



MASSACHUSETTS

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Medical Policy Cognitive Rehabilitation

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Policy Number: 660

BCBSA Reference Number: 8.03.10

NCD/LCD: N/A

Related Policies

Sensory Integration Therapy and Auditory Integration Therapy, #[659](#)

Policy

Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity Medicare HMO BlueSM and Medicare PPO BlueSM Members

Cognitive rehabilitation (as a distinct and definable component of the rehabilitation process) may be considered **MEDICALLY NECESSARY** in the rehabilitation of patients with cognitive impairment due to traumatic brain injury.

Cognitive rehabilitation (as a distinct and definable component of the rehabilitation process) is considered **INVESTIGATIONAL** for all applications, including, but not limited to, stroke, postencephalitic or post-encephalopathy patients, autism spectrum disorder, seizure disorders, multiple sclerosis, the aging population, including patients with Alzheimer disease, and patients with cognitive deficits due to brain tumor or previous treatment for cancer.

Prior Authorization Information

Inpatient

- For services described in this policy, precertification/preauthorization **IS REQUIRED** if the procedure is performed **inpatient**.

Outpatient

- For services described in this policy, see below for situations where prior authorization **might be required** if the procedure is performed **outpatient**.

	Outpatient
Commercial Managed Care (HMO and POS)	Prior authorization is not required .
Commercial PPO and Indemnity	Prior authorization is not required .

Medicare HMO Blue SM	Prior authorization is not required .
Medicare PPO Blue SM	Prior authorization is not required .

CPT Codes / HCPCS Codes / ICD Codes

Inclusion or exclusion of a code does not constitute or imply member coverage or provider reimbursement. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage as it applies to an individual member.

Providers should report all services using the most up-to-date industry-standard procedure, revenue, and diagnosis codes, including modifiers where applicable.

The following codes are included below for informational purposes only; this is not an all-inclusive list.

The above medical necessity criteria MUST be met for the following codes to be covered for Commercial Members: Managed Care (HMO and POS), PPO, Indemnity, Medicare HMO Blue and Medicare PPO Blue:

CPT Codes

CPT codes:	Code Description
97129	Therapeutic interventions that focus on cognitive function (eg, attention, memory, reasoning, executive function, problem solving, and/or pragmatic functioning) and compensatory strategies to manage the performance of an activity (eg, 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 (eg, attention, memory, reasoning, executive function, problem solving, and/or pragmatic functioning) and compensatory strategies to manage the performance of an activity (eg, 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)

The following ICD Diagnosis Codes are considered medically necessary when submitted with the CPT code above if medical necessity criteria are met:

ICD-10 Diagnosis Coding

ICD-10-CM diagnosis codes:	Code Description
S01.90XA	Unspecified open wound of unspecified part of head, initial encounter
S01.90XD	Unspecified open wound of unspecified part of head, subsequent encounter
S01.90XS	Unspecified open wound of unspecified part of head, sequela
S06.330A	Contusion and laceration of cerebrum, unspecified, without loss of consciousness, initial encounter
S06.330D	Contusion and laceration of cerebrum, unspecified, without loss of consciousness, subsequent encounter
S06.330S	Contusion and laceration of cerebrum, unspecified, without loss of consciousness, sequela
S06.331A	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of 30 minutes or less, initial encounter
S06.331D	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of 30 minutes or less, subsequent encounter

S06.331S	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of 30 minutes or less, sequela
S06.332A	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of 31 minutes to 59 minutes, initial encounter
S06.332D	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of 31 minutes to 59 minutes, subsequent encounter
S06.332S	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.333A	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter
S06.333D	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of 1 hour to 5 hours 59 minutes, subsequent encounter
S06.333S	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.334A	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of 6 hours to 24 hours, initial encounter
S06.334D	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of 6 hours to 24 hours, subsequent encounter
S06.334S	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of 6 hours to 24 hours, sequela
S06.335A	Contusion and laceration of cerebrum, unspecified, with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter
S06.335D	Contusion and laceration of cerebrum, unspecified, with loss of consciousness greater than 24 hours with return to pre-existing conscious level, subsequent encounter
S06.335S	Contusion and laceration of cerebrum, unspecified, with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.336A	Contusion and laceration of cerebrum, unspecified, with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter
S06.336D	Contusion and laceration of cerebrum, unspecified, with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, subsequent encounter
S06.336S	Contusion and laceration of cerebrum, unspecified, with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.337A	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter
S06.338A	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter
S06.339A	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of unspecified duration, initial encounter
S06.339D	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of unspecified duration, subsequent encounter
S06.339S	Contusion and laceration of cerebrum, unspecified, with loss of consciousness of unspecified duration, sequela
S06.360A	Traumatic hemorrhage of cerebrum, unspecified, without loss of consciousness, initial encounter
S06.360D	Traumatic hemorrhage of cerebrum, unspecified, without loss of consciousness, subsequent encounter
S06.360S	Traumatic hemorrhage of cerebrum, unspecified, without loss of consciousness, sequela

S06.361A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 30 minutes or less, initial encounter
S06.361D	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 30 minutes or less, subsequent encounter
S06.361S	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 30 minutes or less, sequela
S06.362A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 31 minutes to 59 minutes, initial encounter
S06.362D	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 31 minutes to 59 minutes, subsequent encounter
S06.362S	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.363A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 1 hours to 5 hours 59 minutes, initial encounter
S06.363D	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 1 hours to 5 hours 59 minutes, subsequent encounter
S06.363S	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 1 hours to 5 hours 59 minutes, sequela
S06.364A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 6 hours to 24 hours, initial encounter
S06.364D	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 6 hours to 24 hours, subsequent encounter
S06.364S	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 6 hours to 24 hours, sequela
S06.365A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of 6 hours to 24 hours, sequela
S06.365D	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness greater than 24 hours with return to pre-existing conscious level, subsequent encounter
S06.365S	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.366A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.366D	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, subsequent encounter
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
S06.367A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter
S06.368A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter
S06.369A	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of unspecified duration, initial encounter
S06.369D	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of unspecified duration, subsequent encounter
S06.369S	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness of unspecified duration, sequela
S06.370A	Contusion, laceration, and hemorrhage of cerebellum without loss of consciousness, initial encounter

