

MEDICAL POLICY

MEDICAL POLICY DETAILS	
Medical Policy Title	Cognitive Rehabilitation
Policy Number	8.01.19
Category	Therapy/Rehabilitation
Original Effective Date	03/28/02
Committee Approval Date	08/28/03, 08/26/04, 08/25/05, 08/31/06, 08/23/07, 08/28/08, 08/27/09, 08/26/10, 08/25/11, 08/23/12, 08/22/13, 08/28/14, 08/27/15, 08/25/16, 08/25/17, 06/28/18, 06/27/19, 08/27/20, 08/19/21, 10/20/22
Current Effective Date	02/15/23
Archived Date	N/A
Archive Review Date	N/A
Product Disclaimer	<ul style="list-style-type: none"> • <i>If a product excludes coverage for a service, it is not covered, and medical policy criteria do not apply.</i> • <i>If a commercial product (including an Essential Plan or Child Health Plus product), medical policy criteria apply to the benefit.</i> • <i>If a Medicaid product covers a specific service, and there are no New York State Medicaid guidelines (eMedNY) criteria, medical policy criteria apply to the benefit.</i> • <i>If a Medicare product (including Medicare HMO-Dual Special Needs Program (DSNP) product) covers a specific service, and there is no national or local Medicare coverage decision for the service, medical policy criteria apply to the benefit.</i> • <i>If a Medicare HMO-Dual Special Needs Program (DSNP) product DOES NOT cover a specific service, please refer to the Medicaid Product coverage line.</i>

POLICY STATEMENT

- I. Based upon our criteria and assessment of the peer-reviewed literature, cognitive rehabilitation as part of a comprehensive physical, occupational, and/or speech rehabilitation/therapy program for patients who have suffered a traumatic brain injury (TBI) has been medically proven to be effective and, therefore, is considered **medically appropriate**. *Refer to the policy guidelines section for benefit application.*
- II. Based upon our criteria and the lack of peer-reviewed literature, cognitive rehabilitation has not been medically proven to be effective and, therefore, is considered **investigational**:
 - A. when rendered as a stand-alone program following TBI; or
 - B. when rendered as a stand-alone program or as part of a comprehensive physical, occupational and/or speech rehabilitation/therapy program for all other indications; or
 - C. patients with post-acute cognitive sequelae of SARS-CoV-2 infection.
- III. Based upon our criteria and assessment of the peer-reviewed literature, sensory integration therapy (SIT) has not been proven to be effective and, therefore, is considered **not medically necessary**.
- IV. Based upon our criteria and assessment of the peer-reviewed literature, coma stimulation (also known as coma arousal therapy or sensory stimulation) has not been medically proven to be effective and, therefore, is considered **investigational** for all indications, including coma and persistent vegetative state.

Refer to Corporate Medical Policy #8.01.12 Physical Therapy (PT).

Refer to Corporate Medical Policy #8.01.13 Speech/Language Pathology and Therapy.

Medical Policy: COGNITIVE REHABILITATION

Policy Number: 8.01.19

Page: 2 of 7

Refer to Corporate Medical Policy #8.01.17 Occupational Therapy (OT).

Refer to Corporate Medical Policy #11.01.03 Experimental and Investigational Services.

POLICY GUIDELINES

- I. When cognitive rehabilitation is performed by a physical, occupational, or speech therapist as part of a comprehensive physical, occupational, and/or speech rehabilitation/therapy program for patients who have suffered a TBI, services are counted toward the appropriate therapy visit limit in the member's subscriber contract.
- II. The use of computerized cognitive rehabilitation programs/apps (e.g., RehaCom, Cogmed, Lumosity) for patients who have suffered a TBI should only be included as part of a comprehensive therapy program.
- III. When cognitive rehabilitation services are necessary in order for a patient to return to work, coverage is provided under the New York State Vocational and Educational Services for Individuals with Disabilities (VESID) Program.

DESCRIPTION

TBI in this policy refers to a form of acquired brain injury, that occurs when a sudden trauma causes damage to the brain (National Institute of Neurological disorders and stroke, 2022).

