Cognitive Rehabilitation and Coma Stimulation

Policy Number: 2026T0144II
Effective Date: July 1, 2026

➲ Instructions for Use

Table of Contents **Page**

Application 1
Coverage Rationale 1
Definitions 1
Applicable Codes 2
Description of Services 2
Clinical Evidence 2
U.S. Food and Drug Administration 7
References 7
Policy History/Revision Information 8
Instructions for Use 8

Related Commercial/Individual Exchange Policies

- Habilitation and Rehabilitation Therapy (Occupational, Physical, and Speech)
- Sensory Integration Therapy and Auditory Integration Training

Community Plan Policy

- Cognitive Rehabilitation and Coma Stimulation

Medicare Advantage Policy

- Skilled Nursing Facility, Rehabilitation, Long-Term Acute Care Hospital, and Private Duty Nursing

Application

UnitedHealthcare Commercial

This Medical Policy applies to UnitedHealthcare Commercial benefit plans, except Oxford benefit plans.

UnitedHealthcare Individual Exchange

This Medical Policy applies to Individual Exchange benefit plans.

Coverage Rationale

Note: This policy applies to outpatient Cognitive Rehabilitation services only. Refer to the member specific benefit plan document for inpatient services.

Cognitive Rehabilitation is proven and medically necessary under certain circumstances. For medical necessity clinical coverage criteria, refer to the InterQual® LOC: Outpatient Rehabilitation & Chiropractic.

Click here to view the InterQual® criteria.

Coma Stimulation (also known as coma arousal, coma responsiveness, multisensory stimulation, and coma care therapy/programs) is unproven and not medically necessary due to insufficient evidence of efficacy for any Disorder of Consciousness.

Definitions

Cognitive Rehabilitation: A systematic, functionally oriented service of therapeutic cognitive activities, based on an assessment and understanding of the person's brain-behavior deficits. Services are directed to achieve functional changes by reinforcing, strengthening, or reestablishing previously learned patterns of behavior or establishing new patterns of cognitive activity or compensatory mechanisms for impaired neurological systems (National Academy of Neuropsychology, 2002).

Proprietary Information of UnitedHealthcare. Copyright 2026 United HealthCare Services, Inc.

Coma Stimulation: Also known as sensory or basal stimulation and is the application of specific structured stimuli such as tactile, proprioceptive, vestibular, auditory, visual, or olfactory stimuli, with the goal of activation of the brain, an improved stimulus transmission, and, overall, a quicker and better recovery of the level of consciousness (Hellweg, 2012).

Disorder of Consciousness: A state of prolonged altered consciousness, which can be categorized into coma, vegetative state, or minimally conscious state based on neurobehavioral function (Eapen et al., 2017).

Applicable Codes

The following list(s) of procedure and/or diagnosis codes is provided for reference purposes only and may not be all inclusive. Listing of a code in this policy does not imply that the service described by the code is a covered or non-covered health service. Benefit coverage for health services is determined by the member specific benefit plan document and applicable laws that may require coverage for a specific service. The inclusion of a code does not imply any right to reimbursement or guarantee claim payment. Other policies and guidelines may apply.

CPT 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	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; each additional 15 minutes (List separately in addition to code for primary procedure)

CPT® is a registered trademark of the American Medical Association

HCPCS Code	Description
S9056	Coma stimulation per diem

Description of Services

Cognitive impairment can include deficits across multiple areas of cognitive function such as memory, attention, executive function, language, and visuoperceptual ability (Brain Injury Association).

Cognitive Rehabilitation aims to improve the ability to process information and perform mental tasks. It includes two types: restorative and compensatory. Restorative rehabilitation strengthens or restores skills through cognitive tests of increasing difficulty. The compensatory approach teaches ways to bypass or compensate for impaired functions (Barman et al., 2016).

Virtual reality training for Cognitive Rehabilitation is a small but growing field and is gaining interest as another treatment modality for improving cognitive function. It has the potential to overcome the barriers of other therapies due to its immersive, highly engaging, and gamified format (Jahn et al., 2021). Currently, there are no established device protocols or definitive selection criteria for individuals.

