follow-up for all subjects. Sixty patients completed phone follow-up; however only 36 patients (60%) completed follow-up testing. The median follow-up testing interval was six days post-injury. Traditional concussion grading was reported to not correlate with neurocognitive deficits detected in the ED or at follow-up. The neurocognitive domains of verbal memory, processing speed, and reaction time, on the other hand, were reported to show a correlation, though a statistical threshold for certainty or a statistical correlation was not reported. At two weeks post-injury, 23 patients (41%) had not returned to normal activity. At six weeks, six patients (10%) still had not returned to normal activity. No correlation with return to normal activity was reported. The authors concluded that immediate computerized neuropsychological assessment in the ED can predict neurocognitive deficits seen in follow-up. They further postulated that this information may be used to individualize treatment decisions. Limitations of the study included the small sample size, lack of control group, lack of power to identify a correlation between three days post injury, lack of power to perform a subgroup analysis, incomplete statistical reporting, and lack of comparison to the traditional validated and normed clinical neuropsychological test assessment. The study did not allow, nor draw, conclusions regarding the clinical utility of the intervention.

Lau et al. (2011) conducted a prospective, cohort study (n=108) to evaluate the correlation between performance on computerized neurocognitive testing (ImPACT) in combination with clinical symptoms, with recovery from sports-related concussion. Male high-school football athletes completed a computer-based neurocognitive test

battery within 2.23 days of injury and were followed until they returned to play, using international guidelines. Athletes were grouped into protracted recovery (>14 days; n=50) or short-recovery (≤14 days; n=58). Separate discriminant function analyses were performed using total symptom score on Post-Concussion Symptom Scale (PCSS), symptom clusters (migraine, cognitive, sleep, neuropsychiatric), and Immediate Post-concussion Assessment and Cognitive Testing neurocognitive scores (verbal memory, visual memory, reaction time, processing speed). Multiple discriminant function analyses revealed that the combination of four symptom clusters and four neurocognitive composite scores had the highest sensitivity (65.22%), specificity (80.36%), positive predictive value (73.17%), and negative predictive value (73.80%) in predicting protracted recovery. Discriminant function analyses of total symptoms on the Post-Concussion Symptom Scale alone had a sensitivity of 40.81%; specificity, 79.31%; positive predictive value, 62.50%; and negative predictive value, 61.33%. The four symptom clusters alone discriminant function analyses had a sensitivity of 46.94%; specificity, 77.20%; positive predictive value, 63.90%; and negative predictive value, 62.86%. Discriminant function analyses of the four computerized neurocognitive scores alone had a sensitivity of 53.20%; specificity, 75.44%; positive predictive value, 64.10%; and negative predictive value, 66.15%. The authors concluded that the use of computerized neurocognitive testing in conjunction with symptom clusters results improves sensitivity, specificity, positive predictive value, and negative predictive value for predicting protracted recovery compared with each used alone. Although the study appears to indicate that the use neuropsychological testing along with symptom assessment may assist in predicting recovery, the results were not robust and did not indicate that this testing should be used for this purpose. The test was not designed to, and did not, address clinical utility.

Maerlander et al. (2010) conducted a study to compare scores across three test batteries in 54 healthy male athletes. The three batteries included the ImPACT test, traditional neuropsychological tests, and several experimental measures used in the assessment of sports-related concussion. The findings concluded that convergent validity was demonstrated for four of the five ImPACT domain scores. However, two cognitive domains, sustained attention and auditory working memory, often compromised as a result of mild TBI did not show convergent validity. Affective symptoms correlated with performance on measures of attention and working memory. The authors concluded that in this healthy sample, the correlations between the domains covered by ImPACT and the neuropsychological battery supports ImPACT as a useful screening tool for assessing some of the cognitive factors related to mild TBI. They recommended, however, that other sources of data should be considered when identifying and managing concussions. Limitations of the study included its focus on reportedly healthy subjects rather than those with a head injury, and small sample size. Further, the study was not designed to, and did not, address clinical utility.

Repeat Testing
Repeat testing may be appropriate when there is a significant change in behavior or medical condition and test results will affect treatment planning. Repeat testing for the monitoring of a condition is not considered medically appropriate unless it will impact clinical decision-making or level of care planning.

Neuropsychological Testing for Other Conditions
Neuropsychological testing is considered to be of limited value in the following conditions:

- When a person has a substance abuse background and either of the following conditions apply:
  - The person continues to use to an extent that would render test results inaccurate.
  - The person is not yet 10 or more days post-detoxification.
- When an individual is on certain daily medications (e.g., mood-altering substances or beta-blockers) that may confound interpretation of results, and the drug effects have not been ruled out.

There are situations when routine screening of individuals is performed, such as for the purpose of early detection of changes in cognition. The use of neuropsychological testing for screening purposes, in the absence of signs and symptoms, would be considered not medically appropriate.

Professional Societies/Organizations—Concussion
American Academy of Neurology (AAN): The AAN published updated evidence-based guidelines for evaluation and management of concussion in sports (Giza, et al., 2013). The guidelines are endorsed by the National Football League Players Association, the Child Neurology Society, the National Association of Emergency Medical Service Physicians, the National Association of School Psychologists, the National Athletic

Trainers Association, and the Neurocritical Care Society. The guidelines included the following recommendations:

Regarding the question of diagnostic tools that are useful in identifying athletes suspected of having sustained concussion:

- The reference standard by which these tools were compared was a clinician-diagnosed concussion (by physician or certified athletic trainer). It was noted that none of these tools is intended to "rule out" concussion or to be a substitute for more thorough medical, neurologic, or neuropsychological evaluations.
- Regarding neuropsychological testing the guidelines note that, "Instruments for neuropsychological testing are divided into 2 types on the basis of their method of administration: paper-and-pencil and computer. Both types generally require a neuropsychologist for accurate interpretation, although they may be administered by a non-neuropsychologist. It is likely that neuropsychological testing of memory performance, reaction time, and speed of cognitive processing, regardless of whether administered by paper-and-pencil or computerized method, is useful in identifying the presence of concussion (sensitivity 71%–88% of athletes with concussion) (one Class II study; multiple Class III studies). There is insufficient evidence to support conclusions about the use of neuropsychological testing in identifying concussion in preadolescent age groups."