The terms cognitive rehabilitation, cognitive therapy, and cognitive remediation have been used interchangeably throughout the literature to describe a therapeutic approach aimed at treating cognitive impairments after central nervous system insult, to improve cognitive functioning. Impairments include, but are not limited to: disorientation, limited attention span, memory impairment, decreased capacity for learning, disorganization of verbal and non-verbal activity, incompleteness of thought and action, inability to problem-solve and adapt behavioral responses, and reduced initiation. These impairments alter the way in which a person experiences, responds to, and interfaces with the elements of everyday living.

Cognitive rehabilitation should not be confused with cognitive behavior therapy, which is a form of psychotherapy that aims to target thought patterns in mood and behavior. Cognitive rehabilitation includes therapy methods that retrain or alleviate cognitive impairments and consists of tasks designed to reinforce or re-establish previously learned patterns of behavior or to establish new compensatory mechanisms for impaired neurological systems. Cognitive rehabilitation may be performed by a physician, a psychologist, or a physical, occupational, or speech therapist.

The two most common approaches to cognitive rehabilitation, usually performed in conjunction with each other, are as follows:

- I. *Remedial, or restorative, approach*, which focuses on attempting to restore core areas of cognitive dysfunction by systematic training (e.g., paper and pencil exercises, table top tasks, use of computer software) and is based upon the theory that repetitive exercise can restore lost function; and
- II. *Compensatory, or adaptive, approach*, which is geared toward facilitation of activities of everyday living by developing internal substitutes and/or external prosthetic assistance for dysfunctions.

Cognitive rehabilitation is distinguished from occupational therapy in that cognitive rehabilitation consists of tasks designed to develop memory, language, and reasoning skills that can be applied to specific environments (e.g., home, work) and can be performed by a physician, psychologist, speech therapist, occupational therapist, or physical therapist. In contrast, occupational therapy is rehabilitation performed by an occupational therapist to improve function in activities of daily living (ADLs).

SIT is a component of cognitive rehabilitation that has been investigated as a treatment for autism, mental retardation or learning disabilities. SIT is aimed at improving the way that the brain processes and organizes sensations, as opposed to teaching higher-order skills.

Coma (or sensory) stimulation is intended to promote awakening and enhance the rehabilitative potential of coma patients. Protocols may involve stimulation of any or all of the following senses: visual, auditory, olfactory, gustatory, cutaneous, and kinesthetic. Various stimuli may be used for each sense. Protocols may differ with respect to who performs the stimulation and where. Professionals include nurses, occupational therapists, physical therapists, and speech therapists. In

Medical Policy: COGNITIVE REHABILITATION

Policy Number: 8.01.19

Page: 3 of 7

some cases, family members may be trained in the techniques of coma stimulation and are given primary responsibility for providing the therapy. Treatment may be delivered in the hospital, the patient's home, or a nursing home.

RATIONALE

Stroke is the second leading cause of death worldwide, and 53.4% of stroke survivors suffer from post-stroke cognitive impairment (Zhao et al., 2021). Post-stroke cognitive impairment can increase hospitalization rate and cost of care and decrease the quality of life of stroke patients. To date, multiple cognitive rehabilitation interventions have been tested in stroke populations with post-stroke cognitive impairment. However, the most effective intervention has not been established. Stroke Recovery and Rehabilitation Roundtable (SRRR I) stated there is currently insufficient evidence to build consensus to specific approaches to cognitive rehabilitation leading to a cognition working group being convened as part of the SRRR II. The Veterans Administration (VA)/Department of Defense (DoD) Clinical Practice Guideline for The Management of Stroke Rehabilitation (2019) states there was insufficient evidence to recommend for or against the use of any specific cognitive rehabilitation methodology or pharmacotherapy to improve cognitive outcomes.

Recent peer-reviewed literature demonstrates that there is some indication that training improves alertness and sustained attention, but there is no evidence to support or refute cognitive rehabilitation to improve functional independence on attention deficits following CVA, and there is insufficient evidence to support or refute the effectiveness of cognitive rehabilitation on memory deficits following CVA. Literature demonstrates that there is some evidence of improved performance on some impairment level tests, but the effect on disability for patients with spatial neglect is unclear. Data is inconclusive and provide no evidence for or against cognitive rehabilitation for schizophrenia. Although studies are relatively limited, available literature supports the use of certain cognitive and behavioral rehabilitation strategies for individuals with traumatic brain injury.