Coma Stimulation is proposed to promote the awakening of brain-injured individuals from consciousness disorders. This may involve stimulation of any or all the senses with various stimuli. There are no established protocols or definitive selection criteria for individuals.

Clinical Evidence

Other Disorders

Cognitive rehabilitation has been investigated for disorders such as cerebral palsy, Down syndrome, Alzheimer disease (AD), schizophrenia, attention-deficit/hyperactivity disorder, multiple sclerosis, autism spectrum disorders, and Parkinson disease. The medical literature is limited, and available studies include small study samples and lack comparison groups and long-term follow-up. In the wake of the pandemic, cognitive dysfunction is one of the most common conditions persisting following COVID-19 infection. Concerns regarding the long-term effects on cognitive function have emerged, and further research is needed regarding COVID-19–specific cognitive impairment interventions (Möller et al., 2023).

Proprietary Information of UnitedHealthcare. Copyright 2026 United HealthCare Services, Inc.

Knopman et al. (2026) conducted a five-arm, multicenter, phase 2, randomized clinical trial (RECOVER-NEURO) on the evidence-based rehabilitation strategies to treat participants with cognitive dysfunction as a result of long COVID who had symptoms persisting beyond 12 weeks. There were 328 participants aged 18 years or older who were recruited and enrolled at 22 trial sites, with multiple strategies used for recruitment, including flyers, emails, letters, and calls. Since long COVID disproportionately affects Asian, African American, American Indian, Alaska Native, multiracial, Native Hawaiian, or Pacific Islander individuals and those in the Hispanic community, specific resources were used in recruitment for those communities. Symptoms were self-reported and operationalized by a T score of less than 40 on the PROMIS (Patient-Reported Outcomes Measurement Information System) Cognitive Function Short Form 8a assessment. Participants with cognitive impairment prior to COVID infection, with preexisting neuropsychiatric or medical conditions, or on psychiatric medication intended to treat the cognitive symptoms of long COVID were excluded. The interventions included BrainHQ, an online interactive program; post-acute sequelae of SARS-CoV-2 infection (PASC-CoRE) plus BrainHQ; transcranial direct current stimulation (tDCS)–active, using a tDCS device for home use plus BrainHQ; and tDCS-sham plus BrainHQ. The trial was 10 weeks long. The primary outcome measure was a modified Everyday Cognition Scale 2. The secondary outcomes included participant-reported symptoms and neurophysiological tests. The results showed that none of the interventions showed differential benefits compared with the control activities. No support for any of the interventions was found in the secondary outcomes. The authors concluded that remotely delivered interventions provided no benefit for participants with long COVID–related cognitive dysfunction.

Mokhtari et al. (2025) conducted a systematic review and meta-analysis of eight randomized controlled trials (RCTs) that used cognitive rehabilitation to target working memory or attention to reduce symptom severity and improve cognitive function in adults with anxiety disorders. Individuals were either medication free or, if on medication, were required to maintain the same dose throughout the trial period. Four trials included individuals with social anxiety disorders, and four included those with generalized anxiety disorders. The trials totaled 242 individuals in the cognitive rehabilitation treatment group and 223 in the control group. In the included trials, three addressed attention-training techniques, and five assessed working memory training. The certainty of evidence was rated as moderate for improved working memory and low for attention. In the three studies that assessed attention, the results showed that there were no significant differences in the 61 individuals in the cognitive rehabilitation group and the 83 individuals in the control group (0.07; 95% CI, -0.25 to 0.4; $p = 0.65$; $I^2 = 0.00\%$). In three studies, working memory was assessed in 108 individuals in the cognitive intervention group and 70 in the control group; the results showed an I^2 of 64.12%, resulting in the use of a random-effects model. The results showed a significant difference between the two groups, with a moderate effect size of 0.6 (95% CI, 0.07-1.13; $p = 0.02$). The authors concluded that cognitive rehabilitation is an effective intervention for improving working memory and enhancing symptom severity in individuals with anxiety disorders, but it is not effective in improving attention. These results are limited and based on a small number of heterogeneous trials; additionally, there is a lack of any follow-up to show long-term outcomes.