S06.370D	Contusion, laceration, and hemorrhage of cerebellum without loss of consciousness, subsequent encounter
S06.370S	Contusion, laceration, and hemorrhage of cerebellum without loss of consciousness, sequela
S06.371A	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness of 30 minutes or less, initial encounter
S06.371D	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness of 30 minutes or less, subsequent encounter
S06.371S	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness of 30 minutes or less, sequela
S06.372A	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness of 31 minutes to 59 minutes, initial encounter
S06.372D	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness of 31 minutes to 59 minutes, subsequent encounter
S06.372S	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.373A	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter
S06.373D	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness of 1 hour to 5 hours 59 minutes, subsequent encounter
S06.373S	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.374A	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness of 6 hours to 24 hours, initial encounter
S06.374D	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness of 6 hours to 24 hours, subsequent encounter
S06.374S	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness of 6 hours to 24 hours, sequela
S06.375A	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter
S06.375D	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, subsequent encounter
S06.375S	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.376A	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter
S06.376D	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, subsequent encounter
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
S06.377A	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter
S06.378A	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter
S06.379A	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness of unspecified duration, initial encounter
S06.379D	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness of unspecified duration, subsequent encounter

S06.379S	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness of unspecified duration, sequela
S06.380A	Contusion, laceration, and hemorrhage of brainstem without loss of consciousness, initial encounter
S06.380D	Contusion, laceration, and hemorrhage of brainstem without loss of consciousness, subsequent encounter
S06.380S	Contusion, laceration, and hemorrhage of brainstem without loss of consciousness, sequela
S06.381A	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness of 30 minutes or less, initial encounter
S06.381D	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness of 30 minutes or less, subsequent encounter
S06.381S	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness of 30 minutes or less, sequela
S06.382A	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness of 31 minutes to 59 minutes, initial encounter
S06.382D	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness of 31 minutes to 59 minutes, subsequent encounter
S06.382S	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.383A	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter
S06.383D	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness of 1 hour to 5 hours 59 minutes, subsequent encounter
S06.383S	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.384A	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness of 6 hours to 24 hours, initial encounter
S06.384D	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness of 6 hours to 24 hours, subsequent encounter
S06.384S	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness of 6 hours to 24 hours, sequela
S06.385A	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter
S06.385D	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness greater than 24 hours with return to pre-existing conscious level, subsequent encounter
S06.385S	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.386A	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter
S06.386D	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, subsequent encounter
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
S06.387A	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter
S06.388A	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter

S06.389A	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness of unspecified duration, initial encounter
S06.389D	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness of unspecified duration, subsequent encounter
S06.389S	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness of unspecified duration, sequela
S06.890A	Other specified intracranial injury without loss of consciousness, initial encounter
S06.890D	Other specified intracranial injury without loss of consciousness, subsequent encounter
S06.890S	Other specified intracranial injury without loss of consciousness, sequela
S06.891A	Other specified intracranial injury with loss of consciousness of 30 minutes or less, initial encounter
S06.891D	Other specified intracranial injury with loss of consciousness of 30 minutes or less, subsequent encounter
S06.891S	Other specified intracranial injury with loss of consciousness of 30 minutes or less, sequela
S06.892A	Other specified intracranial injury with loss of consciousness of 31 minutes to 59 minutes, initial encounter
S06.892D	Other specified intracranial injury with loss of consciousness of 31 minutes to 59 minutes, subsequent encounter
S06.892S	Other specified intracranial injury with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.893A	Other specified intracranial injury with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter
S06.893D	Other specified intracranial injury with loss of consciousness of 1 hour to 5 hours 59 minutes, subsequent encounter
S06.893S	Other specified intracranial injury with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.894A	Other specified intracranial injury with loss of consciousness of 6 hours to 24 hours, initial encounter
S06.894D	Other specified intracranial injury with loss of consciousness of 6 hours to 24 hours, subsequent encounter
S06.894S	Other specified intracranial injury with loss of consciousness of 6 hours to 24 hours, sequela
S06.895A	Other specified intracranial injury with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter
S06.895D	Other specified intracranial injury with loss of consciousness greater than 24 hours with return to pre-existing conscious level, subsequent encounter
S06.895S	Other specified intracranial injury with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.896A	Other specified intracranial injury with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter
S06.896D	Other specified intracranial injury with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, subsequent encounter
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
S06.899A	Other specified intracranial injury with loss of consciousness of unspecified duration, initial encounter
S06.899D	Other specified intracranial injury with loss of consciousness of unspecified duration, subsequent encounter
S06.899S	Other specified intracranial injury with loss of consciousness of unspecified duration, sequela