Recommendations related to assessment, diagnosis, and management of suspected concussion; and recommendations for management of diagnosed concussion (including acute management, return-to-play, and retirement) included:

- Regarding return-to-play (RTP) and concussion resolution: Clinical licensed health care providers (LHCPs) might use supplemental information, such as neurocognitive testing or other tools, to assist in determining concussion resolution. This may include but is not limited to resolution of symptoms as determined by standardized checklists and return to age-matched normative values or an individual's preinjury baseline performance on validated neurocognitive testing (Level C).
- Regarding retirement from play after multiple concussions:
  - LHCPs might refer professional athletes with a history of multiple concussions and subjective persistent neurobehavioral impairments for neurologic and neuropsychological assessment (Level C).
  - LCHPs caring for amateur athletes with a history of multiple concussions and subjective persistent neurobehavioral impairments might use formal neurologic/cognitive assessment to help guide retirement-from-play decisions (Level C).

Level C: Possibly effective, ineffective, or harmful (or possibly useful/predictive or not useful/predictive) for the given condition in the specified population. (Level C rating requires at least one Class II study or two consistent Class III studies.)

American Academy of Pediatrics (AAP): The AAP published an updated clinical report regarding sport-related concussion (SRC) in children and adolescents (Halstead, et al., 2018). The report included the following regarding neurocognitive testing: **"**Neurocognitive testing after an SRC is only 1 tool that may be used in assessing an athlete for recovery and should not be used as a sole determining factor to determine when return to play is appropriate. Testing should be performed and conducted by providers who have been trained in the proper administration and interpretation of the tests."

American Medical Society for Sports Medicine (AMSSM): The AMSSM published a position statement regarding concussion in sport (Harmon, et al., 2019).

Regarding the diagnosis of concussion, the statement included the following:

- Concussion remains a clinical diagnosis ideally made by a healthcare provider familiar with the athlete and knowledgeable in the recognition and evaluation of concussion.
- Graded symptom checklists provide an objective tool for assessing a variety of symptoms related to concussions, while also tracking the severity of those symptoms over serial evaluations.
- Standardized assessment tools provide a helpful structure for the evaluation of concussion, although limited validation of these assessment tools is available.

Recommendations for sideline evaluation and management of sport-related concussion included (Strength of recommendation C*):

- Reasons for immediate removal and prompt evaluation include loss of consciousness (LOC), impact seizure, tonic posturing, gross motor instability, confusion or amnesia. Any of these reported or observed signs should result in removal from practice or competition for at least the rest of the day.
- A healthcare professional familiar with the athlete is best suited to detect subtle changes in the athlete's personality or test performance that may suggest concussion. If a concussion is suspected but not diagnosed, removal from play and serial evaluations are recommended.
- The Sports Concussion Assessment Tool Fifth Edition (SCAT5) and the Child SCAT5 are the evaluation tools recommended by the Concussion in Sport Group (CISG) for assessing a suspected concussion. They provide a consistent approach to sideline evaluation and incorporate multiple domains of function.
- There is no same day return-to-play for an athlete diagnosed with a concussion.
- Athletes suspected or diagnosed with a concussion should be monitored for deteriorating physical or mental status.

Recommendations concerning neuropsychological testing included (Strength of recommendation B*):

- Several factors must be considered before implementing any test into an evaluation program for baseline or postinjury purposes. There is considerable normal variation in test performance with repeat testing in non-injured athletes, some tests must be purchased, and in younger athletes with rapidly developing brain function, both the ideal interval to repeat baseline testing and age-related differences in test performance are unknown.
- Common baseline evaluations include the battery of standard sideline assessment tests found in the SCAT5 and/or computerized proprietary neuropsychological tests such as CogSport, Automated Neuropsychological Assessment Metrics, Central Nervous System Vital Signs, or the Immediate Post-Concussion Assessment and Cognitive Testing.
- An initial baseline evaluation including a symptom checklist, cognitive evaluation and balance assessment has been considered "best practice" for all athletes by the National Collegiate Athletic Association (NCAA). However, repeat annual baseline testing after an initial baseline evaluation is no longer recommended for collegiate athletes.
- Baseline testing may be useful in some cases but is not necessary, required or an accepted standard of care for the appropriate management of sport-related concussion.

*Strength of recommendation and basis for recommendation:
A: Consistent, good-quality patient-oriented evidence
B: Inconsistent or limited-quality patient-oriented evidence
C: Consensus, disease-oriented evidence, usual practice, expert opinion or case series for studies of diagnosis, treatment, prevention or screening

Professional Societies/Organizations—Other Conditions
American Academy of Child and Adolescent Psychiatry (AACAP): The AACAP published practice parameters for the assessment and treatment of children and adolescents with ADHD (Pliszka, et al., 2007). Regarding neuropsychological testing, the parameters noted that this testing is not required as part of a routine assessment for ADHD, but may be indicated by the findings of the standard psychological assessment.

American Academy of Neurology (AAN): The AAN published updated guidelines for mild cognitive impairment (MCI) which included the following recommendations (Petersen, et al., 2018):

- For patients for whom screening or assessing for MCI is appropriate, clinicians should use validated assessment tools to assess for cognitive impairment.
- For patients who test positive for MCI, clinicians should perform a more formal clinical assessment for diagnosis of MCI.

Various instruments have acceptable diagnostic accuracy for detecting MCI, with no instrument being superior to another. Because brief cognitive assessment instruments are usually calibrated to maximize sensitivity rather than specificity, patients who test positive for MCI should then have further assessment (e.g., more in-depth cognitive testing, such as neuropsychological testing with interpretation based on appropriate normative data) to formally assess for this diagnosis. Diagnosis of MCI is based ultimately on a clinical evaluation determining cognitive function and functional status and not solely on a specific test score.

In a practice parameter update on the evaluation and management of driving risk in dementia, the AAN states that there is insufficient evidence to recommend neuropsychological testing to predict driving capability among patients with dementia (Iverson, et al., 2010).