Braga et al. (2024) conducted a prospective, longitudinal, observational study on the cognitive profiles of 208 participants with long COVID who were referred to a network of rehabilitative hospitals in Brazil. These hospitals had developed a multidisciplinary program for individuals diagnosed with long COVID. Participants with subjective concerns of cognitive dysfunction were directed to the neuropsychology team and participated in a 4-week-long program, with weekly 2-hour group meetings of 12 participants, which focused on compensatory strategies and emotional support. Participants were evaluated subjectively and objectively using standardized assessment tools. The results showed that 70% of the participants reported improvement in cognitive concerns that included better language, attention, memory, reasoning, and planning. In most of these participants, improvement was maintained through 6 months. Objectively, there were statistically significant gains in the Barrow Neurological Institute Screen for Higher Cerebral Functions scores as well as phonetic verbal fluency. Quality-of-life (QOL) scores showed improvement across all domains. The authors concluded that the results show neuropsychological improvement up to 25 months after acute COVID-19 infection but do not fall within the normative parameters established by neuropsychological tests. This study is limited by a lack of available data on cognitive function prior to COVID-19 infection and the observational nature. Furthermore, this was limited to a specific population, and results may not be extrapolated to the overall population. Ongoing research is needed to identify cognitive rehabilitation for this cohort of participants.

Zoupa et al. (2022) conducted a review of observational trials, RCTs, and pilot and feasibility studies to determine the impact of cognitive rehabilitation programs in individuals diagnosed with schizophrenia. The results show that cognitive rehabilitation was able to enhance the majority of cognitive functions, including attention/concentration and vigilance, learning, working memory, verbal and visual episodic memory, executive functions, logical thinking and reasoning, mental flexibility, processing speed, metacognition, language, and perception. These neurocognitive domains are reported to be beneficial to psychosocial functioning in individuals with schizophrenia, and cognitive rehabilitation can alleviate overall disorganized thinking symptoms. The majority of these studies involved computerized therapy, and this is considered beneficial for neuroplasticity, as it provides multisensory stimulation, automatic adjustment of the difficulty level, and personalization activities. The authors concluded that this review suggests that cognitive rehabilitation provides benefits in

Proprietary Information of UnitedHealthcare. Copyright 2026 United HealthCare Services, Inc.

the cognitive functioning of individuals living with schizophrenia and may lead to improvements in global functioning. This review is limited by studies with a small number of individuals and a lack of follow-up. Larger RCTs are needed to validate these findings.

Pigott et al. (2022) conducted a systematic review and meta-analysis to evaluate the clinical effectiveness of self-management interventions for adults with idiopathic Parkinson disease and the effects on QOL, well-being, and function. The interventions included group-based self-management education and training programs, either alone, combined with multidisciplinary rehabilitation, or combined with cognitive behavior therapy, and a self-guided community-based exercise program. Overall, 36 studies from 10 countries (the majority were from North America and the United Kingdom), totaling 2,884 individuals, were included. The results showed that only four studies reported statistically significant improvements in QOL, well-being, or functional outcomes for the intervention compared with controls. The authors concluded that the quality of this evidence was very low, and the effect of the intervention is uncertain. More high-quality research is needed.