S06.1X0A	Traumatic cerebral edema without loss of consciousness, initial encounter
S06.1X0D	Traumatic cerebral edema without loss of consciousness, subsequent encounter
S06.1X0S	Traumatic cerebral edema without loss of consciousness, sequela
S06.1X1A	Traumatic cerebral edema with loss of consciousness of 30 minutes or less, initial encounter
S06.1X1D	Traumatic cerebral edema with loss of consciousness of 30 minutes or less, subsequent encounter
S06.1X1S	Traumatic cerebral edema with loss of consciousness of 30 minutes or less, sequela
S06.1X2A	Traumatic cerebral edema with loss of consciousness of 31 minutes to 59 minutes, initial encounter
S06.1X2D	Traumatic cerebral edema with loss of consciousness of 31 minutes to 59 minutes, subsequent encounter
S06.1X2S	Traumatic cerebral edema with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.1X3A	Traumatic cerebral edema with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter
S06.1X3D	Traumatic cerebral edema with loss of consciousness of 1 hour to 5 hours 59 minutes, subsequent encounter
S06.1X3S	Traumatic cerebral edema with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.1X4A	Traumatic cerebral edema with loss of consciousness of 6 hours to 24 hours, initial encounter
S06.1X4D	Traumatic cerebral edema with loss of consciousness of 6 hours to 24 hours, subsequent encounter
S06.1X4S	Traumatic cerebral edema with loss of consciousness of 6 hours to 24 hours, sequela
S06.1X5A	Traumatic cerebral edema with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter
S06.1X5D	Traumatic cerebral edema with loss of consciousness greater than 24 hours with return to pre-existing conscious level, subsequent encounter
S06.1X5S	Traumatic cerebral edema with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.1X6A	Traumatic cerebral edema with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter
S06.1X6D	Traumatic cerebral edema with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, subsequent encounter
S06.1X6S	Traumatic cerebral edema with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.1X7A	Traumatic cerebral edema with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter
S06.1X8A	Traumatic cerebral edema with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter
S06.1X9A	Traumatic cerebral edema with loss of consciousness of unspecified duration, initial encounter
S06.1X9D	Traumatic cerebral edema with loss of consciousness of unspecified duration, subsequent encounter
S06.1X9S	Traumatic cerebral edema with loss of consciousness of unspecified duration, sequela
S06.4X0A	Epidural hemorrhage without loss of consciousness, initial encounter
S06.4X0D	Epidural hemorrhage without loss of consciousness, subsequent encounter
S06.4X0S	Epidural hemorrhage without loss of consciousness, sequela
S06.4X1A	Epidural hemorrhage with loss of consciousness of 30 minutes or less, initial encounter
S06.4X1D	Epidural hemorrhage with loss of consciousness of 30 minutes or less, subsequent encounter

S06.4X1S	Epidural hemorrhage with loss of consciousness of 30 minutes or less, sequela
S06.4X2A	Epidural hemorrhage with loss of consciousness of 31 minutes to 59 minutes, initial encounter
S06.4X2D	Epidural hemorrhage with loss of consciousness of 31 minutes to 59 minutes, subsequent encounter
S06.4X2S	Epidural hemorrhage with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.4X3A	Epidural hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter
S06.4X3D	Epidural hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, subsequent encounter
S06.4X3S	Epidural hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.4X4A	Epidural hemorrhage with loss of consciousness of 6 hours to 24 hours, initial encounter
S06.4X4D	Epidural hemorrhage with loss of consciousness of 6 hours to 24 hours, subsequent encounter
S06.4X4S	Epidural hemorrhage with loss of consciousness of 6 hours to 24 hours, sequela
S06.4X5A	Epidural hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter
S06.4X5D	Epidural hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, subsequent encounter
S06.4X5S	Epidural hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.4X6A	Epidural hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter
S06.4X6D	Epidural hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, subsequent encounter
S06.4X6S	Epidural hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.4X7A	Epidural hemorrhage with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter
S06.4X8A	Epidural hemorrhage with loss of consciousness of any duration with death due to other causes prior to regaining consciousness, initial encounter
S06.4X9A	Epidural hemorrhage with loss of consciousness of unspecified duration, initial encounter
S06.4X9D	Epidural hemorrhage with loss of consciousness of unspecified duration, subsequent encounter
S06.4X9S	Epidural hemorrhage with loss of consciousness of unspecified duration, sequela
S06.5X0A	Traumatic subdural hemorrhage without loss of consciousness, initial encounter
S06.5X0D	Traumatic subdural hemorrhage without loss of consciousness, subsequent encounter
S06.5X0S	Traumatic subdural hemorrhage without loss of consciousness, sequela
S06.5X1A	Traumatic subdural hemorrhage with loss of consciousness of 30 minutes or less, initial encounter
S06.5X1D	Traumatic subdural hemorrhage with loss of consciousness of 30 minutes or less, subsequent encounter
S06.5X1S	Traumatic subdural hemorrhage with loss of consciousness of 30 minutes or less, sequela
S06.5X2A	Traumatic subdural hemorrhage with loss of consciousness of 31 minutes to 59 minutes, initial encounter
S06.5X2D	Traumatic subdural hemorrhage with loss of consciousness of 31 minutes to 59 minutes, subsequent encounter

