



MASSACHUSETTS

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## Medical Policy

# Intraoperative Neurophysiologic Monitoring Sensory-Evoked Potentials, Motor-Evoked Potentials, EEG Monitoring

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### Policy Number: 211

BCBSA Reference Number: 7.01.58

NCD/LCD:

Local Coverage Determination (LCD): Visual Electrophysiology Testing (L36831)

Local Coverage Determination (LCD): Intraoperative Neurophysiological Testing (L34623)

### Related Policies

Navigated Transcranial Magnetic Stimulation, [#596](#)

### Policy<sup>1</sup>

## Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity Medicare HMO Blue<sup>SM</sup> and Medicare PPO Blue<sup>SM</sup> Members

### Intraoperative Monitoring

Intraoperative neurophysiologic monitoring, which includes somatosensory-evoked potentials, motor-evoked potentials using transcranial electrical stimulation, brainstem auditory-evoked potentials, electromyography (EMG) of cranial nerves, electroencephalography, and electrocorticography, may be considered **MEDICALLY NECESSARY** during spinal, intracranial, or vascular procedures.

Intraoperative neurophysiologic monitoring of the recurrent laryngeal nerve may be considered **MEDICALLY NECESSARY** in patients undergoing:

- high-risk thyroid or parathyroid surgery, including:
  - total thyroidectomy
  - repeat thyroid or parathyroid surgery
  - surgery for cancer
  - thyrotoxicosis
  - retrosternal or giant goiter
  - thyroiditis
- anterior cervical spine surgery associated with any of the following increased risk situations:
  - prior anterior cervical surgery, particularly revision anterior cervical discectomy and fusion, revision surgery through a scarred surgical field, reoperation for pseudarthrosis or revision for failed fusion

- multilevel anterior cervical discectomy and fusion
- preexisting recurrent laryngeal nerve pathology, when there is residual function of the recurrent laryngeal nerve.

Intraoperative neurophysiologic monitoring of the recurrent laryngeal nerve during anterior cervical spine surgery not meeting the criteria above or during esophageal surgeries is considered [INVESTIGATIONAL](#).

Intraoperative monitoring of visual-evoked potentials is considered [INVESTIGATIONAL](#).

Due to the lack of U.S. Food and Drug Administration approval, intraoperative monitoring of motor-evoked potentials using transcranial magnetic stimulation is considered [INVESTIGATIONAL](#).

Intraoperative EMG and nerve conduction velocity monitoring during surgery on the peripheral nerves is considered [NOT MEDICALLY NECESSARY](#).

**Note:** The above policy statements refer only to use of these techniques as part of intraoperative monitoring.

### Visual Evoked Potential Testing<sup>1</sup>

Visual evoked potentials (VEPs) may be considered [MEDICALLY NECESSARY](#) for the diagnosis, evaluation, or monitoring of any of the following conditions:

- Multiple sclerosis or neuromyelitis optica (NMO), or other demyelinating disorders of the optic nerve; **or**
- Suspected disorder of the optic nerve, optic chiasm or optic radiations not explained by MRI, CT, infectious diseases or metabolic disorders.

Visual evoked potentials (VEPs) are considered [NOT MEDICALLY NECESSARY](#) for all other uses, including but not limited to routine screening of infants.

### Somatosensory Evoked Potential Testing<sup>1</sup>

Somatosensory evoked potentials (SSEPs) may be considered [MEDICALLY NECESSARY](#) when the results will be used to guide clinical management for the following conditions:

- Acute (within 72 hrs of onset) anoxic encephalopathy; **or**
- Coma following traumatic, hypoxic-ischemic and other diffuse brain injuries; **or**
- Central nervous system deficiency identified on clinical exam when not explained by appropriate imaging studies; **or**
- Demyelinating disease (such as multiple sclerosis) when diagnosis is uncertain and clinical suspicion exists based on neurologic symptoms or cerebrospinal fluid evaluation; **or**
- Myelopathy, unexplained; **or**
- Spinocerebral degeneration (such as Friedreich's ataxia); **or**
- Spinal cord lesions secondary to trauma when the need for surgical intervention is uncertain; **or**
- Suspected brain death.

Somatosensory evoked potentials (SSEPs) are considered [NOT MEDICALLY NECESSARY](#) for all other uses.

### Motor Evoked Potential Testing<sup>1</sup>

Motor evoked potentials are considered [MEDICALLY NECESSARY](#) for evaluation of suspected hysterical or factitious paralysis.

Motor evoked potentials are considered **NOT MEDICALLY NECESSARY** in the non-operative setting when the above criteria are not met.

## Medicare HMO Blue<sup>SM</sup> and Medicare PPO Blue<sup>SM</sup> Members

Medical necessity criteria and coding guidance for **Medicare Advantage members living in Massachusetts** can be found through the links below.

[Local Coverage Determinations \(LCDs\) for National Government Services, Inc.](#)

Local Coverage Determination (LCD): Visual Electrophysiology Testing (L36831)

Local Coverage Determination (LCD): Intraoperative Neurophysiological Testing (L34623)

**Note:** To review the specific LCD, please remember to click “accept” on the CMS licensing agreement at the bottom of the CMS webpage.

For medical necessity criteria and coding guidance for **Medicare Advantage members living outside of Massachusetts**, please see the Centers for Medicare and Medicaid Services website at <https://www.cms.gov> for information regarding your specific jurisdiction.

## Prior Authorization Information

### Inpatient

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

### Outpatient

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

	Outpatient
Commercial Managed Care (HMO and POS)	Prior authorization is <b>not required</b> .
Commercial PPO and Indemnity	Prior authorization is <b>not required</b> .
Medicare HMO Blue <sup>SM</sup>	Prior authorization is <b>not required</b> .
Medicare PPO Blue <sup>SM</sup>	Prior authorization is <b>not required</b> .

## 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
95930	Visual evoked potential (VEP) checkerboard or flash testing, central nervous system except glaucoma, with interpretation and report

95940	Continuous intraoperative neurophysiology monitoring in the operating room, one on one monitoring requiring personal attendance, each 15 minutes (List separately in addition to code for primary procedure)
95941	Continuous intraoperative neurophysiology monitoring, from outside the operating room (remote or nearby) or for monitoring of more than one case while in the operating room, per hour (List separately in addition to code for primary procedure)

**Note:** 95941 is considered investigational for Medicare HMO Blue and Medicare PPO Blue:

### HCPCS Codes

HCPCS codes:	Code Description
G0453	Continuous intraoperative neurophysiology monitoring, from outside the operating room (remote or nearby), per patient, (attention directed exclusively to one patient) each 15 minutes (list in addition to primary procedure)

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
95925	Short-latency somatosensory evoked potential study, stimulation of any/all peripheral nerves or skin sites, recording from the central nervous system; in upper limbs
95926	Short-latency somatosensory evoked potential study, stimulation of any/all peripheral nerves or skin sites, recording from the central nervous system; in lower limbs
95927	Short-latency somatosensory evoked potential study, stimulation of any/all peripheral nerves or skin sites, recording from the central nervous system; in the trunk or head
95938	Short-latency somatosensory evoked potential study, stimulation of any/all peripheral nerves or skin sites, recording from the central nervous system; in upper and lower limbs

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

### ICD-10 Diagnosis Codes

ICD-10-CM Diagnosis codes:	Code Description
C41.2	Malignant neoplasm of vertebral column
C70.0	Malignant neoplasm of cerebral meninges
C70.1	Malignant neoplasm of spinal meninges
C71.0	Malignant neoplasm of cerebrum, except lobes and ventricles
C71.1	Malignant neoplasm of frontal lobe
C71.2	Malignant neoplasm of temporal lobe
C71.3	Malignant neoplasm of parietal lobe
C71.4	Malignant neoplasm of occipital lobe
C71.5	Malignant neoplasm of cerebral ventricle
C71.6	Malignant neoplasm of cerebellum
C71.7	Malignant neoplasm of brain stem
C71.8	Malignant neoplasm of overlapping sites of brain