Taylor et al. (2021) updated the 2016 Cochrane database systematic review to assess RCTs or quasi-RCTs on the better immediate (within 1 month), intermediate (1-6 months), or longer-term (more than 6 months) outcomes of memory rehabilitation or cognitive rehabilitation in individuals with multiple sclerosis compared with no treatment or an active control. Overall, 44 studies, totaling 2,714 individuals, were included. Individuals were recruited from European hospital clinics or rehabilitation centers and, in the United States, from clinical and community settings. Overall, 35 were single-center trials, and none were multicenter. All types of multiple sclerosis were included (relapsing remitting, secondary progressive, and primary progressive). Trials included those in which the intervention group received memory rehabilitation of comprehensive cognitive rehabilitation with a memory component. Restorative techniques (computer programs) and compensatory approaches (diaries or calendars) were used. Control groups varied and included those who received either a comparable standard of treatment (active control) or no memory intervention. Subjective results included standardized questionnaires. Objective results included verbal, visual, working measures, and information processing, which were all assessed using standardized tests. The secondary outcomes included depression, anxiety, functional abilities, and QOL, also using standardized testing. The majority of the studies used treatment vs control group comparison, with individual treatment that included in-clinic and home-based therapy. The duration of treatment ranged from 4 weeks to 6 months, with most being 4 to 8 weeks long and including sessions lasting from 30 minutes to 2 hours. There was a high risk of selection and detection bias, but other sources of bias were low risk. The results showed that there was a wide range of outcome measures, with all including at least one measure of learning or memory. The results for the 15 studies that reported subjective outcomes of memory showed that there were small to moderate differences for immediate, intermediate, and longer-term follow-ups [standardized mean difference (SMD), 0.32; 95% CI, 0.05-0.58; 568 individuals; moderate-quality evidence], with the intervention group performing better than the control at each follow-up. For objective outcome measures, verbal memory results showed small to moderate differences between groups for objective verbal reports of memory at the immediate (SMD, 0.40; 95% CI, 0.22-0.58; 922 individuals; low-quality evidence) and intermediate (SMD, 0.25; 95% CI, 0.11-0.40; 753 individuals; low-quality evidence) follow-up but little to no difference at the longer-term follow-up. Visual memory outcomes showed a moderate difference between groups at the immediate follow-up (SMD, 0.42; 95% CI, 0.25-0.60; 799 individuals; moderate-quality evidence) but little to no differences at the intermediate (SMD, 0.20; 95% CI, -0.11 to 0.50; 751 individuals; moderate-quality evidence) and longer-term follow-up (SMD, 0.12; 95% CI, -0.13 to 0.37; 619 individuals; high-quality evidence). Working memory outcomes showed a moderate difference at the immediate follow-up (SMD, 0.45; 95% CI, 0.18-0.72; 655 individuals; low-quality evidence) but little to no difference at the intermediate (SMD, -0.16; 95% CI, -0.09 to 0.40; 821 individuals; moderate-quality evidence) or longer-term follow-up (SMD, 0.04; 95% CI, -0.11 to 0.20; 665 individuals; moderate-quality evidence). The secondary outcomes reported a variety of improvement at follow-up, with only QOL showing improvement across all outcomes assessed. The authors concluded that these results show that memory rehabilitation improves performance in subjective and objective assessments, but methodological flaws such as small numbers of individuals, unclear randomization protocol or reporting, and missing information make it difficult to draw definitive conclusions. Further research is needed that addresses these shortcomings.

Jahn et al. (2021) conducted a systematic review of RCTs to assess the procognitive impact of fully immersive virtual reality (VR) as an intervention in transdiagnostic cognitive rehabilitation. Nine studies were selected for review that met the criteria of individuals with a psychiatric disorder or central nervous system disease or trauma, use of a fully immersive VR intervention, and cognitive rehabilitation as the main outcome or key aim. Of the nine selected, one addressed attention-deficit/hyperactivity disorder, three addressed schizophrenia, four addressed mild cognitive impairment, and one evaluated stroke. Group sizes were small (six to 34 individuals), and the length and intensity of the VR intervention varied greatly. The Cochrane risk-of-bias assessments indicated either some concerns or a high risk of biases in all studies due to a lack of blinding of assessors, individuals, and/or trainers; inadequate statistical analyses; and insufficient reporting of the methodology. The results showed that visual working memory and executive functions improved significantly after VR training. While the nine studies had different targets and primary cognitive outcome measures, the results showed an overall significant improvement in visual working memory, including visuospatial memory and executive functions, which

Proprietary Information of UnitedHealthcare. Copyright 2026 United HealthCare Services, Inc.

are important for optimization of other cognitive skills. Of note, four studies found that the significant improvements involved activities of daily living (ADL) such as cooking and shopping. The authors concluded that the scarcity of evidence prevents coming to firm conclusions, but this preliminary review of the evidence suggests that VR may be useful in improving cognitive function across a range of diagnoses. Future research should focus on larger, high-quality studies that focus on standardization of VR training scenarios, control groups, and outcome measures.