S06.5X2S	Traumatic subdural hemorrhage with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.5X3A	Traumatic subdural hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter
S06.5X3D	Traumatic subdural hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, subsequent encounter
S06.5X3S	Traumatic subdural hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.5X4A	Traumatic subdural hemorrhage with loss of consciousness of 6 hours to 24 hours, initial encounter
S06.5X4D	Traumatic subdural hemorrhage with loss of consciousness of 6 hours to 24 hours, subsequent encounter
S06.5X4S	Traumatic subdural hemorrhage with loss of consciousness of 6 hours to 24 hours, sequela
S06.5X5A	Traumatic subdural hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter
S06.5X5D	Traumatic subdural hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, subsequent encounter
S06.5X5S	Traumatic subdural hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.5X6A	Traumatic subdural hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter
S06.5X6D	Traumatic subdural hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, subsequent encounter
S06.5X6S	Traumatic subdural hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.5X7A	Traumatic subdural hemorrhage with loss of consciousness of any duration with death due to brain injury before regaining consciousness, initial encounter
S06.5X8A	Traumatic subdural hemorrhage with loss of consciousness of any duration with death due to other cause before regaining consciousness, initial encounter
S06.5X9A	Traumatic subdural hemorrhage with loss of consciousness of unspecified duration, initial encounter
S06.5X9D	Traumatic subdural hemorrhage with loss of consciousness of unspecified duration, subsequent encounter
S06.5X9S	Traumatic subdural hemorrhage with loss of consciousness of unspecified duration, sequela
S06.6X0A	Traumatic subarachnoid hemorrhage without loss of consciousness, initial encounter
S06.6X0D	Traumatic subarachnoid hemorrhage without loss of consciousness, subsequent encounter
S06.6X0S	Traumatic subarachnoid hemorrhage without loss of consciousness, sequela
S06.6X1A	Traumatic subarachnoid hemorrhage with loss of consciousness of 30 minutes or less, initial encounter
S06.6X1D	Traumatic subarachnoid hemorrhage with loss of consciousness of 30 minutes or less, subsequent encounter
S06.6X1S	Traumatic subarachnoid hemorrhage with loss of consciousness of 30 minutes or less, sequela
S06.6X2A	Traumatic subarachnoid hemorrhage with loss of consciousness of 31 minutes to 59 minutes, initial encounter
S06.6X2D	Traumatic subarachnoid hemorrhage with loss of consciousness of 31 minutes to 59 minutes, subsequent encounter
S06.6X2S	Traumatic subarachnoid hemorrhage with loss of consciousness of 31 minutes to 59 minutes, sequela

S06.6X3A	Traumatic subarachnoid hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter
S06.6X3D	Traumatic subarachnoid hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, subsequent encounter
S06.6X3S	Traumatic subarachnoid hemorrhage with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.6X4A	Traumatic subarachnoid hemorrhage with loss of consciousness of 6 hours to 24 hours, initial encounter
S06.6X4D	Traumatic subarachnoid hemorrhage with loss of consciousness of 6 hours to 24 hours, subsequent encounter
S06.6X4S	Traumatic subarachnoid hemorrhage with loss of consciousness of 6 hours to 24 hours, sequela
S06.6X5A	Traumatic subarachnoid hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter
S06.6X5D	Traumatic subarachnoid hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, subsequent encounter
S06.6X5S	Traumatic subarachnoid hemorrhage with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.6X6A	Traumatic subarachnoid hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter
S06.6X6D	Traumatic subarachnoid hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, subsequent encounter
S06.6X6S	Traumatic subarachnoid hemorrhage with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.6X9A	Traumatic subarachnoid hemorrhage with loss of consciousness of unspecified duration, initial encounter
S06.6X9D	Traumatic subarachnoid hemorrhage with loss of consciousness of unspecified duration, subsequent encounter
S06.6X9S	Traumatic subarachnoid hemorrhage with loss of consciousness of unspecified duration, sequela
S06.9X0A	Unspecified intracranial injury without loss of consciousness, initial encounter
S06.9X0D	Unspecified intracranial injury without loss of consciousness, subsequent encounter
S06.9X0S	Unspecified intracranial injury without loss of consciousness, sequela
S06.9X1A	Unspecified intracranial injury with loss of consciousness of 30 minutes or less, initial encounter
S06.9X1D	Unspecified intracranial injury with loss of consciousness of 30 minutes or less, subsequent encounter
S06.9X1S	Unspecified intracranial injury with loss of consciousness of 30 minutes or less, sequela
S06.9X2A	Unspecified intracranial injury with loss of consciousness of 31 minutes to 59 minutes, initial encounter
S06.9X2D	Unspecified intracranial injury with loss of consciousness of 31 minutes to 59 minutes, subsequent encounter
S06.9X2S	Unspecified intracranial injury with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.9X3A	Unspecified intracranial injury with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter
S06.9X3D	Unspecified intracranial injury with loss of consciousness of 1 hour to 5 hours 59 minutes, subsequent encounter
S06.9X3S	Unspecified intracranial injury with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela

S06.9X4A	Unspecified intracranial injury with loss of consciousness of 6 hours to 24 hours, initial encounter
S06.9X4D	Unspecified intracranial injury with loss of consciousness of 6 hours to 24 hours, subsequent encounter
S06.9X4S	Unspecified intracranial injury with loss of consciousness of 6 hours to 24 hours, sequela
S06.9X5A	Unspecified intracranial injury with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter
S06.9X5D	Unspecified intracranial injury with loss of consciousness greater than 24 hours with return to pre-existing conscious level, subsequent encounter
S06.9X5S	Unspecified intracranial injury with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.9X6A	Unspecified intracranial injury with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter
S06.9X6D	Unspecified intracranial injury with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, subsequent encounter
S06.9X6S	Unspecified intracranial injury with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.9X9A	Unspecified intracranial injury with loss of consciousness of unspecified duration, initial encounter
S06.9X9D	Unspecified intracranial injury with loss of consciousness of unspecified duration, subsequent encounter
S06.9X9S	Unspecified intracranial injury with loss of consciousness of unspecified duration, sequela
S09.8XXA	Other Specified Injuries Of Head, Initial Encounter
S09.8XXD	Other Specified Injuries Of Head, Subsequent Encounter
S09.8XXS	Other Specified Injuries Of Head, Sequela
S09.90XA	Unspecified injury of head, initial encounter
S09.90XD	Unspecified injury of head, subsequent encounter
S09.90XS	Unspecified injury of head, sequela