C71.9	Malignant neoplasm of brain, unspecified
C79.31	Secondary malignant neoplasm of brain
C79.32	Secondary malignant neoplasm of cerebral meninges
C79.49	Secondary malignant neoplasm of other parts of nervous system
C79.51	Secondary malignant neoplasm of bone
D16.6	Benign neoplasm of vertebral column
D32.1	Benign neoplasm of spinal meninges
D33.4	Benign neoplasm of spinal cord
D42.1	Neoplasm of uncertain behavior of spinal meninges
D43.0	Neoplasm of uncertain behavior of brain, supratentorial
D43.1	Neoplasm of uncertain behavior of brain, infratentorial
D43.2	Neoplasm of uncertain behavior of brain, unspecified
D48.0	Neoplasm of uncertain behavior of bone and articular cartilage
D49.2	Neoplasm of unspecified behavior of bone, soft tissue, and skin
D49.6	Neoplasm of unspecified behavior of brain
G11.0	Congenital nonprogressive ataxia
G11.1	Early-onset cerebellar ataxia
G11.2	Late-onset cerebellar ataxia
G11.3	Cerebellar ataxia with defective DNA repair
G11.4	Hereditary spastic paraplegia
G11.8	Other hereditary ataxias
G11.9	Hereditary ataxia, unspecified
G36.8	Other specified acute disseminated demyelination
G36.9	Acute disseminated demyelination, unspecified
G37.8	Other specified demyelinating diseases of central nervous system
G37.9	Demyelinating disease of central nervous system, unspecified
G93.1	Anoxic brain damage, not elsewhere classified
G95.89	Other specified diseases of spinal cord
G95.9	Disease of spinal cord, unspecified
G96.8	Other specified disorders of central nervous system
M62.81	Muscle weakness (generalized)
Q85.03	Schwannomatosis
R20.0	Anesthesia of skin
R20.1	Hypoesthesia of skin
R20.2	Paresthesia of skin
R20.3	Hyperesthesia
R20.8	Other disturbances of skin sensation
R20.9	Unspecified disturbances of skin sensation
R25.0	Abnormal head movements
R25.1	Tremor, unspecified
R25.3	Fasciculation
R25.8	Other abnormal involuntary movements
R25.9	Unspecified abnormal involuntary movements
R29.5	Transient paralysis
R40.20	Unspecified coma
R40.2110	Coma scale, eyes open, never, unspecified time
R40.2111	Coma scale, eyes open, never, in the field [EMT or ambulance]
R40.2112	Coma scale, eyes open, never, at arrival to emergency department
R40.2113	Coma scale, eyes open, never, at arrival to emergency department
R40.2120	Coma scale, eyes open, to pain, unspecified time
R40.2121	Coma scale, eyes open, to pain, in the field [EMT or ambulance]

R40.2122	Coma scale, eyes open, to pain, at arrival to emergency department
R40.2123	Coma scale, eyes open, to pain, at hospital admission
R40.2124	Coma scale, eyes open, to pain, 24 hours or more after hospital admission
R40.2130	Coma scale, eyes open, to sound, unspecified time
R40.2131	Coma scale, eyes open, to sound, in the field [EMT or ambulance]
R40.2132	Coma scale, eyes open, to sound, at arrival to emergency department
R40.2133	Coma scale, eyes open, to sound, at hospital admission
R40.2134	Coma scale, eyes open, to sound, 24 hours or more after hospital admission
R40.2140	Coma scale, eyes open, spontaneous, unspecified time
R40.2141	Coma scale, eyes open, spontaneous, in the field [EMT or ambulance]
R40.2142	Coma scale, eyes open, spontaneous, at arrival to emergency department
R40.2143	Coma scale, eyes open, spontaneous, at arrival to emergency department
R40.2144	Coma scale, eyes open, spontaneous, 24 hours or more after hospital admission
R40.2210	Coma scale, best verbal response, none, unspecified time
R40.2211	Coma scale, best verbal response, none, in the field [EMT or ambulance]
R40.2212	Coma scale, best verbal response, none, at arrival to emergency department
R40.2213	Coma scale, best verbal response, none, at hospital admission
R40.2214	Coma scale, best verbal response, none, 24 hours or more after hospital admission
R40.2220	Coma scale, best verbal response, incomprehensible words, unspecified time
R40.2221	Coma scale, best verbal response, incomprehensible words, in the field [EMT or ambulance]
R40.2222	Coma scale, best verbal response, incomprehensible words, at arrival to emergency department
R40.2223	Coma scale, best verbal response, incomprehensible words, at hospital admission
R40.2224	Coma scale, best verbal response, incomprehensible words, 24 hours or more after hospital admission
R40.2230	Coma scale, best verbal response, inappropriate words, unspecified time
R40.2231	Coma scale, best verbal response, inappropriate words, in the field [EMT or ambulance]
R40.2232	Coma scale, best verbal response, inappropriate words, at arrival to emergency department
R40.2233	Coma scale, best verbal response, inappropriate words, at hospital admission
R40.2234	Coma scale, best verbal response, inappropriate words, 24 hours or more after hospital admission
R40.2240	Coma scale, best verbal response, confused conversation, unspecified time
R40.2241	Coma scale, best verbal response, confused conversation, in the field [EMT or ambulance]
R40.2242	Coma scale, best verbal response, confused conversation, at arrival to emergency department
R40.2243	Coma scale, best verbal response, confused conversation, at hospital admission
R40.2244	Coma scale, best verbal response, confused conversation, 24 hours or more after hospital admission
R40.2250	Coma scale, best verbal response, oriented, unspecified time
R40.2251	Coma scale, best verbal response, oriented, in the field [EMT or ambulance]
R40.2252	Coma scale, best verbal response, oriented, at arrival to emergency department
R40.2253	Coma scale, best verbal response, oriented, at hospital admission
R40.2254	Coma scale, best verbal response, oriented, 24 hours or more after hospital admission
R40.2310	Coma scale, best motor response, none, unspecified time
R40.2311	Coma scale, best motor response, none, in the field [EMT or ambulance]
R40.2312	Coma scale, best motor response, none, at arrival to emergency department
R40.2313	Coma scale, best motor response, none, at hospital admission
R40.2314	Coma scale, best motor response, none, 24 hours or more after hospital admission

R40.2320	Coma scale, best motor response, extension, unspecified time
R40.2321	Coma scale, best motor response, extension, in the field [EMT or ambulance]
R40.2322	Coma scale, best motor response, extension, at arrival to emergency department
R40.2323	Coma scale, best motor response, extension, at hospital admission
R40.2324	Coma scale, best motor response, extension, 24 hours or more after hospital admission
R40.2330	Coma scale, best motor response, abnormal flexion, unspecified time
R40.2331	Coma scale, best motor response, abnormal flexion, in the field [EMT or ambulance]
R40.2332	Coma scale, best motor response, abnormal flexion, at arrival to emergency department
R40.2333	Coma scale, best motor response, abnormal flexion, at hospital admission
R40.2334	Coma scale, best motor response, abnormal flexion, 24 hours or more after hospital admission
R40.2340	Coma scale, best motor response, flexion withdrawal, unspecified time
R40.2341	Coma scale, best motor response, flexion withdrawal, in the field [EMT or ambulance]
R40.2342	Coma scale, best motor response, flexion withdrawal, at arrival to emergency department
R40.2343	Coma scale, best motor response, flexion withdrawal, at hospital admission
R40.2344	Coma scale, best motor response, flexion withdrawal, 24 hours or more after hospital admission
R40.2350	Coma scale, best motor response, localizes pain, unspecified time
R40.2351	Coma scale, best motor response, localizes pain, in the field [EMT or ambulance]
R40.2352	Coma scale, best motor response, localizes pain, at arrival to emergency department
R40.2353	Coma scale, best motor response, localizes pain, at hospital admission
R40.2354	Coma scale, best motor response, localizes pain, 24 hours or more after hospital admission
R40.2360	Coma scale, best motor response, obeys commands, unspecified time
R40.2361	Coma scale, best motor response, obeys commands, in the field [EMT or ambulance]
R40.2362	Coma scale, best motor response, obeys commands, at arrival to emergency department
R40.2363	Coma scale, best motor response, obeys commands, at hospital admission
R40.2364	Coma scale, best motor response, obeys commands, 24 hours or more after hospital admission
R40.2410	Glasgow coma scale score 13-15, unspecified time
R40.2411	Glasgow coma scale score 13-15, in the field [EMT or ambulance]
R40.2412	Glasgow coma scale score 13-15, at arrival to emergency department
R40.2413	Glasgow coma scale score 13-15, at hospital admission
R40.2414	Glasgow coma scale score 13-15, 24 hours or more after hospital admission
R40.2420	Glasgow coma scale score 9-12, unspecified time
R40.2421	Glasgow coma scale score 9-12, in the field [EMT or ambulance]
R40.2422	Glasgow coma scale score 9-12, at arrival to emergency department
R40.2423	Glasgow coma scale score 9-12, at hospital admission
R40.2424	Glasgow coma scale score 9-12, 24 hours or more after hospital admission
R40.2430	Glasgow coma scale score 3-8, unspecified time
R40.2431	Glasgow coma scale score 3-8, in the field [EMT or ambulance]
R40.2432	Glasgow coma scale score 3-8, at arrival to emergency department
R40.2433	Glasgow coma scale score 3-8, at hospital admission
R40.2434	Glasgow coma scale score 3-8, 24 hours or more after hospital admission
R40.2440	Other coma, without documented Glasgow coma scale score, or with partial score reported, unspecified time
R40.2441	Other coma, without documented Glasgow coma scale score, or with partial score reported, in the field [EMT or ambulance]