Gómez-Soria et al. (2019) conducted a systematic review to evaluate the efficacy of cognitive intervention programs for older adults with amnesic mild cognitive impairment, which is a prodromal stage of AD. RCTs and clinical trials published until March 2020 were searched, with a total of seven studies meeting the criteria for inclusion in the review. The authors found that cognitive intervention programs led to improvements in global cognitive function and some improvements in memory, language, attention, executive function, and visuospatial abilities. Limitations include a small sample size of 18 to 22 individuals, heterogeneity of cognitive interventions and assessment tools, lack of training of some health care professionals, and differences in follow-up analysis. Further well-designed studies of cognitive intervention are recommended to provide more definitive evidence.

Iwata et al. (2017) conducted a multicenter RCT examining whether cognitive remediation is effective in improving both cognitive and social functions in participants living with schizophrenia in outpatient settings, which provide learning-based psychiatric rehabilitation. Participants were randomly assigned to either a cognitive remediation program (n = 29) or treatment as usual (n = 31). The cognitive remediation intervention included cognitive training using computer software (COGPACK) administered twice a week, while the control group met weekly over 12 weeks and was based on the Thinking Skills for Work program. Most participants were attending day treatment services, during which social skills training, psychoeducation for knowledge about schizophrenia, group activities, and other psychosocial treatment were offered. Cognitive and social functioning were assessed using the BACS (Brief Assessment of Cognition in Schizophrenia) and LASMI (Life Assessment Scale for the Mentally Ill) prior to and post intervention. Processing speed, executive function, and the composite score of the BACS as well as significant improvement in interpersonal relationships and work skills on the LASMI showed greater improvement in the cognitive remediation group than the control group. The researchers concluded that cognitive remediation in addition to psychiatric rehabilitation contributed to greater improvement in both cognitive and social functioning compared with psychiatric rehabilitation alone. Cognitive remediation may enhance the efficacy of psychiatric rehabilitation, improving social functioning. Limitations of this study include but are not limited to a small number of participants and the absence of long-term follow-up.

Díez-Cirarda et al. (2017) assessed structural and functional cerebral changes in 44 participants living with Parkinson disease after they attended a 3-month integrative cognitive rehabilitation program (REHACOP) as part of an RCT. Participants were randomly divided into the REHACOP group (cognitive rehabilitation) and a control group (occupational therapy). T1-weighted, diffusion-weighted, and functional magnetic resonance imaging (fMRI) during resting state and during a memory paradigm was obtained both prior to and post treatment. Cerebral changes were assessed with repeated measures analysis of variance 2 × 2 for group × time interaction. The results demonstrate that the REHACOP group had significantly increased brain connectivity and activation in both the resting state and recognition fMRIs compared with the control group. The study group had increased brain activation in the learning fMRI when comparing post- with pretreatment as well as had significant and positive correlations between the brain connectivity and activation and the cognitive performance post treatment. The researchers concluded that an integrative cognitive rehabilitation program can produce significant functional cerebral changes in individuals with Parkinson disease. Due to the small sample size, future studies that include larger samples are needed to replicate these findings.

Bahar-Fuchs et al. (2013) conducted a Cochrane database systematic review to evaluate the efficacy of cognitive training and cognitive rehabilitation for mild to moderate AD and vascular dementia. The evidence reviewed included 11 trials of cognitive training and a single trial of cognitive rehabilitation. The authors found no evidence for the efficacy of cognitive training to improve cognitive functioning, mood, or ADL in individuals with mild to moderate AD or vascular dementia. The single trial of cognitive rehabilitation provided preliminary indications of the potential benefits of individual cognitive rehabilitation to improve ADL in individuals with mild AD. The authors recommended that more high-quality trials of both cognitive training and cognitive rehabilitation are needed in order to establish the efficacy of cognitive training and cognitive rehabilitation for individuals with early-stage dementia.

Kurz et al. (2011) conducted a multicenter RCT in 201 participants with mild dementia in AD. The intervention comprised 12 individual weekly sessions of cognitive rehabilitation and combined four established strategies adopted from neurorehabilitation and psychotherapy; ADL were chosen as the primary outcome. The results showed no effect of the intervention on everyday functioning. There were improvements favoring the intervention in QOL and treatment satisfaction and a significant antidepressant effect in female participants. The findings of this study may be helpful for designing further studies that are needed to determine the potential of cognitive rehabilitation in older adults with dementia.