Description

Cognitive rehabilitation is a structured set of therapeutic activities designed to retrain an individual's ability to think, use judgment, and make decisions. The focus is on improving deficits in memory, attention, perception, learning, planning, and judgment. The term *cognitive rehabilitation* is applied to various intervention strategies or techniques that attempt to help patients reduce, manage, or cope with cognitive deficits caused by brain injury. The desired outcomes are improved quality of life and function in home and community life. The term *rehabilitation* broadly encompasses reentry into familial, social, educational, and working environments, the reduction of dependence on assistive devices or services, and general enrichment of quality of life. Patients recuperating from traumatic brain injury have traditionally been treated with some combination of physical therapy, occupational therapy, and psychological services as indicated. Cognitive rehabilitation is considered a separate service from other rehabilitative therapies, with its own specific procedures.

Summary

Cognitive rehabilitation is a therapeutic approach designed to improve cognitive functioning after central nervous system insult. It includes an assembly of therapy methods that retrain or alleviate problems caused by deficits in attention, visual processing, language, memory, reasoning, problem-solving, and executive functions. Cognitive rehabilitation comprises tasks to reinforce or reestablish previously learned patterns of behavior or to establish new compensatory mechanisms for impaired neurologic systems. Cognitive rehabilitation may be performed by a physician, psychologist, or a physical, occupational, or speech therapist.

For individuals who have cognitive deficits due to traumatic brain injury who receive cognitive rehabilitation delivered by a qualified professional, the evidence includes randomized controlled trials (RCTs), nonrandomized comparison studies, case series, and systematic reviews. Relevant outcomes are functional outcomes and quality of life. The cognitive rehabilitation trials have methodologic limitations and have reported mixed results, indicating there is no uniform or consistent evidence base supporting the efficacy of this technique. Systematic reviews have generally concluded that efficacy of cognitive rehabilitation is uncertain. The evidence is insufficient to determine the effects of the technology on health outcomes.

Clinical input obtained in 2010 provided the strongest support for the use of cognitive rehabilitation as part of the treatment of traumatic brain injuries. Cognitive rehabilitation may be considered medically necessary for traumatic brain injury based on this input.

For individuals who have cognitive deficits due to dementia who receive cognitive rehabilitation delivered by a qualified professional, the evidence includes RCTs, nonrandomized comparison studies, case series, and systematic reviews. Relevant outcomes are functional outcomes and quality of life. Systematic reviews of RCTs have generally shown no benefit of cognitive rehabilitation or effects of clinical importance. One large RCT evaluating a goal-oriented cognitive rehabilitation program reported a significantly less functional decline in 1 of 2 functional scales and lower rates of institutionalization in the cognitive rehabilitation group compared with usual care at 24 months. These results need replication. The evidence is insufficient to determine the effect of the technology on health outcomes.

For individuals who have cognitive deficits due to stroke who receive cognitive rehabilitation delivered by a qualified professional, the evidence includes RCTs and systematic reviews. Relevant outcomes are functional outcomes and quality of life. Four systematic reviews evaluating 3 separate domains of cognitive function have shown no benefit of cognitive rehabilitation or effects of clinical importance. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have cognitive deficits due to multiple sclerosis who receive cognitive rehabilitation delivered by a qualified professional, the evidence includes RCTs and systematic reviews. Relevant outcomes are functional outcomes and quality of life. Systematic reviews of RCTs have shown no significant effects of cognitive rehabilitation on cognitive outcomes. Although numerous RCTs have investigated cognitive rehabilitation for multiple sclerosis, high-quality trials are lacking. The ability to draw conclusions based on the overall body of evidence is limited by the heterogeneity of patient samples, interventions, and outcome measures. Further, results of the available RCTs have been mixed, with positive studies mostly reporting short-term benefits. Evidence for clinically significant, durable improvements in cognition is currently lacking. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have cognitive deficits due to epilepsy, autism spectrum disorder, postencephalopathy, or cancer who receive cognitive rehabilitation delivered by a qualified professional, the evidence includes RCTs, nonrandomized comparison studies, and case series. Relevant outcomes are functional outcomes and quality of life. The quantity of studies for these conditions is much less than that for the other cognitive rehabilitation indications. Systematic reviews generally have not supported the efficacy of cognitive rehabilitation for these conditions. Relevant RCTs have had methodologic limitations, most often very short lengths of follow-up, which do not permit strong conclusions about efficacy. The evidence is insufficient to determine the effects of the technology on health outcomes.

Policy History

Date	Action
5/2020	BCBSA National medical policy review. Description, summary and references updated. Policy statements unchanged.
1/2020	Clarified coding information.