R40.2442	Other coma, without documented Glasgow coma scale score, or with partial score reported, at arrival to emergency department
R40.2443	Other coma, without documented Glasgow coma scale score, or with partial score reported, at hospital admission
R40.2444	Other coma, without documented Glasgow coma scale score, or with partial score reported, 24 hours or more after hospital admission
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
S06.1X0A	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
S06.2X0A	Diffuse traumatic brain injury without loss of consciousness, initial encounter
S06.2X0D	Diffuse traumatic brain injury without loss of consciousness, subsequent encounter
S06.2X0S	Diffuse traumatic brain injury without loss of consciousness, sequela
S06.2X1A	Diffuse traumatic brain injury with loss of consciousness of 30 minutes or less, initial encounter
S06.2X1D	Diffuse traumatic brain injury with loss of consciousness of 30 minutes or less, subsequent encounter
S06.2X1S	Diffuse traumatic brain injury with loss of consciousness of 30 minutes or less, sequela
S06.2X2A	Diffuse traumatic brain injury with loss of consciousness of 31 minutes to 59 minutes, initial encounter
S06.2X2D	Diffuse traumatic brain injury with loss of consciousness of 31 minutes to 59 minutes, subsequent encounter
S06.2X2S	Diffuse traumatic brain injury with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.2X3A	Diffuse traumatic brain injury with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter
S06.2X3D	Diffuse traumatic brain injury with loss of consciousness of 1 hour to 5 hours 59 minutes, subsequent encounter
S06.2X3S	Diffuse traumatic brain injury with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.2X4A	Diffuse traumatic brain injury with loss of consciousness of 6 hours to 24 hours, initial encounter
S06.2X4D	Diffuse traumatic brain injury with loss of consciousness of 6 hours to 24 hours, subsequent encounter
S06.2X4S	Diffuse traumatic brain injury with loss of consciousness of 6 hours to 24 hours, sequela
S06.2X5A	Diffuse traumatic brain injury with loss of consciousness greater than 24 hours with return to pre-existing conscious levels, initial encounter
S06.2X5D	Diffuse traumatic brain injury with loss of consciousness greater than 24 hours with return to pre-existing conscious levels, subsequent encounter
S06.2X5S	Diffuse traumatic brain injury with loss of consciousness greater than 24 hours with return to pre-existing conscious levels, sequela
S06.2X6A	Diffuse traumatic brain injury with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter
S06.2X6D	Diffuse traumatic brain injury with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, subsequent encounter
S06.2X6S	Diffuse traumatic brain injury with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.2X7A	Diffuse traumatic brain injury with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter
S06.2X8A	Diffuse traumatic brain injury with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter
S06.2X9A	Diffuse traumatic brain injury with loss of consciousness of unspecified duration, initial encounter
S06.2X9D	Diffuse traumatic brain injury with loss of consciousness of unspecified duration, subsequent encounter
S06.2X9S	Diffuse traumatic brain injury with loss of consciousness of unspecified duration, sequela
S06.300A	Unspecified focal traumatic brain injury without loss of consciousness, initial encounter
S06.300D	Unspecified focal traumatic brain injury without loss of consciousness, subsequent encounter
S06.300S	Unspecified focal traumatic brain injury without loss of consciousness, sequela

S06.301A	Unspecified focal traumatic brain injury with loss of consciousness of 30 minutes or less, initial encounter
S06.301D	Unspecified focal traumatic brain injury with loss of consciousness of 30 minutes or less, subsequent encounter
S06.301S	Unspecified focal traumatic brain injury with loss of consciousness of 30 minutes or less, sequela
S06.302A	Unspecified focal traumatic brain injury with loss of consciousness of 31 minutes to 59 minutes, initial encounter
S06.302D	Unspecified focal traumatic brain injury with loss of consciousness of 31 minutes to 59 minutes, subsequent encounter
S06.302S	Unspecified focal traumatic brain injury with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.303A	Unspecified focal traumatic brain injury with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter
S06.303D	Unspecified focal traumatic brain injury with loss of consciousness of 1 hour to 5 hours 59 minutes, subsequent encounter
S06.303S	Unspecified focal traumatic brain injury with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.304A	Unspecified focal traumatic brain injury with loss of consciousness of 6 hours to 24 hours, initial encounter
S06.304D	Unspecified focal traumatic brain injury with loss of consciousness of 6 hours to 24 hours, subsequent encounter
S06.304S	Unspecified focal traumatic brain injury with loss of consciousness of 6 hours to 24 hours, sequela
S06.305A	Unspecified focal traumatic brain injury with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter
S06.305D	Unspecified focal traumatic brain injury with loss of consciousness greater than 24 hours with return to pre-existing conscious level, subsequent encounter
S06.305S	Unspecified focal traumatic brain injury with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.306A	Unspecified focal traumatic brain injury with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter
S06.306D	Unspecified focal traumatic brain injury with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, subsequent encounter
S06.306S	Unspecified focal traumatic brain injury with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.307A	Unspecified focal traumatic brain injury with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter
S06.308A	Unspecified focal traumatic brain injury with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter
S06.309A	Unspecified focal traumatic brain injury with loss of consciousness of unspecified duration, initial encounter
S06.309D	Unspecified focal traumatic brain injury with loss of consciousness of unspecified duration, subsequent encounter
S06.309S	Unspecified focal traumatic brain injury with loss of consciousness of unspecified duration, sequela
S06.310A	Contusion and laceration of right cerebrum without loss of consciousness, initial encounter
S06.310D	Contusion and laceration of right cerebrum without loss of consciousness, subsequent encounter
S06.310S	Contusion and laceration of right cerebrum without loss of consciousness, sequela
S06.311A	Contusion and laceration of right cerebrum with loss of consciousness of 30 minutes or less, initial encounter

S06.311D	Contusion and laceration of right cerebrum with loss of consciousness of 30 minutes or less, subsequent encounter
S06.311S	Contusion and laceration of right cerebrum with loss of consciousness of 30 minutes or less, sequela
S06.312A	Contusion and laceration of right cerebrum with loss of consciousness of 31 minutes to 59 minutes, initial encounter
S06.312D	Contusion and laceration of right cerebrum with loss of consciousness of 31 minutes to 59 minutes, subsequent encounter
S06.312S	Contusion and laceration of right cerebrum with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.313A	Contusion and laceration of right cerebrum with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter
S06.313D	Contusion and laceration of right cerebrum with loss of consciousness of 1 hour to 5 hours 59 minutes, subsequent encounter
S06.313S	Contusion and laceration of right cerebrum with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.314A	Contusion and laceration of right cerebrum with loss of consciousness of 6 hours to 24 hours, initial encounter
S06.314D	Contusion and laceration of right cerebrum with loss of consciousness of 6 hours to 24 hours, subsequent encounter
S06.314S	Contusion and laceration of right cerebrum with loss of consciousness of 6 hours to 24 hours, sequela
S06.315A	Contusion and laceration of right cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter
S06.315D	Contusion and laceration of right cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, subsequent encounter
S06.315S	Contusion and laceration of right cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.316A	Contusion and laceration of right cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter
S06.316D	Contusion and laceration of right cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, subsequent encounter
S06.316S	Contusion and laceration of right cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.317A	Contusion and laceration of right cerebrum with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter
S06.318A	Contusion and laceration of right cerebrum with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter
S06.319A	Contusion and laceration of right cerebrum with loss of consciousness of unspecified duration, initial encounter
S06.319D	Contusion and laceration of right cerebrum with loss of consciousness of unspecified duration, subsequent encounter
S06.319S	Contusion and laceration of right cerebrum with loss of consciousness of unspecified duration, sequela
S06.320A	Contusion and laceration of left cerebrum without loss of consciousness, initial encounter
S06.320D	Contusion and laceration of left cerebrum without loss of consciousness, subsequent encounter
S06.320S	Contusion and laceration of left cerebrum without loss of consciousness, sequela
S06.321A	Contusion and laceration of left cerebrum with loss of consciousness of 30 minutes or less, initial encounter
S06.321D	Contusion and laceration of left cerebrum with loss of consciousness of 30 minutes or less, subsequent encounter

