



CENTRAL NERVOUS SYSTEM

The central nervous system consist of the brain and spinal cord which are surrounded by a network of connective tissues and cerebrospinal fluid and protected by the cranial bones of the skull and vertebrae of the spine.

https://commons.wikimedia.org/wiki/File:Central_nervous_system.gif

REPORTABILITY

To be reported as Non-Malignant, CNS neoplasms must meet all three of the following conditions.

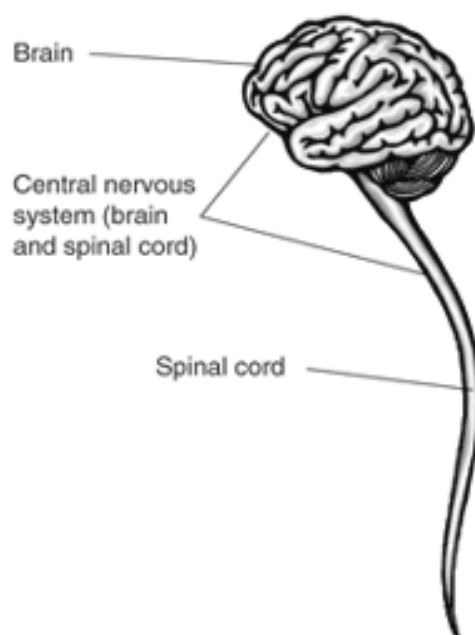
1. The behavior must be non-malignant (/0 or /1)
2. The primary site must be reportable
3. The histology must be reportable

The behavior determines which set of CNS rules should be used:

- Malignant (/3)
- Non-malignant (/0 or /1)

WHO Grade 2 may be either non-malignant or malignant. If no pathologists description available and WHO Grade is stated as '2' code the corresponding histology and behavior listed in ICD-O or Solid Tumor Rules. Code WHO Grade in appropriate SDDI.

Never report a malignant (/3) behavior code for a meningioma based on tumor extension to brain, skin of scalp, or regional locations. Non-malignant CNS tumors can extend to the regional tissue and bone.



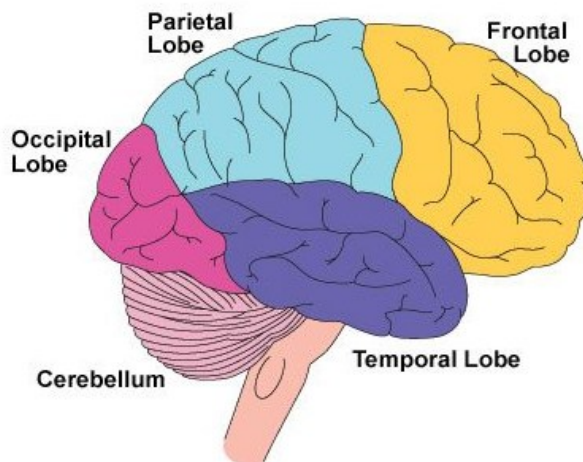
WHO Grade	Definition
WHO Grade I	Non-malignant (/0 or /1)
WHO Grade II	Malignant or Non-malignant
WHO Grade III	Malignant (/3) (See Malignant CNS site-group)
WHO Grade IV	Malignant (/3) (See Malignant CNS site-group)



Non-Malignant - CNS - Primary Site Coding

PRIMARY SITE GROUP - BRAIN

C710 – Cerebrum	C715 – Ventricle NOS
C711 – Frontal Lobe	C716 – Cerebellum NOS
C712 – Temporal Lobe	C717 – Brain Stem
C713 – Parietal Lobe	C718 – Overlapping Lesion of Brain
C714 – Occipital Lobe	C719 – Brain NOS



https://commons.wikimedia.org/wiki/File:Frontal_lobe.png

PRIMARY SITE GROUPS

BRAIN

MENINGES

CRANIAL NERVES

ILL-DEFINES SITES

**INTRACRANIAL DUCT
& GLANDS**

SPINAL SITES

CODING PRIMARY SITE

Determine if the surgery/bx was intracranial or intraspinal.

Intracranial - means inside the cranium/skull

Intraspinal - means within the dure/meninges covering the spinal cord

Only use an **NOS** site when a specific site is **unknown**.

Confirm the primary site is reportable by reviewing proper solid tumor tables.