4/2019	BCBSA National medical policy review. Description, summary and references updated. Policy statements unchanged.
5/2018	New references added from BCBSA National medical policy. Background and summary clarified. Prior Authorization Information reformatted.
1/2018	Clarified coding information.
10/2017	Clarified coding information.
4/2017	New references added from BCBSA National medical policy.
4/2016	New references added from BCBSA National medical policy.
12/2015	BCBSA national medical policy review. New investigational indications described. Minor revision to medically necessary policy statement to clarify "cognitive impairment due to" traumatic brain injury. Effective 12/1/2105.
8/2014	New investigational indications described. Coding information clarified. Effective 8/1/2014.
9/2013	BCBSA National medical policy review. New medically necessary indications described. Effective 9/1/2013.
5/2013	New references from BCBSA National medical policy.
11/2011-4/2012	Medical policy ICD 10 remediation: Formatting, editing and coding updates. No changes to policy statements.
1/2012	Reviewed - Medical Policy Group - Neurology and Neurosurgery. No changes to policy statements.
5/2011	Reviewed - Medical Policy Group - Pediatrics and Endocrinology. No changes to policy statements.
2/2011	Reviewed - Medical Policy Group - Psychiatry and Ophthalmology. No changes to policy statements.
1/2011	Reviewed - Medical Policy Group - Neurology and Neurosurgery. No changes to policy statements.
5/2010	Reviewed - Medical Policy Group - Pediatrics and Endocrinology. No changes to policy statements.
2/2010	Reviewed - Medical Policy Group - Psychiatry and Ophthalmology. No changes to policy statements.
1/2010	Reviewed - Medical Policy Group - Neurology and Neurosurgery. No changes to policy statements.
1/2010	BCBSA National medical policy review. No changes to policy statements.
5/2009	Reviewed - Medical Policy Group - Pediatrics and Endocrinology. No changes to policy statements.
2/2009	Reviewed - Medical Policy Group - Psychiatry and Ophthalmology. No changes to policy statements.
1/2009	Reviewed - Medical Policy Group - Neurology and Neurosurgery. No changes to policy statements.
5/2008	Reviewed - Medical Policy Group - Pediatrics and Endocrinology. No changes to policy statements.
5/2008	BCBSA National medical policy review. No changes to policy statements.
2/2008	Reviewed - Medical Policy Group - Psychiatry and Ophthalmology. No changes to policy statements.
1/2008	Reviewed - Medical Policy Group - Neurology and Neurosurgery. No changes to policy statements.
6/2007	BCBSA National medical policy review. No changes to policy statements.
5/2007	Reviewed - Medical Policy Group - Pediatrics and Endocrinology. No changes to policy statements.
4/2007	BCBSA National medical policy review. No changes to policy statements.
2/2007	Reviewed - Medical Policy Group - Psychiatry and Ophthalmology. No changes to policy statements.

1/2007	Reviewed - Medical Policy Group - Neurology and Neurosurgery. No changes to policy statements.
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Information Pertaining to All Blue Cross Blue Shield Medical Policies

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[Indemnity/PPO Guidelines](#)

[Clinical Exception Process](#)

[Medical Technology Assessment Guidelines](#)

References

1. Hardy KK, Willard VW, Allen TM, et al. Working memory training in survivors of pediatric cancer: a randomized pilot study. *Psychooncology*. Aug 2013;22(8):1856-1865. PMID 23203754
2. Kesler S, Hadi Hosseini SM, Heckler C, et al. Cognitive training for improving executive function in chemotherapy-treated breast cancer survivors. *Clin Breast Cancer*. Aug 2013;13(4):299-306. PMID 23647804
3. Bonavita S, Sacco R, Della Corte M, et al. Computer-aided cognitive rehabilitation improves cognitive performances and induces brain functional connectivity changes in relapsing remitting multiple sclerosis patients: an exploratory study. *J Neurol*. Jan 2015;262(1):91-100. PMID 25308631
4. De Giglio L, De Luca F, Prosperini L, et al. A low-cost cognitive rehabilitation with a commercial video game improves sustained attention and executive functions in multiple sclerosis: a pilot study. *Neurorehabil Neural Repair*. Jun 2015;29(5):453-461. PMID 25398725
5. Gich J, Freixanet J, Garcia R, et al. A randomized, controlled, single-blind, 6-month pilot study to evaluate the efficacy of MS-Line!: a cognitive rehabilitation programme for patients with multiple sclerosis. *Mult Scler*. Sep 2015;21(10):1332-1343. PMID 25716880
6. Blue Cross and Blue Shield Association Technology Evaluation Center (TEC). Cognitive rehabilitation. *TEC Assessments*. 1997;Volume 12:Tab 6.
7. Langenbahn DM, Ashman T, Cantor J, et al. An evidence-based review of cognitive rehabilitation in medical conditions affecting cognitive function. *Arch Phys Med Rehabil*. Feb 2013;94(2):271-286. PMID 23022261
8. Chung CS, Pollock A, Campbell T, et al. Cognitive rehabilitation for executive dysfunction in adults with stroke or other adult non-progressive acquired brain damage. *Cochrane Database Syst Rev*. Apr 30 2013;4(4):CD008391. PMID 23633354
9. Blue Cross and Blue Shield Association Technology Evaluation Center (TEC). Cognitive rehabilitation for traumatic brain injury in adults. *TEC Assessments*. 2008;Volume 23:Tab 3.
10. Cicerone KD, Mott T, Azulay J, et al. A randomized controlled trial of holistic neuropsychologic rehabilitation after traumatic brain injury. *Arch Phys Med Rehabil*. Dec 2008;89(12):2239-2249. PMID 19061735
11. Chiaravalloti ND, Sandry J, Moore NB, et al. An RCT to Treat learning impairment in traumatic brain injury: the TBI-MEM Trial. *Neurorehabil Neural Repair*. Jul 2016;30(6):539-550. PMID 26359341
12. das Nair R, Bradshaw LE, Carpenter H, et al. A group memory rehabilitation programme for people with traumatic brain injuries: the ReMemBrIn RCT. *Health Technol Assess*. 2019 Apr;23(16). PMID 31032782
13. Huntley JD, Gould RL, Liu K, et al. Do cognitive interventions improve general cognition in dementia? A meta-analysis and meta-regression. *BMJ Open*. Apr 2 2015;5(4):e005247. PMID 25838501
14. 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*. Jun 5 2013;6(6):CD003260. PMID 23740535
15. Clare L, Linden DE, Woods RT, et al. Goal-oriented cognitive rehabilitation for people with early-stage Alzheimer disease: a single-blind randomized controlled trial of clinical efficacy. *Am J Geriatr Psychiatry*. Oct 2010;18(10):928-939. PMID 20808145