Regan et al. (2017) reported on a randomized, controlled trial of a home-based, four-session, goal-oriented, cognitive rehabilitation program versus usual care in 55 patients with mild cognitive impairment and early Alzheimer's disease (AD). Patients were community-dwelling, with a diagnosis of mild cognitive impairment or AD within six months of enrollment and an MMSE score greater than 20. The intervention group received four weekly, one-hour therapy sessions, delivered by experienced therapists, with a focus on addressing personally meaningful goals. All participants identified at least one goal for improvement. The usual care group had no contact with the research team between their initial and final assessments. The primary outcome measures were goal performance and satisfaction scores on the Canadian Occupational Performance Measure. A total of 12 participants in the intervention group and three participants in the control group discontinued study participation and were excluded from the final, per-protocol analysis. For the first identified goal, the intervention group had significantly greater improvements in performance and satisfaction on the Canadian Occupational Performance Measure than the control group. There were no differences in secondary measures of QOL or anxiety and depression. The per-protocol results were biased due to the high rate of missing data.

In 2011, the Institute of Medicine published a report addressing cognitive rehabilitation therapy (CRT) for traumatic brain injury. The report concluded that the current evidence provided limited support for the efficacy of CRT interventions. The report stated the evidence varies in both the quality and volume of studies and, therefore, is not yet sufficient to develop definitive guidelines for health professionals on how to apply CRT in practice. The report noted that standardization of clinical variables, intervention components, and outcome measures was necessary in order to improve the evidence base for this treatment. They also recommended that future studies be conducted with larger sample sizes and include a more comprehensive set of clinical variables and outcome measures. However, despite the methodological shortcomings of the evidence, the committee supported the ongoing use of CRT for individuals suffering from a traumatic brain injury while improvements are made in the standardization, design, and conduct of studies.

Medical Policy: COGNITIVE REHABILITATION

Policy Number: 8.01.19

Page: 4 of 7

SIT can be viewed as a component of cognitive rehabilitation. However, there is not enough evidence to permit conclusions regarding the effectiveness of SIT or whether SIT improves the net health outcomes in autistic or mentally retarded children. Only one study of the use of SIT in autistic children and three studies of the use of SIT in mentally retarded children have been published; the validity of all four studies is questionable. The evidence indicates that SIT does not improve the net health outcomes in learning-disabled children when compared to alternative treatments or no treatment at all.

There is insufficient evidence in the published medical literature to demonstrate that sensory stimulation improves the clinical outcome of patients in a coma or persistent vegetative state. In a 2002 Cochrane systematic review, Lombardi et al. assessed the effectiveness of sensory stimulation programs in patients in a coma or vegetative state. The overall methodological quality was deemed poor, and studies varied widely in terms of outcome measures, study design, and procedure. None of the three studies provided useful and valid results on outcomes of clinical relevance for coma patients. The researchers concluded that there was no reliable evidence that supports or rules out the effectiveness of multisensory programs in patients in a coma or vegetative state. They recommended that treatment interventions based on sensory stimulation be provided only in the context of well-designed and adequately sized randomized, controlled trials.

The coronavirus disease 2019 (COVID-19) pandemic caused by the SARS-Cov2 virus has affected millions of people and contribute to millions of death worldwide as of October 2022 (WHO Coronavirus Dashboard 2022). A considerable proportion of individuals report persistent, debilitating and unresolved symptoms resolution of acute COVID-19 infection. Most people with COVID-19 get better within a few days to a few weeks after infection, so at least four weeks after infection is the start of when post-COVID conditions could first be identified. This continuation of unresolved symptom is known as post-acute sequelae of SARS-CoV-2, also known as long covid. According to the Center for Disease Control and Prevention (CDC, 2021) long covid conditions are a wide range of new, returning, or ongoing health problems that people experience after first being infected with the virus that causes COVID-19 and their symptoms can last more than four weeks or even months to years after infection.