S06.321S	Contusion and laceration of left cerebrum with loss of consciousness of 30 minutes or less, sequela
S06.322A	Contusion and laceration of left cerebrum with loss of consciousness of 31 minutes to 59 minutes, initial encounter
S06.322D	Contusion and laceration of left cerebrum with loss of consciousness of 31 minutes to 59 minutes, subsequent encounter
S06.322S	Contusion and laceration of left cerebrum with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.323A	Contusion and laceration of left cerebrum with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter
S06.323D	Contusion and laceration of left cerebrum with loss of consciousness of 1 hour to 5 hours 59 minutes, subsequent encounter
S06.323S	Contusion and laceration of left cerebrum with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.324A	Contusion and laceration of left cerebrum with loss of consciousness of 6 hours to 24 hours, initial encounter
S06.324D	Contusion and laceration of left cerebrum with loss of consciousness of 6 hours to 24 hours, subsequent encounter
S06.324S	Contusion and laceration of left cerebrum with loss of consciousness of 6 hours to 24 hours, sequela
S06.325A	Contusion and laceration of left cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter
S06.325D	Contusion and laceration of left cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, subsequent encounter
S06.325S	Contusion and laceration of left cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.326A	Contusion and laceration of left cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter
S06.326D	Contusion and laceration of left cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, subsequent encounter
S06.326S	Contusion and laceration of left cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.327A	Contusion and laceration of left cerebrum with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter
S06.328A	Contusion and laceration of left cerebrum with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter
S06.329A	Contusion and laceration of left cerebrum with loss of consciousness of unspecified duration, initial encounter
S06.329D	Contusion and laceration of left cerebrum with loss of consciousness of unspecified duration, subsequent encounter
S06.329S	Contusion and laceration of left cerebrum with loss of consciousness of unspecified duration, 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
S06.340A	Traumatic hemorrhage of right cerebrum without loss of consciousness, initial encounter
S06.340D	Traumatic hemorrhage of right cerebrum without loss of consciousness, subsequent encounter
S06.340S	Traumatic hemorrhage of right cerebrum without loss of consciousness, sequela
S06.341A	Traumatic hemorrhage of right cerebrum with loss of consciousness of 30 minutes or less, initial encounter

S06.341D	Traumatic hemorrhage of right cerebrum with loss of consciousness of 30 minutes or less, subsequent encounter
S06.341S	Traumatic hemorrhage of right cerebrum with loss of consciousness of 30 minutes or less, sequela
S06.342A	Traumatic hemorrhage of right cerebrum with loss of consciousness of 31 minutes to 59 minutes, initial encounter
S06.342D	Traumatic hemorrhage of right cerebrum with loss of consciousness of 31 minutes to 59 minutes, subsequent encounter
S06.342S	Traumatic hemorrhage of right cerebrum with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.343A	Traumatic hemorrhage of right cerebrum with loss of consciousness of 1 hours to 5 hours 59 minutes, initial encounter
S06.343D	Traumatic hemorrhage of right cerebrum with loss of consciousness of 1 hours to 5 hours 59 minutes, subsequent encounter
S06.343S	Traumatic hemorrhage of right cerebrum with loss of consciousness of 1 hours to 5 hours 59 minutes, sequela
S06.344A	Traumatic hemorrhage of right cerebrum with loss of consciousness of 6 hours to 24 hours, initial encounter
S06.344D	Traumatic hemorrhage of right cerebrum with loss of consciousness of 6 hours to 24 hours, subsequent encounter
S06.344S	Traumatic hemorrhage of right cerebrum with loss of consciousness of 6 hours to 24 hours, sequela
S06.345A	Traumatic hemorrhage of right cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter
S06.345D	Traumatic hemorrhage of right cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, subsequent encounter
S06.345S	Traumatic hemorrhage of right cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.346A	Traumatic hemorrhage of right cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter
S06.346D	Traumatic hemorrhage of right cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, subsequent encounter
S06.346S	Traumatic hemorrhage of right cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.347A	Traumatic hemorrhage of right cerebrum with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter
S06.348A	Traumatic hemorrhage of right cerebrum with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter
S06.349A	Traumatic hemorrhage of right cerebrum with loss of consciousness of unspecified duration, initial encounter
S06.349D	Traumatic hemorrhage of right cerebrum with loss of consciousness of unspecified duration, subsequent encounter
S06.349S	Traumatic hemorrhage of right cerebrum with loss of consciousness of unspecified duration, sequela
S06.350A	Traumatic hemorrhage of left cerebrum without loss of consciousness, initial encounter
S06.350D	Traumatic hemorrhage of left cerebrum without loss of consciousness, subsequent encounter
S06.350S	Traumatic hemorrhage of left cerebrum without loss of consciousness, sequela
S06.351A	Traumatic hemorrhage of left cerebrum with loss of consciousness of 30 minutes or less, initial encounter
S06.351D	Traumatic hemorrhage of left cerebrum with loss of consciousness of 30 minutes or less, subsequent encounter

S06.351S	Traumatic hemorrhage of left cerebrum with loss of consciousness of 30 minutes or less, sequela
S06.352A	Traumatic hemorrhage of left cerebrum with loss of consciousness of 31 minutes to 59 minutes, initial encounter
S06.352D	Traumatic hemorrhage of left cerebrum with loss of consciousness of 31 minutes to 59 minutes, subsequent encounter
S06.352S	Traumatic hemorrhage of left cerebrum with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.353A	Traumatic hemorrhage of left cerebrum with loss of consciousness of 1 hours to 5 hours 59 minutes, initial encounter
S06.353D	Traumatic hemorrhage of left cerebrum with loss of consciousness of 1 hours to 5 hours 59 minutes, subsequent encounter
S06.353S	Traumatic hemorrhage of left cerebrum with loss of consciousness of 1 hours to 5 hours 59 minutes, sequela
S06.354A	Traumatic hemorrhage of left cerebrum with loss of consciousness of 6 hours to 24 hours, initial encounter
S06.354D	Traumatic hemorrhage of left cerebrum with loss of consciousness of 6 hours to 24 hours, subsequent encounter
S06.354S	Traumatic hemorrhage of left cerebrum with loss of consciousness of 6 hours to 24 hours, sequela
S06.355A	Traumatic hemorrhage of left cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter
S06.355D	Traumatic hemorrhage of left cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, subsequent encounter
S06.355S	Traumatic hemorrhage of left cerebrum with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.356A	Traumatic hemorrhage of left cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter
S06.356D	Traumatic hemorrhage of left cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, subsequent encounter
S06.356S	Traumatic hemorrhage of left cerebrum with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.357A	Traumatic hemorrhage of left cerebrum with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter
S06.358A	Traumatic hemorrhage of left cerebrum with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter
S06.359A	Traumatic hemorrhage of left cerebrum with loss of consciousness of unspecified duration, initial encounter
S06.359D	Traumatic hemorrhage of left cerebrum with loss of consciousness of unspecified duration, subsequent encounter
S06.359S	Traumatic hemorrhage of left cerebrum 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
S06.4X0A	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
S06.890A	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
S06.9X0A	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
S14.101A	Unspecified injury at C1 level of cervical spinal cord, initial encounter
S14.101D	Unspecified injury at C1 level of cervical spinal cord, subsequent encounter
S14.101S	Unspecified injury at C1 level of cervical spinal cord, sequela
S14.102A	Unspecified injury at C2 level of cervical spinal cord, initial encounter
S14.102D	Unspecified injury at C2 level of cervical spinal cord, subsequent encounter
S14.102S	Unspecified injury at C2 level of cervical spinal cord, sequela
S14.103A	Unspecified injury at C3 level of cervical spinal cord, initial encounter
S14.103D	Unspecified injury at C3 level of cervical spinal cord, subsequent encounter
S14.103S	Unspecified injury at C3 level of cervical spinal cord, sequela
S14.104A	Unspecified injury at C4 level of cervical spinal cord, initial encounter
S14.104D	Unspecified injury at C4 level of cervical spinal cord, subsequent encounter
S14.104S	Unspecified injury at C4 level of cervical spinal cord, sequela
S14.105A	Unspecified injury at C5 level of cervical spinal cord, initial encounter
S14.105D	Unspecified injury at C5 level of cervical spinal cord, subsequent encounter
S14.105S	Unspecified injury at C5 level of cervical spinal cord, sequela
S14.106A	Unspecified injury at C6 level of cervical spinal cord, initial encounter
S14.106D	Unspecified injury at C6 level of cervical spinal cord, subsequent encounter
S14.106S	Unspecified injury at C6 level of cervical spinal cord, sequela
S14.107A	Unspecified injury at C7 level of cervical spinal cord, initial encounter
S14.107D	Unspecified injury at C7 level of cervical spinal cord, subsequent encounter
S14.107S	Unspecified injury at C7 level of cervical spinal cord, sequela
S14.108A	Unspecified injury at C8 level of cervical spinal cord, initial encounter
S14.108D	Unspecified injury at C8 level of cervical spinal cord, subsequent encounter
S14.108S	Unspecified injury at C8 level of cervical spinal cord, sequela
S14.109A	Unspecified injury at unspecified level of cervical spinal cord, initial encounter
S14.109D	Unspecified injury at unspecified level of cervical spinal cord, subsequent encounter
S14.109S	Unspecified injury at unspecified level of cervical spinal cord, sequela
S14.111A	Complete Lesion At C1 Level Of Cervical Spinal Cord, Initial Encounter
S14.111D	Complete Lesion At C1 Level Of Cervical Spinal Cord, Subsequent Encounter
S14.111S	Complete Lesion At C1 Level Of Cervical Spinal Cord, Sequela
S14.112A	Complete Lesion At C2 Level Of Cervical Spinal Cord, Initial Encounter
S14.112D	Complete Lesion At C2 Level Of Cervical Spinal Cord, Subsequent Encounter