Proprietary Information of UnitedHealthcare. Copyright 2026 United HealthCare Services, Inc.

Coma Stimulation

Controlled trials comparing care with and without coma stimulation programs are limited in the current literature and do not effectively demonstrate consistent and reproducible results that improve outcomes in individuals with disorders of consciousness.

Kumar et al. (2024) conducted a systematic review and meta-analysis on the effectiveness of various coma arousal therapies in individuals with disorders of consciousness. Studies with interventions that included repetitive transcranial stimulation, tDCS, tilting, sensory stimulation, and vagus nerve stimulation were identified, and outcomes were evaluated using the Coma Recovery Scale-Revised (CRS-R), with the Glasgow Coma Scale (GCS) used as a secondary outcome measure. The group receiving interventions comprised 31 studies and 574 individuals, and the 19 studies with control groups totaled 417 individuals. All studies measured the behavioral response to the intervention by CRS-R, and six measured consciousness level by GCS. The results showed that all interventions, except tilting, showed improvement from prior to the test to post test, with sensory stimulation showing the largest effect in both groups. A secondary analysis on the duration of the injury was also completed, and those results showed that the overall effect of tDCS, repetitive transcranial stimulation, sensory stimulation, and vagus nerve stimulation in injuries over 3 months showed improvement. These results are limited by heterogeneity among the available studies as well as the exclusion of electrophysiological testing to provide objective results.

Wu et al. (2023) conducted a prospective multicenter RCT to assess the safety and efficacy of right median nerve electrical stimulation (RMNS) for accelerating emergence from a coma following a traumatic brain injury. The primary end point was the percentage of participants who regained consciousness 6 months after the injury. This was defined as complete wakefulness and awareness, the ability to respond to commands, and intact light and deep reflexes. The secondary end points were (1) GCS, Full Outline of UnResponsiveness, CRS-R, Disability Rating Scale, and Glasgow Outcome Scale-Extended scores on day 28 and 3 and 6 months after injury and (2) GCS and Full Outline of Responsiveness scores on day 1 and day 7 during stimulation. The trial included 329 adults (aged 18-65 years) who had a closed traumatic brain injury 7 to 14 days before enrollment, a GCS score of 4 to 8, and a Glasgow Motor Score of < 5 and was conducted at 22 large, specialized neurosurgery centers across China. Participants were randomized 1:1, and for 2 weeks, the intervention group received RMNS for 8 hours a day for 2 weeks in addition to standard treatment; the control group had electrodes placed but no current delivered. Both groups continued to receive standard care. Six participants were lost to follow-up, and overall, 164 in the RMNS group and 159 participants in the control group were included in the per-protocol analysis. Also, seven participants in the treatment group and 24 in the control group died during this trial. The results showed that the percentage of participants who regained consciousness 6 months after the injury was 15.66% higher in the treatment group than the control group (95% CI, 5.46%-25.87%). The secondary end points also showed increased scores at 28 days and 3 and 6 months. The authors concluded that RMNS applied using this protocol results in greater emergence from coma at 6 months than controls. This trial is limited by inherent biases in assessing response due to a lack of blinding. Furthermore, these findings may not be generalizable to all populations.

Li et al. (2020) conducted a systematic literature review that focused on sensory stimulation to improve coma arousal in comatose individuals following a traumatic brain injury. Overall, 10 studies were eligible for the analysis. The review included individuals who were post traumatic brain injury, had severe disorders of consciousness, and received sensory stimulation, with specific intervention protocols, assessment tools, and behavioral/neural responses assessed by standard scales and instruments. The authors concluded that the sensory stimulation program improved coma arousal and is likely to aid recovery. Overall, sensory stimulation with structured, meaningful, multimodal, familiar, and emotional stimuli is recommended. However, the authors noted that additional high-quality clinical trials that have larger sample sizes are needed to establish standard sensory stimulation protocols to improve outcomes after traumatic brain injury. Limitations include the heterogeneity of outcome evaluation measures, varying interventions, short intervention period, absence of long-term follow-up, and small sample size.