The diverse clinical spectrum of long COVID includes respiratory (e.g., dyspnea and cough), physical (e.g., myalgia and arthralgia), neurocognitive (e.g., cognitive impairment, brain fog, fatigue, and anosmia) and affective (e.g., depression) symptoms. Studies in France and the United States reveal that a third of patients hospitalized with COVID-19 have experienced memory loss and other cognitive difficulties in the months after their recovery. There are no specific brain treatments for covid-19 neurological effects. For individuals who have cognitive deficits due to post-acute sequelae of SARS-CoV-2 infection who receive cognitive rehabilitation delivered by a qualified professional, no relevant evidence was identified. Relevant outcomes are functional outcomes and quality of life. Systematic reviews have reported on the prevalence and duration of cognitive symptoms among patients with varying acute infection severity and treatment settings. There are limited reports examining the outcomes of rehabilitation in patients with long covid. Studies have primarily focused on physical and respiratory rehabilitation. Additionally, the natural history of cognitive deficits experienced by patients who have recovered from acute COVID-19 requires further elucidation. The evidence is insufficient to determine that the cognitive rehabilitation results in an improvement in the net health outcome.

CODES

- *Eligibility for reimbursement is based upon the benefits set forth in the member's subscriber contract.*
- ***CODES MAY NOT BE COVERED UNDER ALL CIRCUMSTANCES. PLEASE READ THE POLICY AND GUIDELINES STATEMENTS CAREFULLY.***
- *Codes may not be all inclusive as the AMA and CMS code updates may occur more frequently than policy updates.*

CPT Codes

Code	Description
96125	Standard cognitive performance testing (e.g., Ross Information Processing Assessment) per hour of a qualified health professional's time, both face-to-face time administering the tests to the patient and time interpreting these test results and preparing the report

Medical Policy: COGNITIVE REHABILITATION**Policy Number: 8.01.19****Page: 5 of 7**

Code	Description
97129	Therapeutic interventions that focus on cognitive function (e.g., attention, memory, reasoning, executive function, problem solving, and/or pragmatic functioning) and compensatory strategies to manage the performance of an activity (e.g., managing time or schedules, initiating, organizing and sequencing tasks), direct (one-on-one) patient contact; initial 15 minutes
97130	Each additional 15 minutes (List separately in addition to code for primary procedure)
97533 (NMN)	Sensory integrative techniques to enhance sensory processing and promote adaptive responses to environmental demands, direct (one-on-one) patient contact, each 15 minutes

*Copyright © 2022 American Medical Association, Chicago, IL***HCPCS Codes**

Code	Description
S9056 (E/I)	Coma stimulation per diem

ICD10 Codes

Code	Description
Various	

REFERENCES

- *Bowen A, et al. Cognitive rehabilitation for spatial neglect following stroke. Cochrane Database Syst Rev 2013 Jul 1;7:CD003586.
- Brissart, et al. Memory improvement in multiple sclerosis after an extensive cognitive rehabilitation program in groups with a multicenter double-blind randomized trial. Clinical Rehabilitation 2020;34(6):754-763.
- *Cappa SF, et al. EFNS guidelines on cognitive rehabilitation: report of an EFNS task force. Eur J Neurol 2003 Jan;10(1):11-23.
- Cevik K and Namik E. Effect of auditory stimulation on the level of consciousness in comatose patients admitted to the intensive care unit: a randomized controlled trial. J Neurosci Nurs 2018 Dec;50(6):375-380.
- Cheng L, et al. Do sensory stimulation programs have an impact on consciousness recovery? Front Neurol 2018 Oct 2;9:826.
- *Cicerone KD, et al. Community integration and satisfaction with functioning after intensive cognitive rehabilitation for traumatic brain injury. Arch Phys Med Rehabil 2004 Jun;85(6):943-50.
- Cicerone KD, et al. Evidence based cognitive rehabilitation: systematic review of the literature from 2009 through 2014. Archives of Physical Medicine and Rehabilitation 2019 Aug;100(8):1515-1533.
- *Clare L, et al. Cognitive rehabilitation and cognitive training for early stage Alzheimer’s disease and vascular dementia (Cochrane review). In: The Cochrane Library, Issue 4, 2008. Oxford: Update software.
- *Das Nair R, et al. Cognitive rehabilitation for memory deficits following stroke. Cochrane Database Syst Rev 2016 Sep 1;9:CD002293.
- De Luca R, et al. Improving cognitive function in patients with stroke: can computerized training be the future? J Stroke Cerebrovasc Dis 2018 Apr;27(4):1055-1060.

Medical Policy: COGNITIVE REHABILITATION

Policy Number: 8.01.19

Page: 6 of 7

Del Brutto OH et al. Cognitive sequelae of long covid may not be a permanent: a prospective study. European Journal of Neurology 2022 Apr; 29(4) 1218-1221.