S14.112S	Complete Lesion At C2 Level Of Cervical Spinal Cord, Sequela
S14.113A	Complete Lesion At C3 Level Of Cervical Spinal Cord, Initial Encounter
S14.113D	Complete Lesion At C3 Level Of Cervical Spinal Cord, Subsequent Encounter
S14.113S	Complete Lesion at C3 Level of Cervical Spinal Cord, Sequela
S14.114A	Complete Lesion at C4 Level of Cervical Spinal Cord, Initial Encounter
S14.114D	Complete Lesion at C4 Level of Cervical Spinal Cord, Subsequent Encounter
S14.114S	Complete Lesion at C4 Level of Cervical Spinal Cord, Sequela
S14.115A	Complete Lesion at C5 Level of Cervical Spinal Cord, Initial Encounter
S14.115D	Complete Lesion at C5 Level of Cervical Spinal Cord, Subsequent Encounter
S14.115S	Complete Lesion at C5 Level of Cervical Spinal Cord, Sequela
S14.116A	Complete Lesion at C6 Level of Cervical Spinal Cord, Initial Encounter
S14.116D	Complete Lesion at C6 Level of Cervical Spinal Cord, Subsequent Encounter
S14.116S	Complete Lesion at C6 Level of Cervical Spinal Cord, Sequela
S14.117A	Complete Lesion at C7 Level of Cervical Spinal Cord, Initial Encounter
S14.117D	Complete Lesion at C7 Level of Cervical Spinal Cord, Subsequent Encounter
S14.117S	Complete Lesion at C7 Level of Cervical Spinal Cord, Sequela
S14.118A	Complete Lesion at C8 Level of Cervical Spinal Cord, Initial Encounter
S14.118D	Complete Lesion at C8 Level of Cervical Spinal Cord, Subsequent Encounter
S14.118S	Complete Lesion at C8 Level of Cervical Spinal Cord, Sequela
S14.119A	Complete Lesion at Unspecified Level of Cervical Spinal Cord, Initial Encounter
S14.119D	Complete Lesion at Unspecified Level Of Cervical Spinal Cord, Subsequent Encounter
S14.119S	Complete Lesion at Unspecified Level of Cervical Spinal Cord, Sequela
S14.121A	Central cord syndrome at C1 level of cervical spinal cord, initial encounter
S14.121D	Central cord syndrome at C1 level of cervical spinal cord, subsequent encounter
S14.121S	Central cord syndrome at C1 level of cervical spinal cord, sequela
S14.122A	Central cord syndrome at C2 level of cervical spinal cord, initial encounter
S14.122D	Central cord syndrome at C2 level of cervical spinal cord, subsequent encounter
S14.122S	Central cord syndrome at C2 level of cervical spinal cord, sequela
S14.123A	Central cord syndrome at C3 level of cervical spinal cord, initial encounter
S14.123D	Central cord syndrome at C3 level of cervical spinal cord, subsequent encounter
S14.123S	Central cord syndrome at C3 level of cervical spinal cord, sequela
S14.124A	Central cord syndrome at C4 level of cervical spinal cord, initial encounter
S14.124D	Central cord syndrome at C4 level of cervical spinal cord, subsequent encounter
S14.124S	Central cord syndrome at C4 level of cervical spinal cord, sequela
S14.125A	Central cord syndrome at C5 level of cervical spinal cord, initial encounter
S14.125D	Central cord syndrome at C5 level of cervical spinal cord, subsequent encounter
S14.125S	Central cord syndrome at C5 level of cervical spinal cord, sequela
S14.126A	Central cord syndrome at C6 level of cervical spinal cord, initial encounter
S14.126D	Central cord syndrome at C6 level of cervical spinal cord, subsequent encounter
S14.126S	Central cord syndrome at C6 level of cervical spinal cord, sequela
S14.127A	Central cord syndrome at C7 level of cervical spinal cord, initial encounter
S14.127D	Central cord syndrome at C7 level of cervical spinal cord, subsequent encounter
S14.127S	Central cord syndrome at C7 level of cervical spinal cord, sequela
S14.128A	Central cord syndrome at C8 level of cervical spinal cord, initial encounter
S14.128D	Central cord syndrome at C8 level of cervical spinal cord, subsequent encounter
S14.128S	Central cord syndrome at C8 level of cervical spinal cord, sequela
S14.129A	Central cord syndrome at unspecified level of cervical spinal cord, initial encounter
S14.129D	Central cord syndrome at unspecified level of cervical spinal cord, subsequent encounter
S14.129S	Central cord syndrome at unspecified level of cervical spinal cord, sequela
S14.131A	Anterior cord syndrome at C1 level of cervical spinal cord, initial encounter





S14.149A	Brown-Sequard Syndrome at Unspecified Level of Cervical Spinal Cord, Initial Encounter
S14.149D	Brown-Sequard Syndrome At Unspecified Level Of Cervical Spinal Cord, Subsequent Encounter
S14.149S	Brown-Sequard Syndrome At Unspecified Level Of Cervical Spinal Cord, Sequela
S14.151A	Other Incomplete Lesion At C1 Level Of Cervical Spinal Cord, Initial Encounter
S14.151D	Other Incomplete Lesion At C1 Level Of Cervical Spinal Cord, Subsequent Encounter
S14.151S	Other Incomplete Lesion At C1 Level Of Cervical Spinal Cord, Sequela
S14.152A	Other Incomplete Lesion At C2 Level Of Cervical Spinal Cord, Initial Encounter
S14.152D	Other Incomplete Lesion At C2 Level Of Cervical Spinal Cord, Subsequent Encounter
S14.152S	Other Incomplete Lesion At C2 Level Of Cervical Spinal Cord, Sequela
S14.153A	Other Incomplete Lesion At C3 Level Of Cervical Spinal Cord, Initial Encounter
S14.153D	Other Incomplete Lesion At C3 Level Of Cervical Spinal Cord, Subsequent Encounter
S14.153S	Other Incomplete Lesion At C3 Level Of Cervical Spinal Cord, Sequela
S14.154A	Other Incomplete Lesion At C4 Level Of Cervical Spinal Cord, Initial Encounter
S14.154D	Other Incomplete Lesion At C4 Level Of Cervical Spinal Cord, Subsequent Encounter
S14.154S	Other Incomplete Lesion At C4 Level Of Cervical Spinal Cord, Sequela
S14.155A	Other Incomplete Lesion At C5 Level Of Cervical Spinal Cord, Initial Encounter
S14.155D	Other Incomplete Lesion At C5 Level Of Cervical Spinal Cord, Subsequent Encounter
S14.155S	Other Incomplete Lesion At C5 Level Of Cervical Spinal Cord, Sequela
S14.156A	Other Incomplete Lesion At C6 Level Of Cervical Spinal Cord, Initial Encounter
S14.156D	Other Incomplete Lesion At C6 Level Of Cervical Spinal Cord, Subsequent Encounter
S14.156S	Other Incomplete Lesion At C6 Level Of Cervical Spinal Cord, Sequela
S14.157A	Other Incomplete Lesion At C7 Level Of Cervical Spinal Cord, Initial Encounter
S14.157D	Other Incomplete Lesion At C7 Level Of Cervical Spinal Cord, Subsequent Encounter
S14.157S	Other Incomplete Lesion At C7 Level Of Cervical Spinal Cord, Sequela
S14.158A	Other Incomplete Lesion At C8 Level Of Cervical Spinal Cord, Initial Encounter
S14.158D	Other Incomplete Lesion At C8 Level Of Cervical Spinal Cord, Subsequent Encounter
S14.158S	Other Incomplete Lesion At C8 Level Of Cervical Spinal Cord, Sequela
S14.159A	Other Incomplete Lesion At Unspecified Level Of Cervical Spinal Cord, Initial Encounter
S14.159D	Other Incomplete Lesion At Unspecified Level Of Cervical Spinal Cord, Subsequent Encounter
S14.159S	Other Incomplete Lesion At Unspecified Level Of Cervical Spinal Cord, Sequela
S24.101A	Unspecified injury at T1 level of thoracic spinal cord, initial encounter
S24.101D	Unspecified injury at T1 level of thoracic spinal cord, subsequent encounter
S24.101S	Unspecified injury at T1 level of thoracic spinal cord, sequela
S24.102A	Unspecified injury at T2-T6 level of thoracic spinal cord, initial encounter
S24.102D	Unspecified injury at T2-T6 level of thoracic spinal cord, subsequent encounter
S24.102S	Unspecified injury at T2-T6 level of thoracic spinal cord, sequela
S24.103A	Unspecified injury at T7-T10 level of thoracic spinal cord, initial encounter
S24.103D	Unspecified injury at T7-T10 level of thoracic spinal cord, subsequent encounter
S24.103S	Unspecified injury at T7-T10 level of thoracic spinal cord, sequela
S24.104A	Unspecified injury at T11-T12 level of thoracic spinal cord, initial encounter
S24.104D	Unspecified injury at T11-T12 level of thoracic spinal cord, subsequent encounter
S24.104S	Unspecified injury at T11-T12 level of thoracic spinal cord, sequela
S24.109A	Unspecified injury at unspecified level of thoracic spinal cord, initial encounter
S24.109D	Unspecified injury at unspecified level of thoracic spinal cord, subsequent encounter
S24.109S	Unspecified injury at unspecified level of thoracic spinal cord, sequela
S24.111A	Complete Lesion At T1 Level Of Thoracic Spinal Cord, Initial Encounter
S24.111D	Complete Lesion At T1 Level Of Thoracic Spinal Cord, Subsequent Encounter
S24.111S	Complete Lesion At T1 Level Of Thoracic Spinal Cord, Sequela