American Psychiatric Association: This group published practice guidelines for the treatment of patients with Alzheimer's disease and other dementias (American Psychiatric Association, 2007). The guidelines stated:

- Neuropsychological testing may help in deciding whether a patient with subtle or atypical symptoms actually has dementia, as well as in more thoroughly characterizing an unusual symptom picture.
- Testing may help to characterize the extent of cognitive impairment, to distinguish among the types of dementias, and to establish baseline cognitive function.
- Testing may also help identify strengths and weaknesses that could guide expectations for the patient, direct interventions to improve overall function, assist with communication, and inform capacity determinations.

The guidelines noted that mild cognitive impairment is a term used to represent a variety of mild cognitive syndromes manifested by a modest but detectable decline in cognitive function in the setting of largely intact functional status (American Psychiatric Association, 2007). There are a variety of research definitions for mild cognitive impairment, but there is no consensus on the optimal definition. The most widely accepted definition requires the following:

- subjective cognitive complaints
- evidence of objective deficits in cognitive function based on age- and education-adjusted norms on standardized neuropsychological tests
- intact daily functioning
- evidence of cognitive decline from a prior level
- evidence of not meeting the criteria for dementia

American Psychological Association (APA): This organization published updated guidelines for the evaluation of dementia and age-related cognitive change (APA, 2021). The guidelines include the following regarding neuropsychological testing for this condition:

Psychologists are aware that standardized psychological and neuropsychological tests are important tools in the assessment of dementia and age-related cognitive change. Conducting neuropsychological evaluations requires training and competence in neuropsychology.

U.S. Preventive Services Taskforce (USPSTF): The USPSTF published a statement regarding screening for cognitive impairment in older adults. The statement concluded that the current evidence is insufficient to assess the balance of benefits and harms of screening for cognitive impairment in older adults (USPSTF, 2020).

Medicare Coverage Determinations

	Contractor	Determination Name/Number	Revision Effective Date
NCD	National	No Determination found	
LCD	CGS Administrators, LLC	Outpatient Psychiatry and Psychology Services (L34353)	5/25/2023
LCD	First Coast Service Options, Inc.	Psychological and Neuropsychological Tests (L34520)	7/1/2020
LCD	National Government Services, Inc.	Psychiatry and Psychology Services (L33632)	1/1/2024
LCD	Novitas Solutions, Inc.	Psychiatric Codes (L35101)	1/1/2024
LCD	Wisconsin Physicians Service	Psychological and Neuropsychological Testing (L34646)	9/29/2022

	Contractor	Determination Name/Number	Revision Effective Date
	Insurance Corporation		

Note: Please review the current Medicare Policy for the most up-to-date information.
(NCD = National Coverage Determination; LCD = Local Coverage Determination)

Coding Information

Notes:

1. This list of codes may not be all-inclusive since the American Medical Association (AMA) and Centers for Medicare and Medicaid Services (CMS) code updates may occur more frequently than policy updates.
2. Deleted codes and codes which are not effective at the time the service is rendered may not be eligible for reimbursement.

Considered Medically Necessary when criteria in the applicable policy statements listed above are met:

CPT®* Codes	Description
96116	Neurobehavioral status exam (clinical assessment of thinking, reasoning and judgment, [eg, acquired knowledge, attention, language, memory, planning and problem solving, and visual spatial abilities]), by physician or other qualified health care professional, both face-to-face time with the patient and time interpreting test results and preparing the report; first hour
96121	Neurobehavioral status exam (clinical assessment of thinking, reasoning and judgment, [eg, acquired knowledge, attention, language, memory, planning and problem solving, and visual spatial abilities]), by physician or other qualified health care professional, both face-to-face time with the patient and time interpreting test results and preparing the report; each additional hour (List separately in addition to code for primary procedure)
96132	Neuropsychological testing evaluation services by physician or other qualified health care professional, including integration of patient data, interpretation of standardized test results and clinical data, clinical decision making, treatment planning and report, and interactive feedback to the patient, family member(s) or caregiver(s), when performed; first hour
96133	Neuropsychological testing evaluation services by physician or other qualified health care professional, including integration of patient data, interpretation of standardized test results and clinical data, clinical decision making, treatment planning and report, and interactive feedback to the patient, family member(s) or caregiver(s), when performed; each additional hour (List separately in addition to code for primary procedure)
96136†	Psychological or neuropsychological test administration and scoring by physician or other qualified health care professional, two or more tests, any method; first 30 minutes
96137†	Psychological or neuropsychological test administration and scoring by physician or other qualified health care professional, two or more tests, any method; each additional 30 minutes (List separately in addition to code for primary procedure)
96138†	Psychological or neuropsychological test administration and scoring by technician, two or more tests, any method; first 30 minutes
96139†	Psychological or neuropsychological test administration and scoring by technician, two or more tests, any method; each additional 30 minutes (List separately in addition to code for primary procedure)

†Note: Covered when medically necessary and when used to report neuropsychological test administration and scoring

ICD-10-CM Diagnosis Codes	Description
A17.82	Tuberculosis meningoencephalitis
A17.83	Tuberculosis neuritis
A39.81	Meningococcal encephalitis