16. Martin M, Clare L, Altgassen AM, et al. Cognition-based interventions for healthy older people and people with mild cognitive impairment. *Cochrane Database Syst Rev.* Jan 19 2011(1):CD006220. PMID 21249675
17. Clare L, Kudlicka A, Oyeboode JR, et al. Individual goal-oriented cognitive rehabilitation to improve everyday functioning for people with early-stage dementia: A multicentre randomised controlled trial (the GREAT trial). *Int J Geriatr Psychiatry.* 2019 May;34(5). PMID 30724405
18. Amieva H, Robert PH, Grandoulier AS, et al. Group and individual cognitive therapies in Alzheimer's disease: the ETNA3 randomized trial. *Int Psychogeriatr.* May 2016;28(5):707-717. PMID 26572551
19. Regan B, Wells Y, Farrow M, et al. MAXCOG-Maximizing Cognition: a randomized controlled trial of the efficacy of goal-oriented cognitive rehabilitation for people with mild cognitive impairment and early Alzheimer disease. *Am J Geriatr Psychiatry.* Mar 2017;25(3):258-269. PMID 28034509
20. Thivierge S, Jean L, Simard M. A randomized cross-over controlled study on cognitive rehabilitation of instrumental activities of daily living in Alzheimer disease. *Am J Geriatr Psychiatry.* Nov 2014;22(11):1188-1199. PMID 23871120
21. Brunelle-Hamann L, Thivierge S, Simard M. Impact of a cognitive rehabilitation intervention on neuropsychiatric symptoms in mild to moderate Alzheimer's disease. *Neuropsychol Rehabil.* Oct 14 2014;1-31. PMID 25312605
22. Kurz A, Thone-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.* Jul- Sep 2012;26(3):246-253. PMID 21986341
23. Chapman SB, Weiner MF, Rackley A, et al. Effects of cognitive-communication stimulation for Alzheimer's disease patients treated with donepezil. *J Speech Lang Hear Res.* Oct 2004;47(5):1149-1163. PMID 15603468
24. Spector A, Thorgrimsen L, Woods B, et al. Efficacy of an evidence-based cognitive stimulation therapy programme for people with dementia: randomised controlled trial. *Br J Psychiatry.* Sep 2003;183:248-254. PMID 12948999
25. Bowen A, Hazelton C, Pollock A, et al. Cognitive rehabilitation for spatial neglect following stroke. *Cochrane Database Syst Rev.* Jul 1 2013;7(7):CD003586. PMID 23813503
26. Loetscher T, Lincoln NB. Cognitive rehabilitation for attention deficits following stroke. *Cochrane Database Syst Rev.* May 31 2013;5(5):CD002842. PMID 23728639
27. Nair RD, Lincoln NB. Cognitive rehabilitation for memory deficits following stroke. *Cochrane Database Syst Rev.* Jul 18 2007(3):CD002293. PMID 17636703
28. das Nair R, Cogger H, Worthington E, et al. Cognitive rehabilitation for memory deficits after stroke. *Cochrane Database Syst Rev.* Sep 01 2016;9:CD002293. PMID 27581994
29. Gillespie DC, Bowen A, Chung CS, et al. Rehabilitation for post-stroke cognitive impairment: an overview of recommendations arising from systematic reviews of current evidence. *Clin Rehabil.* Feb 2015;29(2):120-128. PMID 24942480
30. Diamond PT. Rehabilitative management of post-stroke visuospatial inattention. *Disabil Rehabil.* Jul 10 2001;23(10):407-412. PMID 11400902
31. Zucchella C, Capone A, Codella V, et al. Assessing and restoring cognitive functions early after stroke. *Funct Neurol.* Oct-Dec 2014;29(4):255-262. PMID 25764255
32. das Nair R, Ferguson H, Stark DL, et al. Memory Rehabilitation for people with multiple sclerosis. *Cochrane Database Syst Rev.* Mar 14 2012;3(3):CD008754. PMID 22419337
33. Rosti-Otajarvi EM, Hamalainen PI. Neuropsychological rehabilitation for multiple sclerosis. *Cochrane Database Syst Rev.* Feb 11 2014;2(2):CD009131. PMID 24515630
34. das Nair R, Martin KJ, Lincoln NB. Memory rehabilitation for people with multiple sclerosis. *Cochrane Database Syst Rev.* Mar 23 2016;3:CD008754. PMID 27004596
35. Lincoln NB, Bradshaw LE, Constantinescu CS, et al. Cognitive rehabilitation for attention and memory in people with multiple sclerosis: a randomized controlled trial (CRAMMS). *Clin Rehabil.* 2019 Nov;269215519890378:269215519890378. PMID 31769299
36. Lincoln NB, Bradshaw LE, Constantinescu CS, et al. Group cognitive rehabilitation to reduce the psychological impact of multiple sclerosis on quality of life: the CRAMMS RCT. *Health Technol Assess.* 2020 Jan;24(4). PMID 31934845