Follow the hierarchical order for using documentation to assign site:

1. Resection (Operative or Pathology report)
2. Biopsy (Operative or Pathology report)
3. No information available on Resection or Biopsy:
(tumor board; Dr. documentation from original diagnosis from OP/Path report;
Dr. documentation of primary site from EHR)
4. No Resection OR Biopsy performed - Diagnosis by imaging only:
(MRI; CT; PET; Angiogram)



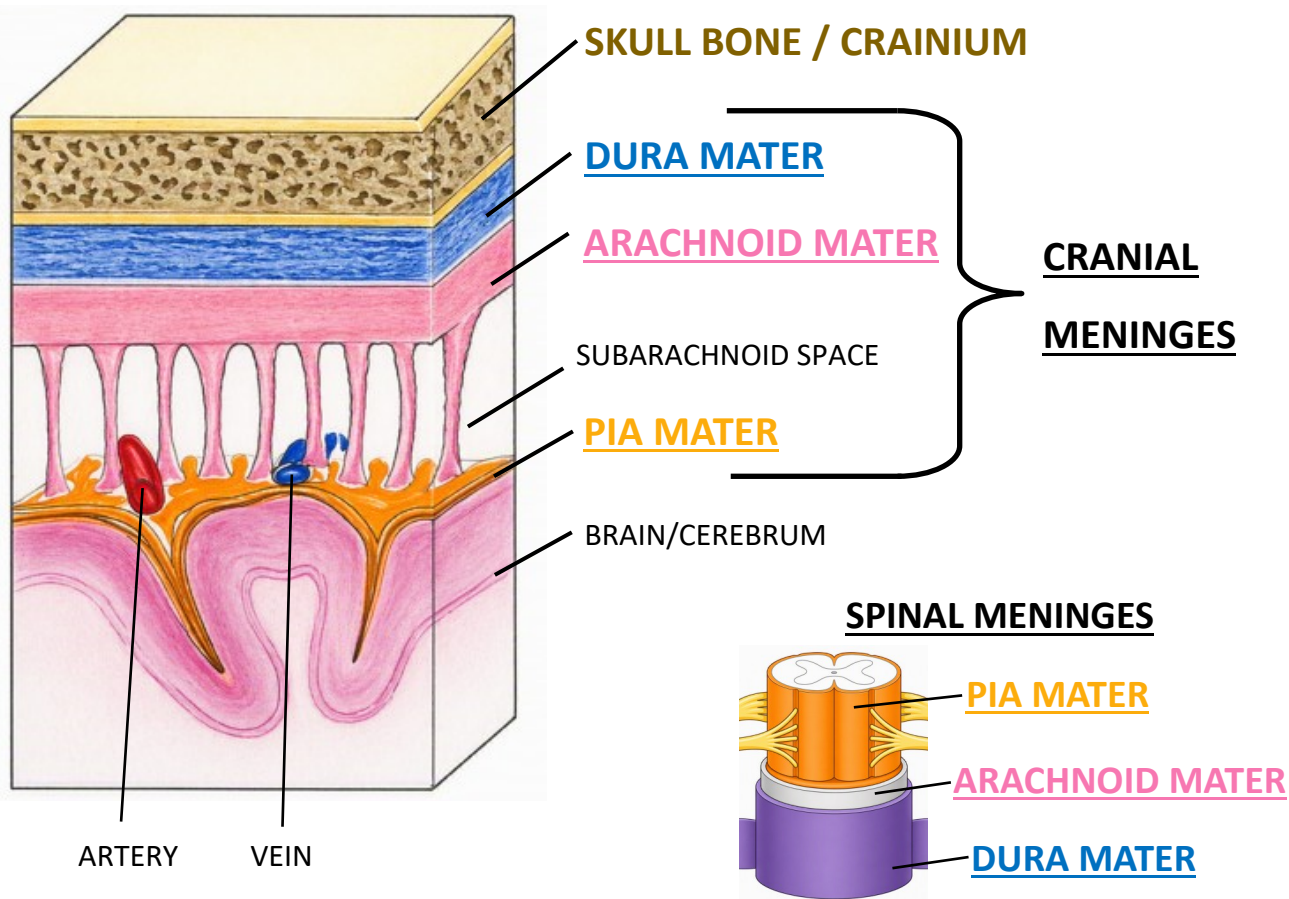
Non-Malignant CNS - Primary Site: Meninges

PRIMARY SITE GROUP - MENINGES

C700 - Cerebral Meninges

C701 - Spinal Meninges

C709 - Meninges NOS



<u>MENINGES:</u>	Network of membranes that consist of three layers and surrounds the CNS
<u>DURA MATER:</u>	(hard/tough) composed of thick and tough fibrous tissue
<u>ARACHNOID MATER:</u>	(spider-like projections down to the Pia) thin & transparent tissue
<u>PIA MATER:</u>	(tender/soft) thin innermost layer directly attached to surface of the brain
<u>SUBARACHNOID SPACE:</u>	located between the Pia & Arachnoid holds cerebral spinal fluid
<u>CRANIAL MEMINGES:</u>	surround the brain, located within the cranium / skull
<u>SPINAL MENINGES:</u>	surround the spine, located within the spinal column