ICD-10-CM Diagnosis Codes	Description
A44.0-A44.9	Bartonellosis
A50.42	Late congenital syphilitic encephalitis
A52.14	Late syphilitic encephalitis
A68.0-A68.9	Relapsing fevers
A69.20	Lyme disease, unspecified
A69.21	Meningitis due to Lyme disease
A69.22	Other neurologic disorders in Lyme disease
A75.0-A75.9	Typhus fever
A77.0-A77.9	Spotted fever (tick-borne rickettsioses)
A78	Q fever
A79.0-A79.9	Other rickettsioses
A81.00-A81.9	Atypical virus infections of the central nervous system
A83.0-A83.9	Mosquito-borne viral encephalitis
A84.0-A84.9	Tick-borne viral encephalitis
A85.0-A85.8	Other viral encephalitis, not elsewhere classified
A86	Unspecified viral encephalitis
A88.0	Enteroviral exanthematous fever [Boston exanthem]
A88.8	Other specified viral infections of central nervous system
A89	Unspecified viral infection of central nervous system
A92.31	West Nile virus infection with encephalitis
B00.4	Herpesviral encephalitis
B06.01	Rubella encephalitis
B20	Human immunodeficiency virus [HIV] disease
B26.2	Mumps encephalitis
B50.0-B50.9	Plasmodium falciparum malaria
B51.0-B51.9	Plasmodium vivax malaria
B52.0-B52.9	Plasmodium malariae malaria
B53.0-B53.8	Other specified malaria
B54	Unspecified malaria
B55.0-B55.9	Leishmaniasis
B56.0-B56.9	African trypanosomiasis
B57.0	Acute Chagas' disease with heart involvement
B57.1	Acute Chagas' disease without heart involvement
B57.2	Chagas' disease (chronic) with heart involvement
B57.40-B57.49	Chagas' disease (chronic) with nervous system involvement
B58.2	Toxoplasma meningoencephalitis
B60.00-B60.09	Babesiosis
B60.8	Other specified protozoal diseases
B64	Unspecified protozoal disease
B90.0	Sequelae of central nervous system tuberculosis
B91	Sequelae of poliomyelitis
B94.1	Sequelae of viral encephalitis
C70.0-C70.9	Malignant neoplasm of meninges
C71.0-C71.9	Malignant neoplasm of brain
C72.0-C72.9	Malignant neoplasm of spinal cord, cranial nerves and other parts of central nervous system
C79.31	Secondary malignant neoplasm of brain
C79.32	Secondary malignant neoplasm of cerebral meninges
D33.0-D33.9	Benign neoplasm of brain and other parts of central nervous system
D42.0	Neoplasm of uncertain behavior of cerebral meninges
D43.0-D43.9	Neoplasm of uncertain behavior of brain and central nervous system

ICD-10-CM Diagnosis Codes	Description
D49.6	Neoplasm of unspecified behavior of brain
F01.50-F01.C4	Vascular dementia
F02.80-F02.C4	Dementia in other diseases classified elsewhere
F03.90-F03.C4	Unspecified dementia
F04	Amnestic disorder due to known physiological condition
F05	Delirium due to known physiological condition
F06.0-F06.8	Other mental disorders due to known physiological condition
F07.81	Postconcussional syndrome
F07.89	Other personality and behavioral disorders due to known physiological condition
F07.9	Unspecified personality and behavioral disorder due to known physiological condition
F09	Unspecified mental disorder due to known physiological condition
F10.10-F10.99	Alcohol related disorders
F11.10-F11.99	Opioid related disorders
F12.10-F12.19	Cannabis abuse
F12.20-F12.29	Cannabis dependence
F12.90-F12.99	Cannabis use, unspecified
F13.10-F13.99	Sedative, hypnotic or anxiolytic related disorders
F14.10-F14.99	Cocaine related disorders
F15.10-F15.99	Other stimulant related disorders
F16.10-F16.99	Hallucinogen related disorders
F17.200-F17.299	Nicotine dependence
F18.10-F18.99	Inhalant related disorders
F19.10-F19.99	Other psychoactive substance related disorders
F20.0-F20.9	Schizophrenia
F21	Schizotypal disorder
F22	Delusional disorders
F23	Brief psychotic disorder
F24	Shared psychotic disorder
F25.0-F25.9	Schizoaffective disorders
F28	Other psychotic disorder not due to a substance or known physiological condition
F29	Unspecified psychosis not due to a substance or known physiological condition
F30.10-F30.9	Manic episode
F31.0-F31.9	Bipolar disorder
F32.0-F32.9	Major depressive disorder, single episode
F32.A	Depression, unspecified
F33.0-F33.9	Major depressive disorder, recurrent
F34.0-F34.9	Persistent mood [affective] disorders
F39	Unspecified mood [affective] disorder
F40.00-F40.9	Phobic anxiety disorders
F41.0-F41.9	Other anxiety disorders
F42.2-F42.9	Obsessive-compulsive disorder
F43.0-F43.9	Reaction to severe stress, and adjustment disorders
F44.0	Dissociative amnesia
F44.1	Dissociative fugue
F44.2	Dissociative stupor

ICD-10-CM Diagnosis Codes	Description
F44.4	Conversion disorder with motor symptom or deficit
F44.5	Conversion disorder with seizures or convulsions
F44.6	Conversion disorder with sensory symptom or deficit
F44.7	Conversion disorder with mixed symptom presentation
F44.81	Dissociative identity disorder
F44.89	Dissociative and conversion disorder, unspecified
F45.0	Somatization disorder
F45.1	Undifferentiated somatoform disorder
F45.20	Hypochondriacal disorder, unspecified
F45.21	Hypochondriasis
F45.22	Body dysmorphic disorder
F45.29	Other hypochondriacal disorders
F45.41	Pain disorder exclusively related to psychological factors
F45.42	Pain disorder with related psychological factors
F45.8	Other somatoform disorders
F45.9	Somatoform disorder, unspecified
F48.1	Depersonalization-derealization syndrome
F48.2	Pseudobulbar affect
F48.8	Other specified nonpsychotic mental disorders
F48.9	Nonpsychotic mental disorder, unspecified
F50.00-F50.09	Eating Disorders
F51.01-F51.9	Sleep disorders not due to a substance or known physiological condition
F52.0-F52.9	Sexual dysfunction not due to a substance or known physiological condition
F53.0-F53.1	Mental and behavioral disorders associated with the puerperium, not elsewhere classified
F54	Psychological and behavioral factors associated with disorders or diseases classified elsewhere
F55.0	Abuse of antacids
F55.1	Abuse of herbal or folk remedies
F55.2	Abuse of laxatives
F55.3	Abuse of steroids or hormones
F55.4	Abuse of vitamins
F55.8	Abuse of other non-psychoactive substances
F59	Unspecified behavioral syndromes associated with physiological disturbances and physical factors
F60.0	Paranoid personality disorder
F60.1	Schizoid personality disorder
F60.2	Antisocial personality disorder
F60.3	Borderline personality disorder
F60.4	Histrionic personality disorder
F60.5	Obsessive-compulsive personality disorder
F60.6	Avoidant personality disorder
F60.7	Dependent personality disorder
F60.81	Narcissistic personality disorder
F60.89	Other specific personality disorders
F60.9	Personality disorder, unspecified
F63.0	Pathological gambling
F63.1	Pyromania
F63.2	Kleptomania
F63.3	Trichotillomania
F63.81	Intermittent explosive disorder
F63.89	Other impulse disorders
F63.9	Impulse disorder, unspecified