Padilla et al. (2016) conducted a systematic review to assess the effectiveness of sensory stimulation to improve arousal and alertness in individuals in a coma or persistent vegetative state following a traumatic brain injury. Overall, nine studies published from 2008 through 2013 were included for analysis. The authors concluded that there is strong evidence for the effectiveness of multimodal sensory stimulation in improving clinical outcomes after a traumatic brain injury–induced coma or persistent vegetative state. In addition, “Moderate evidence was also provided for auditory stimulation, limited evidence was provided for complex stimuli, and insufficient evidence was provided for median nerve stimulation.” This systematic review grouped widely heterogeneous studies in terms of design, outcomes, and populations. Furthermore, the clinical significance of the studies chosen for inclusion is not clear. Given the lack of rigorous, clinically meaningful studies for inclusion and the qualitative methodological approach that was used in the analysis, more research is needed to confirm the conclusions that the authors have made from this review. Megha et al. (2013), previously cited in this policy, was included in this systematic review.

Proprietary Information of UnitedHealthcare. Copyright 2026 United HealthCare Services, Inc.

Clinical Practice Guidelines

American Academy of Neurology (AAN)

In a 2018 practice guideline (reaffirmed in September 2021) regarding disorders of consciousness, the AAN does not address the use of stimulation as a treatment modality for patients with a prolonged disorder of consciousness. They recommend families be counseled regarding the limitations of existing evidence associated with interventions that lack support, and there are no established therapies for children with a prolonged disorder of consciousness (Giacino et al., 2018).

U.S. Food and Drug Administration (FDA)

This section is to be used for informational purposes only. FDA approval alone is not a basis for coverage.

Cognitive rehabilitation is therapy and is not subject to FDA regulation.

References

Bahar-Fuchs A, Clare L, Woods B. Cognitive training and cognitive rehabilitation for mild to moderate Alzheimer's disease and vascular dementia. Cochrane Database Syst Rev. 2013 Jun;2013(6):CD003260.

Barman A, Chatterjee A, Bhide R. Cognitive impairment and rehabilitation strategies after traumatic brain injury. Indian J Psychol Med. 2016 May-Jun;38(3):172-181.

Braga LW, Oliveira SB, Moreira AS, et al. Long COVID neuropsychological follow-up: is cognitive rehabilitation relevant? NeuroRehabilitation. 2023;53(4):517-534.

Díez-Cirarda M, Ojeda N, Peña J, et al. Increased brain connectivity and activation after cognitive rehabilitation in Parkinson's disease: a randomized controlled trial. Brain Imaging Behav. 2017 Dec;11(6):1640-1651.

Eapen BC, Georgekutty J, Subbarao B, et al. Disorders of consciousness. Phys Med Rehabil Clin n Am. 2017 May;28(2):245-258.

Giacino JT, Katz DI, Schiff ND, et al. Practice guideline update recommendations summary: disorders of consciousness: report of the Guideline Development, Dissemination, and Implementation Subcommittee of the American Academy of Neurology; the American Congress of Rehabilitation Medicine; and the National Institute on Disability, Independent Living, and Rehabilitation Research. Neurology. 2018 Sep;91(10):450-460. Reaffirmed in 2021.

Gómez-Soria I, Peralta-Marrupe P, Calatayud-Sanz E, et al. Efficacy of cognitive intervention programs in amnesic mild cognitive impairment: a systematic review. Arch Gerontol Geriatr. 2021 Jan;94:104332.

Hellweg S. Effectiveness of physiotherapy and occupational therapy after traumatic brain injury in the intensive care unit. Crit Care Res Pract. 2012;2012:768456.

Iwata K, Matsuda Y, Sato S, et al. Efficacy of cognitive rehabilitation using computer software with individuals living with schizophrenia: a randomized controlled trial in Japan. Psychiatr Rehabil J. 2017 Mar;40(1):4-11.

Jahn FS, Skovbye M, Obenhausen K, et al. Cognitive training with fully immersive virtual reality in patients with neurological and psychiatric disorders: a systematic review of randomized controlled trials. Psychiatry Res. 2021 Jun;300:113928.

Knopman DS, Koltai D, Laskowitz DT, et al.; RECOVER-NEURO Clinical Trial Group. Evaluation of interventions for cognitive symptoms in long COVID: a randomized clinical trial. JAMA Neurol. 2026 Jan;83(1):49-59.