S24.112A	Complete Lesion At T2-T6 Level Of Thoracic Spinal Cord, Initial Encounter
S24.112D	Complete Lesion At T2-T6 Level Of Thoracic Spinal Cord, Subsequent Encounter
S24.112S	Complete Lesion At T2-T6 Level Of Thoracic Spinal Cord, Sequela
S24.113A	Complete Lesion At T7-T10 Level Of Thoracic Spinal Cord, Initial Encounter
S24.113D	Complete Lesion At T7-T10 Level Of Thoracic Spinal Cord, Subsequent Encounter
S24.113S	Complete Lesion At T7-T10 Level Of Thoracic Spinal Cord, Sequela
S24.114A	Complete Lesion At T11-T12 Level Of Thoracic Spinal Cord, Initial Encounter
S24.114D	Complete Lesion At T11-T12 Level Of Thoracic Spinal Cord, Subsequent Encounter
S24.114S	Complete Lesion At T11-T12 Level Of Thoracic Spinal Cord, Sequela
S24.119A	Complete Lesion At Unspecified Level Of Thoracic Spinal Cord, Initial Encounter
S24.119D	Complete Lesion At Unspecified Level Of Thoracic Spinal Cord, Subsequent Encounter
S24.119S	Complete Lesion At Unspecified Level Of Thoracic Spinal Cord, Sequela
S24.131A	Anterior cord syndrome at T1 level of thoracic spinal cord, initial encounter
S24.131D	Anterior cord syndrome at T1 level of thoracic spinal cord, subsequent encounter
S24.131S	Anterior cord syndrome at T1 level of thoracic spinal cord, sequela
S24.132A	Anterior cord syndrome at T2-T6 level of thoracic spinal cord, initial encounter
S24.132D	Anterior cord syndrome at T2-T6 level of thoracic spinal cord, subsequent encounter
S24.132S	Anterior cord syndrome at T2-T6 level of thoracic spinal cord, sequela
S24.133A	Anterior cord syndrome at T7-T10 level of thoracic spinal cord, initial encounter
S24.133D	Anterior cord syndrome at T7-T10 level of thoracic spinal cord, subsequent encounter
S24.133S	Anterior cord syndrome at T7-T10 level of thoracic spinal cord, sequela
S24.134A	Anterior cord syndrome at T11-T12 level of thoracic spinal cord, initial encounter
S24.134D	Anterior cord syndrome at T11-T12 level of thoracic spinal cord, subsequent encounter
S24.134S	Anterior cord syndrome at T11-T12 level of thoracic spinal cord, sequela
S24.139A	Anterior cord syndrome at unspecified level of thoracic spinal cord, initial encounter
S24.139D	Anterior cord syndrome at unspecified level of thoracic spinal cord, subsequent encounter
S24.139S	Anterior cord syndrome at unspecified level of thoracic spinal cord, sequela
S24.141A	Brown-Sequard Syndrome At T1 Level Of Thoracic Spinal Cord, Initial Encounter
S24.141D	Brown-Sequard Syndrome At T1 Level Of Thoracic Spinal Cord, Subsequent Encounter
S24.141S	Brown-Sequard Syndrome At T1 Level Of Thoracic Spinal Cord, Sequela
S24.142A	Brown-Sequard Syndrome At T2-T6 Level Of Thoracic Spinal Cord, Initial Encounter
S24.142D	Brown-Sequard Syndrome At T2-T6 Level Of Thoracic Spinal Cord, Subsequent Encounter
S24.142S	Brown-Sequard Syndrome At T2-T6 Level Of Thoracic Spinal Cord, Sequela
S24.143A	Brown-Sequard Syndrome At T7-T10 Level Of Thoracic Spinal Cord, Initial Encounter
S24.143D	Brown-Sequard Syndrome At T7-T10 Level Of Thoracic Spinal Cord, Subsequent Encounter
S24.143S	Brown-Sequard Syndrome At T7-T10 Level Of Thoracic Spinal Cord, Sequela
S24.144A	Brown-Sequard Syndrome At T11-T12 Level Of Thoracic Spinal Cord, Initial Encounter
S24.144D	Brown-Sequard Syndrome At T11-T12 Level Of Thoracic Spinal Cord, Subsequent Encounter
S24.144S	Brown-Sequard Syndrome At T11-T12 Level Of Thoracic Spinal Cord, Sequela
S24.149A	Brown-Sequard Syndrome At Unspecified Level Of Thoracic Spinal Cord, Initial Encounter
S24.149D	Brown-Sequard Syndrome At Unspecified Level Of Thoracic Spinal Cord, Subsequent Encounter
S24.149S	Brown-Sequard Syndrome At Unspecified Level Of Thoracic Spinal Cord, Sequela
S24.151A	Other Incomplete Lesion At T1 Level Of Thoracic Spinal Cord, Initial Encounter
S24.151D	Other Incomplete Lesion At T1 Level Of Thoracic Spinal Cord, Subsequent Encounter
S24.151S	Other Incomplete Lesion At T1 Level Of Thoracic Spinal Cord, Sequela