ICD-10-CM Diagnosis Codes	Description
F64.0-F64.9	Gender identity disorders
F65.0-F66	Paraphilias
F68.10-F68.13	Factitious disorder imposed on self
F68.A	Factitious disorder imposed on another
F68.8	Other specified disorders of adult personality and behavior
F69	Unspecified disorder of adult personality and behavior
F70-F79	Intellectual disabilities
F80.0-F80.9	Specific developmental disorders of speech and language
F81.0-F81.9	Specific developmental disorders of scholastic skills
F82	Specific developmental disorder of motor function
F84.0-F84.9	Pervasive developmental disorders
F88	Other disorders of psychological development
F89	Unspecified disorder of psychological development
F90.0-F90.9	Attention-deficit hyperactivity disorders
F91.0-F91.9	Conduct disorders
F93.0-F93.9	Emotional disorders with onset specific to childhood
F94.0-F94.9	Disorders of social functioning with onset specific to childhood and adolescence
F95.0-F95.9	Tic disorder
F98.0	Enuresis not due to a substance or known physiological condition
F98.1	Encopresis not due to a substance or known physiological condition
F98.21	Rumination disorder of infancy
F98.29	Other feeding disorders of infancy and early childhood
F98.3	Pica of infancy and childhood
F98.4	Stereotyped movement disorders
F98.5	Adult onset fluency disorder
F98.8	Other specified behavioral and emotional disorders with onset usually occurring in childhood and adolescence
F98.9	Unspecified behavioral and emotional disorders with onset usually occurring in childhood and adolescence
F99	Mental disorder, not otherwise specified
G00.0-G09	Bacterial meningitis, not elsewhere classified
G10	Huntington's disease
G13.8	Systemic atrophy primarily affecting central nervous system in other diseases classified elsewhere
G14	Postpolio syndrome
G20	Parkinson's disease (Code deleted 09/30/2024)
G20.A1	Parkinson's disease without dyskinesia, without mention of fluctuations
G20.A2	Parkinson's disease without dyskinesia, with fluctuations
G20.B1	Parkinson's disease with dyskinesia, without mention of fluctuations
G20.B2	Parkinson's disease with dyskinesia, with fluctuations
G20.C	Parkinsonism, unspecified
G21.11	Neuroleptic induced parkinsonism
G21.19	Other drug induced secondary parkinsonism
G21.2	Secondary parkinsonism due to other external agents
G21.3	Postencephalitic parkinsonism
G21.4	Vascular parkinsonism
G21.8	Other secondary parkinsonism
G21.9	Secondary parkinsonism, unspecified
G23.0-G23.9	Other degenerative diseases of basal ganglia
G25.5	Other chorea
G30.0-G30.9	Alzheimer's disease

ICD-10-CM Diagnosis Codes	Description
G31.01-G31.09	Frontotemporal dementia
G31.1	Senile degeneration of brain, not elsewhere classified
G31.2	Degeneration of nervous system due to alcohol
G31.83	Dementia with Lewy bodies
G31.84	Mild cognitive impairment, so stated
G31.85	Corticobasal degeneration
G31.89	Other specified degenerative diseases of nervous system
G31.9	Degenerative disease of nervous system, unspecified
G35	Multiple sclerosis
G36.1	Acute and subacute hemorrhagic leukoencephalitis [Hurst]
G36.8	Other specified acute disseminated demyelination
G36.9	Acute disseminated demyelination, unspecified
G37.0	Diffuse sclerosis of central nervous system
G37.1	Central demyelination of corpus callosum
G37.2	Central pontine myelinolysis
G37.4	Subacute necrotizing myelitis of central nervous system
G37.8	Other specified demyelinating diseases of central nervous system (Code deleted 09/30/2024)
G37.9	Demyelinating disease of central nervous system, unspecified
G40.001-G40.019	Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset
G40.101-G40.119	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures
G40.201-G40.219	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures
G40.301-G40.319	Generalized idiopathic epilepsy and epileptic syndromes
G40.A01-G40.A19	Absence epileptic syndrome
G40.B01-G40.B19	Juvenile myoclonic epilepsy[impulsive petit mal]
G40.401-G40.419	Other generalized epilepsy and epileptic syndromes
G40.501-G40.509	Epileptic seizures related to external causes
G40.801-G40.804	Other epilepsy
G40.811-G40.814	Lennox-Gastaut syndrome
G40.821-G40.824	Epileptic spasms
G40.833-G40.834	Dravet syndrome
G40.841	KCNQ2-related epilepsy, not intractable, with status epilepticus
G40.842	KCNQ2-related epilepsy, not intractable, without status epilepticus
G40.843	KCNQ2-related epilepsy, intractable, with status epilepticus
G40.844	KCNQ2-related epilepsy, intractable, without status epilepticus
G40.89	Other seizures
G40.901-G40.919	Epilepsy, unspecified
G91.0	Communicating hydrocephalus
G91.1	Obstructive hydrocephalus