Kumar S, Agarwal N, Sanal TS. Effectiveness of coma arousal therapy on patients with disorders of consciousness - a systematic review and meta-analysis. Brain Circ. 2024 Jun;10(2):119-133.

Kurz A, Thöne-Otto A, Cramer B, et al. CORDIAL: cognitive rehabilitation and cognitive-behavioral treatment for early dementia in Alzheimer disease: a multicenter, randomized, controlled trial. Alzheimer Dis Assoc Disord. 2012 Jul-Sep;26(3):246-253.

Li J, Cheng Q, Liu FK, et al. Sensory stimulation to improve arousal in comatose patients after traumatic brain injury: a systematic review of the literature. Neurol Sci. 2020 Sep;41(9):2367-2376.

Megha M, Harpreet S, Nayeem Z. Effect of frequency of multimodal coma stimulation on the consciousness levels of traumatic brain injury comatose patients. Brain Inj. 2013;27(5):570-577.

Mokhtari S, Mokhtari A, Saeed F, et al. Cognitive rehabilitation in anxiety disorders: a systematic review and meta-analysis of randomized controlled trials. Sci Rep. 2025 Nov;15(1):38420.

Proprietary Information of UnitedHealthcare. Copyright 2026 United HealthCare Services, Inc.

Möller M, Borg K, Janson C, et al. Cognitive dysfunction in post-COVID-19 condition: mechanisms, management, and rehabilitation. J Intern Med. 2023 Nov;294(5):563-581.

National Academy of Neuropsychology (NAN). Cognitive rehabilitation. Official statement of the National Academy of Neuropsychology. 2002.

Padilla R and Domina A. Effectiveness of sensory stimulation to improve arousal and alertness of people in a coma or persistent vegetative state after traumatic brain injury: a systematic review. Am J Occup Ther. 2016 May-Jun;70(3):7003180030p1-8.

Taylor LA, Mhizha-Murira JR, Smith L, et al. Memory rehabilitation for people with multiple sclerosis. Cochrane Database Syst Rev. 2021 Oct;10(10):CD008754.

Wu X, Xie L, Lei J, et al.; ACES Participants. Acute traumatic coma awakening by right median nerve electrical stimulation: a randomised controlled trial. Intensive Care Med. 2023 Jun;49(6):633-644.

Zoupa E, Bogiatzidou O, Siokas V, et al. Cognitive rehabilitation in schizophrenia-associated cognitive impairment: a review. Neurol Int. 2022 Dec;15(1):12-23.

Policy History/Revision Information

Date	Summary of Changes

07/01/2026	**Definitions**
	• Updated definition of:
	  ○ Cognitive Rehabilitation
	  ○ Coma Stimulation
	Supporting Information
	• Updated *Description of Services*, *Clinical Evidence*, and *References* sections to reflect the most current information
	• Archived previous policy version 2026T0144HH

Instructions for Use

This Medical Policy provides assistance in interpreting UnitedHealthcare standard benefit plans. When deciding coverage, the member specific benefit plan document must be referenced as the terms of the member specific benefit plan may differ from the standard plan. In the event of a conflict, the member specific benefit plan document governs. Before using this policy, check the member specific benefit plan document and any applicable federal or state mandates. UnitedHealthcare reserves the right to modify its policies and guidelines as necessary. This Medical Policy is provided for informational purposes. It does not constitute medical advice.

This Medical Policy may also be applied to Medicare Advantage plans in certain instances. In the absence of a Medicare National Coverage Determination (NCD), Local Coverage Determination (LCD), or other Medicare coverage guidance, CMS allows a Medicare Advantage Organization (MAO) to create its own coverage determinations, using objective evidence-based rationale relying on authoritative evidence (Medicare IOM Pub. No. 100-16, Ch. 4, §90.5).

UnitedHealthcare may also use tools developed by third parties, such as the InterQual® criteria, to assist us in administering health benefits. UnitedHealthcare Medical Policies are intended to be used in connection with the independent professional medical judgment of a qualified health care provider and do not constitute the practice of medicine or medical advice.

Proprietary Information of UnitedHealthcare. Copyright 2026 United HealthCare Services, Inc.