S24.152A	Other Incomplete Lesion At T2-T6 Level Of Thoracic Spinal Cord, Initial Encounter
S24.152D	Other Incomplete Lesion At T2-T6 Level Of Thoracic Spinal Cord, Subsequent Encounter
S24.152S	Other Incomplete Lesion At T2-T6 Level Of Thoracic Spinal Cord, Sequela
S24.153A	Other Incomplete Lesion At T7-T10 Level Of Thoracic Spinal Cord, Initial Encounter
S24.153D	Other Incomplete Lesion At T7-T10 Level Of Thoracic Spinal Cord, Subsequent Encounter
S24.153S	Other Incomplete Lesion At T7-T10 Level Of Thoracic Spinal Cord, Sequela
S24.154A	Other Incomplete Lesion At T11-T12 Level Of Thoracic Spinal Cord, Initial Encounter
S24.154D	Other Incomplete Lesion At T11-T12 Level Of Thoracic Spinal Cord, Subsequent Encounter
S24.154S	Other Incomplete Lesion At T11-T12 Level Of Thoracic Spinal Cord, Sequela
S24.159A	Other Incomplete Lesion At Unspecified Level Of Thoracic Spinal Cord, Initial Encounter
S24.159D	Other Incomplete Lesion At Unspecified Level Of Thoracic Spinal Cord, Subsequent Encounter
S24.159S	Other Incomplete Lesion At Unspecified Level Of Thoracic Spinal Cord, Sequela
S34.101A	Unspecified injury to L1 level of lumbar spinal cord, initial encounter
S34.101D	Unspecified injury to L1 level of lumbar spinal cord, subsequent encounter
S34.101S	Unspecified injury to L1 level of lumbar spinal cord, sequela
S34.102A	Unspecified injury to L2 level of lumbar spinal cord, initial encounter
S34.102D	Unspecified injury to L2 level of lumbar spinal cord, subsequent encounter
S34.102S	Unspecified injury to L2 level of lumbar spinal cord, sequela
S34.103A	Unspecified injury to L3 level of lumbar spinal cord, initial encounter
S34.103D	Unspecified injury to L3 level of lumbar spinal cord, subsequent encounter
S34.103S	Unspecified injury to L3 level of lumbar spinal cord, sequela
S34.104A	Unspecified injury to L4 level of lumbar spinal cord, initial encounter
S34.104D	Unspecified injury to L4 level of lumbar spinal cord, subsequent encounter
S34.104S	Unspecified injury to L4 level of lumbar spinal cord, sequela
S34.105A	Unspecified injury to L5 level of lumbar spinal cord, initial encounter
S34.105D	Unspecified injury to L5 level of lumbar spinal cord, subsequent encounter
S34.105S	Unspecified injury to L5 level of lumbar spinal cord, sequela
S34.109A	Unspecified injury to unspecified level of lumbar spinal cord, initial encounter
S34.109D	Unspecified injury to unspecified level of lumbar spinal cord, subsequent encounter
S34.109S	Unspecified injury to unspecified level of lumbar spinal cord, sequela
S34.111A	Complete Lesion Of L1 Level Of Lumbar Spinal Cord, Initial Encounter
S34.111D	Complete Lesion Of L1 Level Of Lumbar Spinal Cord, Subsequent Encounter
S34.111S	Complete Lesion Of L1 Level Of Lumbar Spinal Cord, Sequela
S34.112A	Complete Lesion Of L2 Level Of Lumbar Spinal Cord, Initial Encounter
S34.112D	Complete Lesion Of L2 Level Of Lumbar Spinal Cord, Subsequent Encounter
S34.112S	Complete Lesion Of L2 Level Of Lumbar Spinal Cord, Sequela
S34.113A	Complete Lesion Of L3 Level Of Lumbar Spinal Cord, Initial Encounter
S34.113D	Complete Lesion Of L3 Level Of Lumbar Spinal Cord, Subsequent Encounter
S34.113S	Complete Lesion Of L3 Level Of Lumbar Spinal Cord, Sequela
S34.114A	Complete Lesion Of L4 Level Of Lumbar Spinal Cord, Initial Encounter
S34.114D	Complete Lesion Of L4 Level Of Lumbar Spinal Cord, Subsequent Encounter
S34.114S	Complete Lesion Of L4 Level Of Lumbar Spinal Cord, Sequela
S34.115A	Complete Lesion Of L5 Level Of Lumbar Spinal Cord, Initial Encounter
S34.115D	Complete Lesion Of L5 Level Of Lumbar Spinal Cord, Subsequent Encounter
S34.115S	Complete Lesion Of L5 Level Of Lumbar Spinal Cord, Sequela
S34.119A	Complete Lesion Of Unspecified Level Of Lumbar Spinal Cord, Initial Encounter

S34.119D	Complete Lesion Of Unspecified Level Of Lumbar Spinal Cord, Subsequent Encounter
S34.119S	Complete Lesion Of Unspecified Level Of Lumbar Spinal Cord, Sequela
S34.121A	Incomplete Lesion Of L1 Level Of Lumbar Spinal Cord, Initial Encounter
S34.121D	Incomplete Lesion Of L1 Level Of Lumbar Spinal Cord, Subsequent Encounter
S34.121S	Incomplete Lesion Of L1 Level Of Lumbar Spinal Cord, Sequela
S34.122A	Incomplete Lesion Of L2 Level Of Lumbar Spinal Cord, Initial Encounter
S34.122D	Incomplete Lesion Of L2 Level Of Lumbar Spinal Cord, Subsequent Encounter
S34.122S	Incomplete Lesion Of L2 Level Of Lumbar Spinal Cord, Sequela
S34.123A	Incomplete Lesion Of L3 Level Of Lumbar Spinal Cord, Initial Encounter
S34.123D	Incomplete Lesion Of L3 Level Of Lumbar Spinal Cord, Subsequent Encounter
S34.123S	Incomplete Lesion Of L3 Level Of Lumbar Spinal Cord, Sequela
S34.124A	Incomplete Lesion Of L4 Level Of Lumbar Spinal Cord, Initial Encounter
S34.124D	Incomplete Lesion Of L4 Level Of Lumbar Spinal Cord, Subsequent Encounter
S34.124S	Incomplete Lesion Of L4 Level Of Lumbar Spinal Cord, Sequela
S34.125A	Incomplete Lesion Of L5 Level Of Lumbar Spinal Cord, Initial Encounter
S34.125D	Incomplete Lesion Of L5 Level Of Lumbar Spinal Cord, Subsequent Encounter
S34.125S	Incomplete Lesion Of L5 Level Of Lumbar Spinal Cord, Sequela
S34.129A	Incomplete Lesion Of Unspecified Level Of Lumbar Spinal Cord, Initial Encounter
S34.129D	Incomplete Lesion Of Unspecified Level Of Lumbar Spinal Cord, Subsequent Encounter
S34.129S	Incomplete Lesion Of Unspecified Level Of Lumbar Spinal Cord, Sequela
S34.131A	Complete Lesion Of Sacral Spinal Cord, Initial Encounter
S34.131D	Complete Lesion Of Sacral Spinal Cord, Subsequent Encounter
S34.131S	Complete Lesion Of Sacral Spinal Cord, Sequela
S34.132A	Incomplete Lesion Of Sacral Spinal Cord, Initial Encounter
S34.132D	Incomplete Lesion Of Sacral Spinal Cord, Subsequent Encounter
S34.132S	Incomplete Lesion Of Sacral Spinal Cord, Sequela
S34.139A	Unspecified Injury To Sacral Spinal Cord, Initial Encounter
S34.139D	Unspecified Injury To Sacral Spinal Cord, Subsequent Encounter
S34.139S	Unspecified Injury To Sacral Spinal Cord, Sequela

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
95928	Central motor evoked potential study (transcranial motor stimulation); upper limbs
95929	Central motor evoked potential study (transcranial motor stimulation); lower limbs
95939	Central motor evoked potential study (transcranial motor stimulation); in upper and lower limbs

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

### ICD-10 Diagnosis Codes

ICD-10-CM Diagnosis codes:	Code Description
F44.4	Conversion disorder with motor symptom or deficit

F68.10	Factitious disorder imposed on self, unspecified
F68.11	Factitious disorder imposed on self, with predominantly psychological signs and symptoms
F68.12	Factitious disorder imposed on self, with predominantly physical signs and symptoms
F68.13	Factitious disorder imposed on self, with combined psychological and physical signs and symptoms
F68.8	Other specified disorders of adult personality and behavior

The following CPT code is considered investigational for **Commercial Members: Managed Care (HMO and POS), PPO, Indemnity, Medicare HMO Blue and Medicare PPO Blue:**

### CPT Codes

CPT codes:	Code Description
0464T	Visual evoked potential, testing for glaucoma, with interpretation and report

### Description

#### **INTRAOPERATIVE NEUROPHYSIOLOGIC MONITORING**

The principal goal of intraoperative neurophysiologic monitoring (IONM) is identification of nervous system impairment on the assumption that prompt intervention will prevent permanent deficits. Correctable factors at surgery include circulatory disturbance, excess compression from retraction, bony structures, hematomas, or mechanical stretching. The technology is continuously evolving with refinements in equipment and analytic techniques, including recording, with several patients monitored under the supervision of a physician who is outside the operating room.

The different methodologies of monitoring are described next.

#### **Sensory-Evoked Potentials**

Sensory-evoked potential (SEP) describes the responses of the sensory pathways to sensory or electrical stimuli. Intraoperative monitoring of SEPs is used to assess the functional integrity of central nervous system (CNS) pathways during surgeries that put the spinal cord or brain at risk for significant ischemia or traumatic injury. The basic principles of SEP monitoring involve identification of a neurologic region at risk, selection and stimulation of a nerve that carries a signal through the at-risk region, and recording and interpretation of the signal at certain standardized points along the pathway. Monitoring of SEPs is commonly used during the following procedures: carotid endarterectomy, brain surgery involving vasculature, surgery with distraction compression or ischemia of the spinal cord and brainstem, and acoustic neuroma surgery. SEPs can be further broken down into the following categories by type of simulation used.

#### **Somatosensory-Evoked Potentials**

Somatosensory-evoked potentials (SSEPs) are cortical responses elicited by peripheral nerve stimulations. Peripheral nerves, such as the median, ulnar, or tibial nerves, are typically stimulated, but, in some situations, the spinal cord may be stimulated directly. Recording is done either cortically or at the level of the spinal cord above the surgical procedure. Intraoperative monitoring of SSEPs is most commonly used during orthopedic or neurologic surgery to prompt intervention to reduce surgically induced morbidity and/or to monitor the level of anesthesia. One of the most common indications for SSEP monitoring is in patients undergoing corrective surgery for scoliosis. In this setting, SSEP monitors the status of the posterior column pathways and thus does not reflect ischemia in the anterior (motor) pathways. Several different techniques are commonly used, including stimulation of a relevant peripheral nerve with monitoring from the scalp, from interspinous ligament needle electrodes, or from catheter electrodes in the epidural space.