ICD-10-CM Diagnosis Codes	Description
G91.3	Post-traumatic hydrocephalus, unspecified
G91.4	Hydrocephalus in diseases classified elsewhere
G91.8	Other hydrocephalus
G91.9	Hydrocephalus, unspecified
G92.00	Immune effector cell-associated neurotoxicity syndrome, grade unspecified
G92.01	Immune effector cell-associated neurotoxicity syndrome, grade 1
G92.02	Immune effector cell-associated neurotoxicity syndrome, grade 2
G92.03	Immune effector cell-associated neurotoxicity syndrome, grade 3
G92.04	Immune effector cell-associated neurotoxicity syndrome, grade 4
G92.05	Immune effector cell-associated neurotoxicity syndrome, grade 5
G92.8	Other toxic encephalopathy
G92.9	Unspecified toxic encephalopathy
G93.1	Anoxic brain damage, not elsewhere classified
G93.40	Encephalopathy, unspecified
G93.45	Developmental and epileptic encephalopathy
G93.49	Other encephalopathy
G93.7	Reye's syndrome
G94	Other disorders of brain in diseases classified elsewhere
G96.9	Disorder of central nervous system, unspecified
G97.2	Intracranial hypotension following ventricular shunting
G97.31-G97.32	Intraoperative hemorrhage and hematoma of a nervous system organ or structure complicating a procedure
G97.81	Other intraoperative complications of nervous system
G97.82	Other postprocedural complications and disorders of nervous system
I60.00-I60.9	Nontraumatic subarachnoid hemorrhage
I61.0-I61.9	Nontraumatic intracerebral hemorrhage
I62.00-I62.9	Nontraumatic subdural hemorrhage
I63.00-I63.9	Cerebral infarction
I67.3	Progressive vascular leukoencephalopathy
I69.010-I69.019	Cognitive deficits following nontraumatic subarachnoid hemorrhage
I69.110-I69.119	Cognitive deficits following nontraumatic intracerebral hemorrhage
I69.210-I69.219	Cognitive deficits following other nontraumatic intracranial hemorrhage
I69.310-I69.319	Cognitive deficits following cerebral infarction
I69.810-I69.819	Cognitive deficits following other cerebrovascular disease
I69.910-I69.919	Cognitive deficits following unspecified cerebrovascular disease
I97.810-I97.811	Intraoperative cerebrovascular infarction
I97.820-I97.821	Postprocedural cerebrovascular infarction
Q04.9	Congenital malformation of brain, unspecified
Q06.9	Congenital malformation of spinal cord, unspecified
Q07.9	Congenital malformation of nervous system, unspecified
Q28.2	Arteriovenous malformation of cerebral vessels
Q28.3	Other malformations of cerebral vessels
R09.01	Asphyxia
R09.02	Hypoxemia

ICD-10-CM Diagnosis Codes	Description
R41.1	Anterograde amnesia
R41.2	Retrograde amnesia
R41.3	Other amnesia
R48.0	Dyslexia and alexia
R56.1	Post traumatic seizures
R56.9	Unspecified convulsions
S06.0X0A	Concussion without loss of consciousness, initial encounter
S06.0X0D	Concussion without loss of consciousness, subsequent encounter
S06.0X0S	Concussion without loss of consciousness, sequela
S06.0X1A	Concussion with loss of consciousness of 30 minutes or less, initial encounter
S06.0X1D	Concussion with loss of consciousness of 30 minutes or less, subsequent encounter
S06.0X1S	Concussion with loss of consciousness of 30 minutes or less, sequela
S06.0XAA	Concussion with loss of consciousness status unknown, initial encounter
S06.0XAD	Concussion with loss of consciousness status unknown, subsequent encounter
S06.0XAS	Concussion with loss of consciousness status unknown, sequela
S06.0X9A	Concussion with loss of consciousness of unspecified duration, initial encounter
S06.0X9D	Concussion with loss of consciousness of unspecified duration, subsequent encounter
S06.0X9S	Concussion with loss of consciousness of unspecified duration, sequela
S06.1X0S	Traumatic cerebral edema without loss of consciousness, sequela
S06.1X1S	Traumatic cerebral edema with loss of consciousness of 30 minutes or less, sequela
S06.1X2S	Traumatic cerebral edema with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.1X3S	Traumatic cerebral edema with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.1X4S	Traumatic cerebral edema with loss of consciousness of 6 hours to 24 hours, sequela
S06.1X5S	Traumatic cerebral edema with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.1X6S	Traumatic cerebral edema with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.1XAS	Traumatic cerebral edema with loss of consciousness status unknown, sequela
S06.1X9S	Traumatic cerebral edema with loss of consciousness of unspecified duration, sequela
S06.2X0S	Diffuse traumatic brain injury without loss of consciousness, sequela
S06.2X1S	Diffuse traumatic brain injury with loss of consciousness of 30 minutes or less, sequela
S06.2X2S	Diffuse traumatic brain injury with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.2X3S	Diffuse traumatic brain injury with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.2X4S	Diffuse traumatic brain injury with loss of consciousness of 6 hours to 24 hours, sequela
S06.2X5S	Diffuse traumatic brain injury with loss of consciousness greater than 24 hours with return to pre-existing conscious levels, sequela
S06.2X6S	Diffuse traumatic brain injury with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.2XAS	Diffuse traumatic brain injury with loss of consciousness status unknown, sequela
S06.2X9S	Diffuse traumatic brain injury with loss of consciousness of unspecified duration, sequela
S06.300S	Unspecified focal traumatic brain injury without loss of consciousness, sequela
S06.301S	Unspecified focal traumatic brain injury with loss of consciousness of 30 minutes or less, sequela
S06.302S	Unspecified focal traumatic brain injury with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.303S	Unspecified focal traumatic brain injury with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.304S	Unspecified focal traumatic brain injury with loss of consciousness of 6 hours to 24 hours, sequela

