

Neuromonitoring indications

□ 1. Neurosurgical Procedures Used to preserve neurological function during high-risk operations involving the brain, spine, or peripheral nerves.

A. Spine Surgery Indications:

Spinal deformity correction (scoliosis, kyphosis)

Intramedullary and extramedullary tumor resection

Cervical/thoracic corpectomy or instrumentation

Tethered cord release

Complex degenerative spine cases

Modalities:

SSEPs, MEPs, EMG (free-running + triggered)

B. Brain Tumor Surgery Indications:

Tumors near motor cortex or corticospinal tract

Lesions in or near language areas

Modalities:

Cortical/subcortical stimulation, MEPs, language mapping (awake or asleep)

C. Brainstem & Posterior Fossa Surgery Indications:

Vestibular schwannoma

Brainstem cavernoma

Fourth ventricle tumors

Modalities:

BAEPs, facial/lower cranial nerve EMG, MEPs, SSEPs

D. Epilepsy & Functional Neurosurgery Indications:

Temporal lobectomy

Lesionectomy

Deep brain stimulation (DBS)

Modalities:

EEG, electrocorticography (ECoG), cortical mapping

E. Vascular Neurosurgery Indications:

Aneurysm clipping

AVM resection

Carotid endarterectomy

Modalities:

EEG, SSEPs, cerebral oximetry (NIRS), Doppler

□ 2. Neurocritical Care Used in ICU settings for monitoring intracranial dynamics and brain function.

Indications:

Traumatic brain injury (TBI)

Subarachnoid hemorrhage (SAH)

Intracranial hypertension

Coma or status epilepticus

Modalities:

ICP monitoring

Continuous EEG

Brain tissue oxygenation (PbtO₂)

NIRS (cerebral oximetry)

✂ 3. Peripheral Nerve & Skull Base Surgery Indications:

Facial nerve monitoring during parotidectomy or CPA surgery

Brachial plexus or peripheral nerve repair

Schwannoma or neurofibroma resection

Modalities:

EMG (free-running and triggered), nerve stimulation mapping

□ 4. Research / Clinical Trials Used for neurophysiological correlation, intraoperative biomarkers, or testing new neuroprotective strategies.

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