Díez-Cirarda M, et al. Neurorehabilitation in parkinson's disease: a critical review of cognitive rehabilitation effects on cognition and brain. Neural Plast 2018 May 6;2018:2651918.

Goverover Y, et al. Evidenced-based cognitive rehabilitation for persons with multiple sclerosis: an updated review of the literature from 2007 to 2016. Arch Phys Med Rehabil 2018 Feb;99(2):390-407.

Graham EL, et al. Persistent neurologic symptoms and cognitive dysfunction in non-hospitalized covid-19 “long haulers”. Annals of Clinical and Translational Neurology 2021 May;8(5):1073-1085.

Lincoln NB, et al. Cognitive rehabilitation for attention and memory in people with multiple sclerosis: a randomized controlled trial (CRAMMS) 2020; 24(2): 229-241.

*Lincoln NB, et al. Cognitive rehabilitation for attention deficits following stroke (Cochrane review). In: The Cochrane Library, Issue 4 2008. Oxford: Update software.

*Lombardi F, et al. Sensory stimulation for brain injured individuals in coma or vegetative state. Cochrane Database Syst Rev 2002;(2):CD001427.

McDonald MW, et al. Cognition in stroke rehabilitation and recovery research: consensus-based core recommendations from the second stroke recovery and rehabilitation roundtable. Neurorehabilitation and Neural Repair 2019 Vol.33 (11) 943-950.

Mhizha-Murira JR, et al. Reporting interventions in trials evaluating cognitive rehabilitation in people with multiple sclerosis: a systematic review. Clin Rehabil 2018 Feb;32(2):243-254.

*National Academy of Neuropsychology. Cognitive rehabilitation. 2002 May. [http://www.nanonline.org/NAN/Files/PAIC/PDFs/NANPositionCogRehab.pdf] accessed 8/6/22.

National Institute of Neurological Disorders and Stroke: Traumatic Brian Injury. <https://www.ninds.nih.gov/health-information/disorders/traumatic-brain-injury> accessed 10-19-22.

Niemeijer, et al. The effects of computer based cognitive rehabilitation in stroke patients with working memory impairment: A systematic review. Journal of Stroke and Cerebrovascular Diseases 2020 Dec;29(12):1-12.

*Smith, et al. A cognitive training program based on principles of brain plasticity: Results from the improvement in memory with plasticity-based adaptive cognitive training (IMPACT) study. J Am Geriatr Soc 2009 Apr;57(4):594-603.

Wilson PH et al. Home-based (virtual) rehabilitation improves motor and cognitive function for stroke patients: a randomized controlled trial of the elements (EDNA-22) system. Journal of NeuroEngineering and Rehabilitation 2021 Nov;18(1)165-179.

VA/DoD Clinical Practice Guideline For The Management Of Stroke Rehabilitation <https://www.healthquality.va.gov/guidelines/Rehab/stroke/VADoDStrokeRehabCPGFinal8292019.pdf> accessed 8/6/22.

*Key Article

KEY WORDS

Attention rehabilitation, cognitive rehabilitation, computerized cognitive rehabilitation, cognitive remediation, sensory integration therapy, coma stimulation, sensory stimulation for coma patients

CMS COVERAGE FOR MEDICARE PRODUCT MEMBERS

There is currently a Local Coverage Determination addressing Outpatient Physical and Occupational Therapy Services that includes Cognitive rehabilitation and Sensory Integration Therapy. Please refer to the following website for Medicare Members: [https://www.cms.gov/medicare-coverage-database/details/lcd-details.aspx?LCDId=33631&ver=51&SearchType=Advanced&CoverageSelection=Both&NCSelection=NCA%7cCAL%](https://www.cms.gov/medicare-coverage-database/details/lcd-details.aspx?LCDId=33631&ver=51&SearchType=Advanced&CoverageSelection=Both&NCSelection=NCA%7cCAL%7c)

Medical Policy: COGNITIVE REHABILITATION

Policy Number: 8.01.19

Page: 7 of 7

[7cNCD%7cMEDCAC%7cTA%7cMCD&ArticleType=SAD%7cEd&PolicyType=Both&s=41&KeyWord=sensory+integration&KeyWordLookUp=Doc&KeyWordSearchType=Exact&kq=true&bc=IAAAACAAGAAA&](#)