ICD-10-CM Diagnosis Codes	Description
S06.305S	Unspecified focal traumatic brain injury with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.306S	Unspecified focal traumatic brain injury with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.30AS	Unspecified focal traumatic brain injury with loss of consciousness status unknown, sequela
S06.309S	Unspecified focal traumatic brain injury with loss of consciousness of unspecified duration, sequela
S06.310S	Contusion and laceration of right cerebrum without loss of consciousness, sequela
S06.311S	Contusion and laceration of right cerebrum with loss of consciousness of 30 minutes or less, sequela
S06.312S	Contusion and laceration of right cerebrum with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.313S	Contusion and laceration of right cerebrum with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.314S	Contusion and laceration of right cerebrum with loss of consciousness of 6 hours to 24 hours, sequela
S06.315S	Contusion and laceration of right cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.316S	Contusion and laceration of right cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.31AS	Contusion and laceration of right cerebrum with loss of consciousness status unknown, sequela
S06.319S	Contusion and laceration of right cerebrum with loss of consciousness of unspecified duration, sequela
S06.320S	Contusion and laceration of left cerebrum without loss of consciousness, sequela
S06.321S	Contusion and laceration of left cerebrum with loss of consciousness of 30 minutes or less, sequela
S06.322S	Contusion and laceration of left cerebrum with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.323S	Contusion and laceration of left cerebrum with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.324S	Contusion and laceration of left cerebrum with loss of consciousness of 6 hours to 24 hours, sequela
S06.325S	Contusion and laceration of left cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.326S	Contusion and laceration of left cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.32AS	Contusion and laceration of left cerebrum with loss of consciousness status unknown, sequela
S06.329S	Contusion and laceration of left cerebrum with loss of consciousness of unspecified duration, sequel
S06.330S	Contusion and laceration of cerebrum, unspecified, without loss of consciousness, sequela
S06.331S	Contusion and laceration of cerebrum unspecified with loss of consciousness of 30 minutes or less, sequela
S06.332S	Contusion and laceration of cerebrum unspecified with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.333S	Contusion and laceration of cerebrum unspecified with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.334S	Contusion and laceration of cerebrum unspecified with loss of consciousness of 6 hours to 24 hours, sequela
S06.335S	Contusion and laceration of cerebrum unspecified with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela

ICD-10-CM Diagnosis Codes	Description
S06.336S	Contusion and laceration of cerebrum, unspecified, with loss of consciousness greater than 24 hours without return to pre-existing consciousness level with patient surviving, sequela
S06.33AS	Contusion and laceration of cerebrum, unspecified, with loss of consciousness status unknown, sequela
S06.339S	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of unspecified duration, sequela
S06.340S	Traumatic hemorrhage of right cerebrum without loss of consciousness, sequela
S06.341S	Traumatic hemorrhage of right cerebrum with loss of consciousness of 30 minutes or less, sequela
S06.342S	Traumatic hemorrhage of right cerebrum with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.343S	Traumatic hemorrhage of right cerebrum with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.344S	Traumatic hemorrhage of right cerebrum with loss of consciousness of 6 hours to 24 hours, sequela
S06.345S	Traumatic hemorrhage of right cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.346S	Traumatic hemorrhage of right cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.34AS	Traumatic hemorrhage of right cerebrum with loss of consciousness status unknown, sequela
S06.349S	Traumatic hemorrhage of right cerebrum with loss of consciousness of unspecified duration, sequela
S06.350S	Traumatic hemorrhage of left cerebrum without loss of consciousness, sequela
S06.351S	Traumatic hemorrhage of left cerebrum with loss of consciousness of 30 minutes or less, sequela
S06.352S	Traumatic hemorrhage of left cerebrum with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.353S	Traumatic hemorrhage of left cerebrum with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.354S	Traumatic hemorrhage of left cerebrum with loss of consciousness of 6 hours to 24 hours, sequela
S06.355S	Traumatic hemorrhage of left cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.356S	Traumatic hemorrhage of left cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.35AS	Traumatic hemorrhage of left cerebrum with loss of consciousness status unknown, sequela
S06.359S	Traumatic hemorrhage of left cerebrum with loss of consciousness of unspecified duration, sequela
S06.360S	Traumatic hemorrhage of cerebrum, unspecified, without loss of consciousness, sequela
S06.361S	Traumatic hemorrhage of cerebrum, unspecified with loss of consciousness of 30 minutes or less, sequela
S06.362S	Traumatic hemorrhage of cerebrum, unspecified with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.363S	Traumatic hemorrhage of cerebrum, unspecified with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.364S	Traumatic hemorrhage of cerebrum, unspecified with loss of consciousness of 6 hours to 24 hours, sequela
S06.365S	Traumatic hemorrhage of cerebrum, unspecified with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.366S	Traumatic hemorrhage of cerebrum, unspecified with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela

ICD-10-CM Diagnosis Codes	Description
S06.36AS	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness status unknown, sequela
S06.369S	Traumatic hemorrhage of cerebrum, unspecified with loss of consciousness of unspecified duration, sequela
S06.370S	Contusion, laceration, and hemorrhage of cerebellum without loss of consciousness, sequela
S06.371S	Contusion, laceration and hemorrhage of cerebellum with loss of consciousness of 30 minutes or less, sequela
S06.372S	Contusion, laceration and hemorrhage of cerebellum with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.373S	Contusion, laceration and hemorrhage of cerebellum with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.374S	Contusion, laceration and hemorrhage of cerebellum with loss of consciousness of 6 hours to 24 hours, sequela
S06.375S	Contusion, laceration and hemorrhage of cerebellum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.376S	Contusion, laceration and hemorrhage of cerebellum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.37AS	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness status unknown, sequela
S06.379S	Contusion, laceration and hemorrhage of cerebellum with loss of consciousness of unspecified duration, sequela
S06.380S	Contusion, laceration, and hemorrhage of brainstem without loss of consciousness, sequela
S06.381S	Contusion, laceration and hemorrhage of brainstem with loss of consciousness of 30 minutes or less, sequela
S06.382S	Contusion, laceration and hemorrhage of brainstem with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.383S	Contusion, laceration and hemorrhage of brainstem with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.384S	Contusion, laceration and hemorrhage of brainstem with loss of consciousness of 6 hours to 24 hours, sequela
S06.385S	Contusion, laceration and hemorrhage of brainstem with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.386S	Contusion, laceration and hemorrhage of brainstem with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.38AS	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness status unknown, sequela
S06.389S	Contusion, laceration and hemorrhage of brainstem with loss of consciousness of unspecified duration, sequela
S06.4X0S	Epidural hemorrhage without loss of consciousness, sequela
S06.4X1S	Epidural hemorrhage with loss of consciousness of 30 minutes or less, sequela
S06.4X2S	Epidural hemorrhage with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.4X3S	Epidural hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.4X4S	Epidural hemorrhage with loss of consciousness of 6 hours to 24 hours, sequela
S06.4X5S	Epidural hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.4X6S	Epidural hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.4XAS	Epidural hemorrhage with loss of consciousness status unknown, sequela
S06.4X9S	Epidural hemorrhage with loss of consciousness of unspecified duration, sequela
S06.5X0S	Traumatic subdural hemorrhage without loss of consciousness, sequela
S06.5X1S	Traumatic subdural hemorrhage with loss of consciousness of 30 minutes or less, sequela
S06.5X2S	Traumatic subdural hemorrhage with loss of consciousness of 31 minutes to 59 minutes, sequela