37. Chiaravalloti ND, DeLuca J, Moore NB, et al. Treating learning impairments improves memory performance in multiple sclerosis: a randomized clinical trial. *Mult Scler*. Feb 2005;11(1):58-68. PMID 15732268
38. Chiaravalloti ND, Moore NB, Nickelshpur OM, et al. An RCT to treat learning impairment in multiple sclerosis: The MEMREHAB trial. *Neurology*. Dec 10 2013;81(24):2066-2072. PMID 24212393
39. Rosti-Otajarvi E, Mantynen A, Koivisto K, et al. Neuropsychological rehabilitation has beneficial effects on perceived cognitive deficits in multiple sclerosis during nine-month follow-up. *J Neurol Sci*. Nov 15 2013;334(1- 2):154-160. PMID 24011606
40. Mantynen A, Rosti-Otajarvi E, Koivisto K, et al. Neuropsychological rehabilitation does not improve cognitive performance but reduces perceived cognitive deficits in patients with multiple sclerosis: a randomised, controlled, multi-centre trial. *Mult Scler*. Jan 2014;20(1):99-107. PMID 23804555
41. Hanssen KT, Beiske AG, Landro NI, et al. Cognitive rehabilitation in multiple sclerosis: a randomized controlled trial. *Acta Neurol Scand*. Jan 2016;133(1):30-40. PMID 25952561
42. Shahpouri MM, Berekatain M, Tavakoli M et al. Evaluation of cognitive rehabilitation on the cognitive performance in multiple sclerosis: A randomized controlled trial. *J Res Med Sci*. 2019;24:110. PMID 31949461
43. Chiaravalloti ND, Moore NB, Weber E, et al. The application of *Strategy-based Training to Enhance Memory (STEM)* in multiple sclerosis: A pilot RCT. *Neuropsychol Rehabil*. 2019 Nov;1-24:1-24. PMID 31752604
44. Farina E, Raglio A, Giovagnoli AR. Cognitive rehabilitation in epilepsy: An evidence-based review. *Epilepsy Res*. Jan 2015;109C:210-218. PMID 25524861
45. Engelberts NH, Klein M, Ader HJ, et al. The effectiveness of cognitive rehabilitation for attention deficits in focal seizures: a randomized controlled study. *Epilepsia*. Jun 2002;43(6):587-595. PMID 12060017
46. Helmstaedter C, Loer B, Wohlfahrt R, et al. The effects of cognitive rehabilitation on memory outcome after temporal lobe epilepsy surgery. *Epilepsy Behav*. Apr 2008;12(3):402-409. PMID 18155965
47. Reichow B, Servili C, Yasamy MT, et al. Non-specialist psychosocial interventions for children and adolescents with intellectual disability or lower-functioning autism spectrum disorders: a systematic review. *PLoS Med*. Dec 2013;10(12):e1001572; discussion e1001572. PMID 24358029
48. Wang M, Reid D. Using the virtual reality-cognitive rehabilitation approach to improve contextual processing in children with autism. *ScientificWorldJournal*. Dec 2013;2013:716890. PMID 24324379
49. Eack SM, Greenwald DP, Hogarty SS, et al. Cognitive enhancement therapy for adults with autism spectrum disorder: results of an 18-month feasibility study. *J Autism Dev Disord*. Dec 2013;43(12):2866-2877. PMID 23619953
50. Akel BS, Sahin S, Huri M, et al. Cognitive rehabilitation is advantageous in terms of fatigue and independence in pediatric cancer treatment: a randomized-controlled study. *Int J Rehabil Res*. 2019 Jun;42(2). PMID 30741725
51. Zucchella C, Capone A, Codella V, et al. Cognitive rehabilitation for early post-surgery inpatients affected by primary brain tumor: a randomized, controlled trial. *J Neurooncol*. Aug 2013;114(1):93-100. PMID 23677749
52. Fernandes HA, Richard NM, Edelstein K. Cognitive rehabilitation for cancer-related cognitive dysfunction: a systematic review. *Support Care Cancer*. 2019 Sep;27(9). PMID 31147780
53. Zeng Y, Cheng AS, Chan CC. Meta-analysis of the effects of neuropsychological interventions on cognitive function in non-central nervous system cancer survivors. *Integr Cancer Ther*. Dec 2016;15(4):424-434. PMID 27151596
54. Poppelreuter M, Weis J, Mumm A, et al. Rehabilitation of therapy-related cognitive deficits in patients after hematopoietic stem cell transplantation. *Bone Marrow Transplant*. Jan 2008;41(1):79-90. PMID 17934527
55. Butler RW, Copeland DR, Fairclough DL, et al. A multicenter, randomized clinical trial of a cognitive remediation program for childhood survivors of a pediatric malignancy. *J Consult Clin Psychol*. Jun 2008;76(3):367-378. PMID 18540731
56. Richard NM, Bernstein LJ, Mason WP, et al. Cognitive rehabilitation for executive dysfunction in brain tumor patients: a pilot randomized controlled trial. *J. Neurooncol*. 2019 May;142(3). PMID 30847839

57. National Institute for Health and Care Excellence (NICE). Stroke rehabilitation in adults [CG162]. 2013; <https://www.nice.org.uk/guidance/CG162>. Accessed February 7, 2020.
58. National Institute for Health and Care Excellence (NICE). Dementia: assessment, management and support for people living with dementia and their carers [NG97]. 2018; <https://www.nice.org.uk/guidance/ng97/chapter/Recommendations#interventions-to-promote-cognition-independence-and-wellbeing>. Accessed February 5, 2020.
59. Institute of Medicine. Cognitive rehabilitation therapy for traumatic brain injury: evaluating the evidence. Washington, DC: National Academies Press; 2011.
60. Department of Veteran Affairs Department of Defense. VA/DoD clinical practice guideline for management of concussion/mild traumatic brain injury. Washington (DC): Department of Veteran Affairs, Department of Defense; 2009.
61. Management of Concussion-mild Traumatic Brain Injury Working Group. VA/DoD clinical practice guideline for the management of concussion-mild traumatic brain injury, Version 2.0. Washington, DC: Department of Veterans Affairs, Department of Defense; 2016.