#### **Brainstem Auditory-Evoked Potentials**

Brainstem auditory-evoked potentials (BAEPs) are generated in response to auditory clicks and can define the functional status of the auditory nerve. Surgical resection of a cerebellopontine angle tumor,

such as an acoustic neuroma, places the auditory nerves at risk, and BAEPs have been extensively used to monitor auditory function during these procedures.

### **Visual-Evoked Potentials**

Visual-evoked potentials (VEPs) with light flashes are used to track visual signals from the retina to the occipital cortex. VEP monitoring has been used for surgery on lesions near the optic chiasm. However, VEPs are very difficult to interpret due to their sensitivity to anesthesia, temperature, and blood pressure.

### **Motor-Evoked Potentials**

Motor-evoked potentials (MEPs) are recorded from muscles following direct or transcranial electrical stimulation of motor cortex or by pulsed magnetic stimulation provided by a coil placed over the head. Peripheral motor responses (muscle activity) are recorded by electrodes placed on the skin at prescribed points along the motor pathways. MEPs, especially when induced by magnetic stimulation, can be affected by anesthesia. The Digitimer electrical cortical stimulator received U.S. Food and Drug Administration (FDA) premarket approval in 2002. Devices for transcranial magnetic stimulation have not been approved by FDA for this use.

Multimodal IONM, in which more than 1 technique is used, most commonly with SSEPs and MEPs, has also been described.

### **Electromyogram Monitoring and Nerve Conduction Velocity Measurements**

Electromyography (EMG) monitoring and nerve conduction velocity measurements can be performed in the operating room and may be used to assess the status of the cranial or peripheral nerves (eg, to identify the extent of nerve damage before nerve grafting or during resection of tumors). For procedures with a risk of vocal cord paralysis due to damage to the recurrent laryngeal nerve (ie, during carotid artery, thyroid, parathyroid, goiter, or anterior cervical spine procedures), monitoring of the vocal cords or vocal cord muscles has been performed. These techniques may also be used during procedures proximal to the nerve roots and peripheral nerves to assess the presence of excessive traction or other impairment. Surgery in the region of cranial nerves can be monitored by electrically stimulating the proximal (brain) end of the nerve and recording via EMG activity in the facial or neck muscles. Thus, monitoring is done in the direction opposite that of SEPs, but the purpose is similar—to verify that the neural pathway is intact.

### **Electroencephalogram Monitoring**

Spontaneous electroencephalography (EEG) monitoring can also be used during surgery and can be subdivided as follows:

- EEG monitoring has been widely used to monitor cerebral ischemia secondary to carotid cross clamping during a carotid endarterectomy. EEG monitoring may identify those patients who would benefit from the use of a vascular shunt during the procedure to restore adequate cerebral perfusion. Conversely, shunts, which have an associated risk of iatrogenic complications, may be avoided in those patients with a normal EEG. Carotid endarterectomy may be done with the patient under local anesthesia so that monitoring of cortical function can be directly assessed.
- Electrocorticography (ECoG) is the recording of the EEG directly from a surgically exposed cerebral cortex. ECoG is typically used to define the sensory cortex and map the critical limits of a surgical resection. ECoG recordings have been most frequently used to identify epileptogenic regions for resection. In these applications, ECoG does not constitute monitoring, per se.

Intraoperative neurophysiologic monitoring, including SSEPs and MEPs using transcranial electrical stimulation, BAEPs, EMG of cranial nerves, EEG, and ECoG, has broad acceptance, particularly for spine surgery and open abdominal aorta aneurysm repairs. These indications have long been considered standard of care, as evidenced by numerous society guidelines, including those from the American Academy of Neurology, American Clinical Neurophysiology Society, American Association of Neurological Surgeons, Congress of Neurologic Surgeons, and American Association of Neuromuscular & Electrodiagnostic Medicine.<sup>1-7</sup> Therefore, this evidence review focuses on monitoring of the recurrent laryngeal nerve during neck and esophageal surgeries and monitoring of peripheral nerves.

## Summary

For individuals who are undergoing thyroid or parathyroid surgery and are at high risk of injury to the recurrent laryngeal nerve (RLN) who receive IONM, the evidence includes a large randomized controlled trial (RCT) and systematic reviews. Relevant outcomes are morbid events, functional outcomes, and quality of life. The strongest evidence on neurophysiologic monitoring derives from an RCT of 1,000 patients undergoing thyroid surgery. This RCT found a significant reduction in RLN injury in patients at high risk for injury. High risk in this trial was defined as surgery for cancer, thyrotoxicosis, retrosternal or giant goiter, or thyroiditis. The high-risk category may also include patients with prior thyroid or parathyroid surgery or total thyroidectomy. A low volume of surgeries might also contribute to a higher risk for RLN injury. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who are undergoing anterior cervical spine surgery and are at high risk of injury to the RLN who receive IONM, the evidence includes systematic reviews of case series and cohort studies. Relevant outcomes are morbid events, functional outcomes, and quality of life. A qualitative systematic review found moderate evidence that monitoring endotracheal cuff pressure reduced the incidence of vocal cord palsy, but there was insufficient data to recommend the routine use of electromyography. A 2016 meta-analysis found a high rate of RLN injury following revision anterior cervical discectomy and fusion, but the magnitude of the problem with current surgical procedures is uncertain. No studies were identified that evaluated whether IONM reduces RLN injury in anterior cervical spine surgeries. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who are undergoing esophageal surgery who receive IONM, the evidence includes a nonrandomized comparative study. Relevant outcomes are morbid events, functional outcomes, and quality of life. One nonrandomized comparative study on surgery for esophageal cancer was identified. Interpretation of this study is confounded because only those patients who had visual identification of the nerve underwent neurophysiologic monitoring. There is insufficient evidence to evaluate whether neurophysiologic monitoring reduces RLN injury in patients undergoing surgery for esophageal cancer. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who are undergoing surgery proximal to a peripheral nerve who receive IONM, the evidence includes case series and a controlled cohort study. Relevant outcomes are morbid events, functional outcomes, and quality of life. Surgical guidance with peripheral IONM and the predictive ability of monitoring of peripheral nerves have been reported. No prospective comparative studies were identified that assessed whether outcomes are improved with neurophysiologic monitoring. The evidence is insufficient to determine the effects of the technology on health outcomes.

## Policy History

Date	Action
12/2018	Local Coverage Determination (LCD): Intraoperative Neurophysiological Testing (L34623) added for Medicare Advantage. Effective 10/1/2018.
10/2018	Clarified coding information.
5/2018	New references added from BCBSA National medical policy. Summary clarified.
4/2018	Clarified coding information.
1/2018	Clarified coding information.
10/2017	BCBSA National medical policy review. New medically necessary and investigational indications described. Effective 10/1/2017.
3/2017	Coverage for Medicare Advantage members clarified based on Local Coverage Determination (LCD): Visual Electrophysiology Testing (L36831). Effective 3/16/2017.
1/2017	Clarified coding information for the 2017 code changes.
10/2016	Clarified coding information.
8/2016	Clarified coding information.
5/2016	New investigational indications described. Effective 5/1/2016.



	Medical policy ICD 10 remediation: Formatting, editing and coding updates. Coding information clarified.
2/2016	Intraoperative neurophysiologic monitoring (IONM) definition clarified. 2/2016
7/2014	Coding information clarified.
6/2014	Updated Coding section with ICD10 procedure and diagnosis codes, effective 10/2015.
1/2013	Updated to add new HCPCS code G0453, effective 1/1/2013.
12/2012	Updated to add new CPT codes 95940 and 95941. Effective 1/1/2013.
3/2012	Reviewed Medical Policy Group - Allergy, Asthma, Immunology and ENT/Otolaryngology, no changes in coverage.
2/2012	Reviewed Medical Policy Group - Psychiatry and Ophthalmology, no changes in coverage.
1/2012	Reviewed Medical Policy Group - Neurology and Neurosurgery, no changes in coverage.
12/2011	Updated medically necessary, investigational, and not medically necessary criteria for intra-operative neurophysiologic monitoring along with the coding information and title renamed. Effective 12/1/2011.
3/2011	Reviewed Medical Policy Group - Allergy/Asthma/Immunology and ENT/Otolaryngology, no changes in coverage.
2/2011	Reviewed Medical Policy Group - Psychiatry and Ophthalmology, no changes in coverage.

## Information Pertaining to All Blue Cross Blue Shield Medical Policies

Click on any of the following terms to access the relevant information:

[Medical Policy Terms of Use](#)

[Managed Care Guidelines](#)

[Indemnity/PPO Guidelines](#)

[Clinical Exception Process](#)

[Medical Technology Assessment Guidelines](#)

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## Endnotes

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<sup>1</sup> Based on MPRM 7.01.58 and expert opinion