ICD-10-CM Diagnosis Codes	Description
S06.5X3S	Traumatic subdural hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.5X4S	Traumatic subdural hemorrhage with loss of consciousness of 6 hours to 24 hours, sequela
S06.5X5S	Traumatic subdural hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.5X6S	Traumatic subdural hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.5XAS	Traumatic subdural hemorrhage with loss of consciousness status unknown, sequela
S06.5X9S	Traumatic subdural hemorrhage with loss of consciousness of unspecified duration, sequela
S06.6X0S	Traumatic subarachnoid hemorrhage without loss of consciousness, sequela
S06.6X1S	Traumatic subarachnoid hemorrhage with loss of consciousness of 30 minutes or less, sequela
S06.6X2S	Traumatic subarachnoid hemorrhage with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.6X3S	Traumatic subarachnoid hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.6X4S	Traumatic subarachnoid hemorrhage with loss of consciousness of 6 hours to 24 hours, sequela
S06.6X5S	Traumatic subarachnoid hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.6X6S	Traumatic subarachnoid hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.6XAS	Traumatic subarachnoid hemorrhage with loss of consciousness status unknown, sequela
S06.6X9S	Traumatic subarachnoid hemorrhage with loss of consciousness of unspecified duration, sequela
S06.810S	Injury of right internal carotid artery, intracranial portion, not elsewhere classified without loss of consciousness, sequela
S06.811S	Injury of right internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness of 30 minutes or less, sequela
S06.812S	Injury of right internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.813S	Injury of right internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.814S	Injury of right internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness of 6 hours to 24 hours, sequela
S06.815S	Injury of right internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.816S	Injury of right internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.81AS	Injury of right internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness status unknown, sequela
S06.819S	Injury of right internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness of unspecified duration, sequela
S06.820S	Injury of left internal carotid artery, intracranial portion, not elsewhere classified without loss of consciousness, sequela
S06.821S	Injury of left internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness of 30 minutes or less, sequela
S06.822S	Injury of left internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.823S	Injury of left internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela

ICD-10-CM Diagnosis Codes	Description
S06.824S	Injury of left internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness of 6 hours to 24 hours, sequela
S06.825S	Injury of left internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.826S	Injury of left internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.82AS	Injury of left internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness status unknown, sequela
S06.829S	Injury of left internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness of unspecified duration, sequela
S06.8A0S	Primary blast injury of brain, not elsewhere classified without loss of consciousness, sequela
S06.8A1S	Primary blast injury of brain, not elsewhere classified with loss of consciousness of 30 minutes or less, sequela
S06.8A2S	Primary blast injury of brain, not elsewhere classified with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.8A3S	Primary blast injury of brain, not elsewhere classified with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.8A4S	Primary blast injury of brain, not elsewhere classified with loss of consciousness of 6 hours to 24 hours, sequela
S06.8A5S	Primary blast injury of brain, not elsewhere classified with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.8A6S	Primary blast injury of brain, not elsewhere classified with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.8AAS	Primary blast injury of brain, not elsewhere classified with loss of consciousness status unknown, sequela
S06.8A9S	Primary blast injury of brain, not elsewhere classified with loss of consciousness of unspecified duration, sequela
S06.890S	Other specified intracranial injury without loss of consciousness, sequela
S06.891S	Other specified intracranial injury with loss of consciousness of 30 minutes or less, sequela
S06.892S	Other specified intracranial injury with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.893S	Other specified intracranial injury with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.894S	Other specified intracranial injury with loss of consciousness of 6 hours to 24 hours, sequela
S06.895S	Other specified intracranial injury with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.896S	Other specified intracranial injury with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.89AS	Other specified intracranial injury with loss of consciousness status unknown, sequela
S06.899S	Other specified intracranial injury with loss of consciousness of unspecified duration, sequela
S06.9X0S	Unspecified intracranial injury without loss of consciousness, sequela
S06.9X1S	Unspecified intracranial injury with loss of consciousness of 30 minutes or less, sequela
S06.9X2S	Unspecified intracranial injury with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.9X3S	Unspecified intracranial injury with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.9X4S	Unspecified intracranial injury with loss of consciousness of 6 hours to 24 hours, sequela
S06.9X5S	Unspecified intracranial injury with loss of consciousness greater than 24 hours with return to pre-existing consciousness level, sequela
S06.9X6S	Unspecified intracranial injury with loss of consciousness greater than 24 hours without return to pre-existing consciousness level with patient surviving, sequela
S06.9XAS	Unspecified intracranial injury with loss of consciousness status unknown, sequela

ICD-10-CM Diagnosis Codes	Description
S06.9X9S	Unspecified intracranial injury with loss of consciousness of unspecified duration, sequela
S06.A0XS	Traumatic brain compression without herniation, sequela
S06.A1XS	Traumatic brain compression with herniation, sequela
T66.XXXS	Radiation sickness, unspecified, sequela

Not Covered or Reimbursable:

ICD-10-CM Diagnosis Codes	Description
	All other codes

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Revision Details

Type of Revision	Summary of Changes	Date
Focused review	• No clinical policy statement changes.	11/10/2024
Annual review	• No clinical policy statement changes.	5/15/2024
Focused review	• Revised policy statement for noncovered testing.	11/12/2023