Non-Malignant CNS - Primary Site: Cranial Nerves

<u>NERVE and CN#</u>	<u>ORIGINATION</u>	<u>PRIMARY SITE CODE</u>
OLFACTORY (CNI)	CEREBRUM	C722
OPTIC (CNII)	CEREBRUM	C723
VESTIBULOCOCHLEAR (CNVIII)	MEDULLA OBLINGATA	C724
OCULOMOTOR (CNIII)	MIDBRAIN	C725
TROCHLEAR (CNIV)	MIDBRAIN	"
TRIGEMINAL (CNV)	PONS	"
ABDUCENT (CNVI)	PONS	"
FACIAL (CNVII)	PONS	"
GLOSSOPHARYNGEAL (CNIX)	MEDULLA OBLONGATA	"
VAGUS (CNX)	MEDULLA OBLONGATA	"
ACCESSORY (CNXI)	MEDULLA OBLONGATA	"
HYPOGLOSSAL (CNXII)	MEDULLA OBLONGATA	"

PRIMARY SITE GROUP - CRANIAL NERVES

Cranial Nerves: (12 Nerves that originate directly from the brain or brain stem)

The cranial nerves job is to relay information to and from the brain.

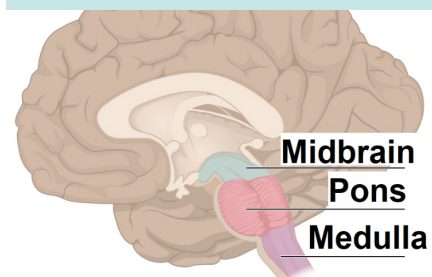
When the cranial nerve exits the intracranial space (skull), it becomes a peripheral nerve **non-malignant tumors of peripheral nerves are not reportable**, whereas malignant tumors are reportable for all parts of the cranial nerves.

Code the primary site to the specific nerve where the neoplasm originates

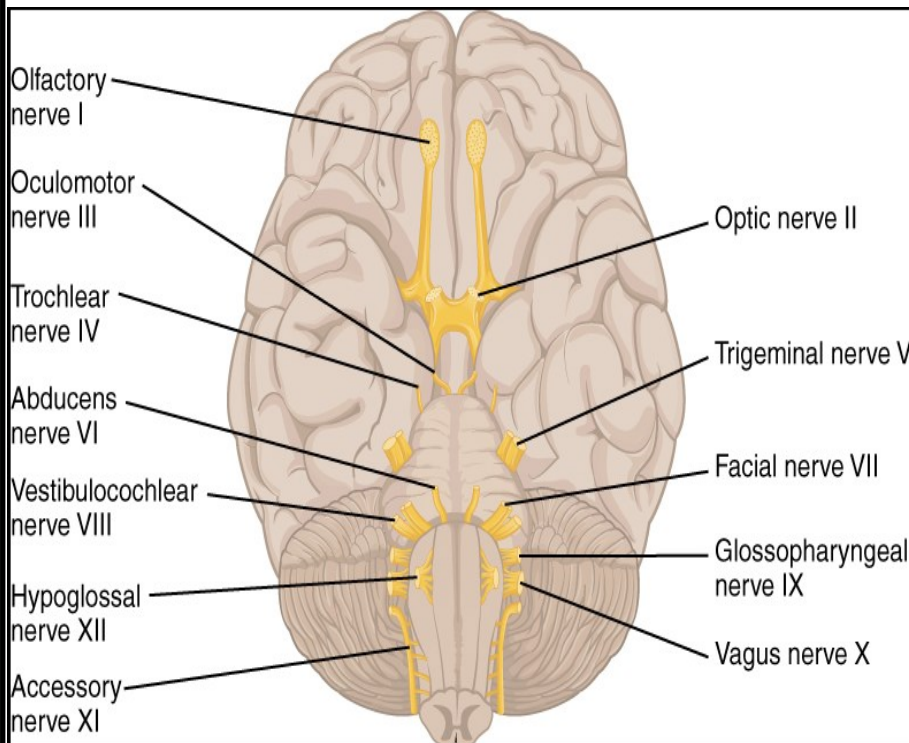
When a neoplasm (meningioma) arise in the dura/meninges of an intracranial nerve code the primary site to cerebral meninges

Understanding where the cranial nerve exits the skull will help determine if it is reportable.

BRAIN STEM PARTS



Midbrain
Pons
Medulla



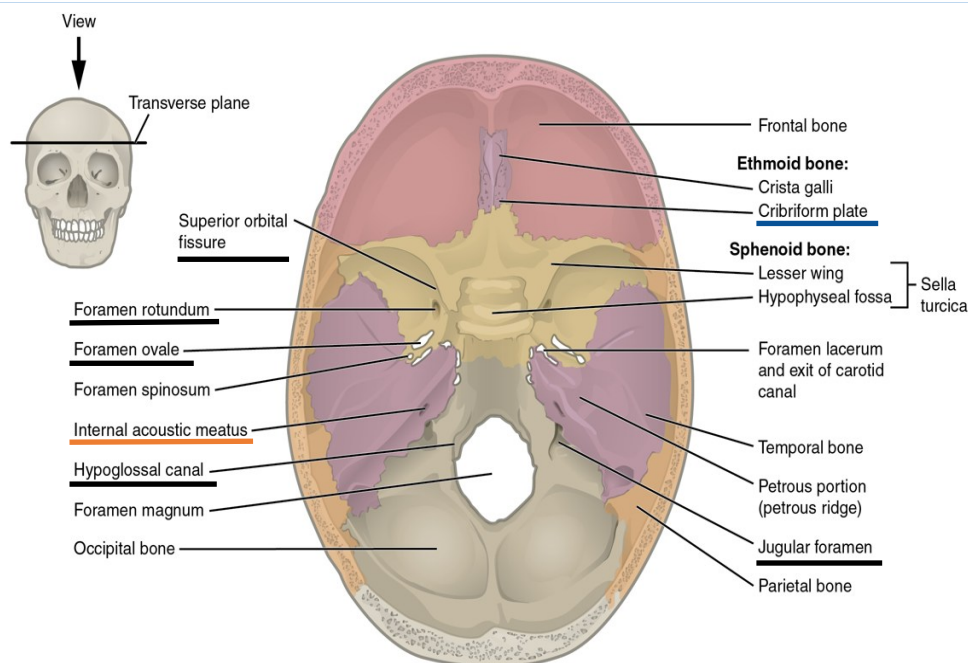
https://commons.wikimedia.org/wiki/File:1320_The_Cranial_Nerves.jpg#/media/File:1320_The_Cranial_Nerves.jpg

https://commons.wikimedia.org/wiki/File:Brain_stem_parts.png



Non-Malignant CNS - Primary Site: Cranial Nerves

NERVE	REPORTABLE PORTION	NOT REPORTABLE PORTION
Olfactory (CNI)	Nerve portion that resides within the skull	After passing through the cribriform plate (bunch of holes in the Ethmoid bone) into the nasal cavity
Optic (CNII)	ALWAYS REPORTABLE	No non-reportable portion due to being intradural
Vestibulocochlear (CNVIII)	W/in Brain Stem; Skull	After exiting Internal Acoustic Meatus of skull
Oculomotor (CNIII)	W/in Midbrain; Brain Stem; Skull	After exiting Superior Orbital Fissure of skull
Trochlear (CNIV)	W/in Midbrain; Brain Stem; Skull	After exiting Superior Orbital Fissure of skull
Trigeminal (CNV)	W/in Pons; Brain Stem; Skull Trigeminal nerve splits into 3 separate branches: Ophthalmic, Maxillary; Mandibular	The 3 branches – exit in 3 separate locations - Ophthalmic: exits the Superior Orbital Fissure Maxillary: exits the Foramen Rotundum Mandibular: exits the Foramen Ovale
Abducent (CNVI)	W/in Pons; Brain Stem; Skull	After exiting Superior orbital fissure of skull
Facial (CNVII)	W/in Pons; Brain Stem; Skull	After exiting Internal acoustic meatus of skull
Glossopharyngeal (CNIX)	W/in Medulla; Brain Stem; Skull	After exiting Jugular foramen of skull
Vagus (CNX)	W/in Medulla; Brain Stem; Skull	After exiting Jugular foramen of skull
Accessory (CNXI)	W/in Medulla; Brain Stem; Skull	After exiting Jugular foramen of skull
Hypoglossal (CNXII)	W/in Medulla; Brain Stem; Skull	After exiting Hypoglossal canal of skull



<https://commons.wikimedia.org/w/index.php?curid=30131438> (superior view only)

(b) Superior view



Neuron Anatomy

DENDRITES

appendage-like extensions that receive information and signals from other neurons

CELL BODY

processing unit that contains the nucleus, DNA and supporting structures

AXON

single long appendage that sends information away from the neuron

AXON HILLOCK

area between the cell body & axon that decides to send a signal (or not)

MYELIN SHEATH

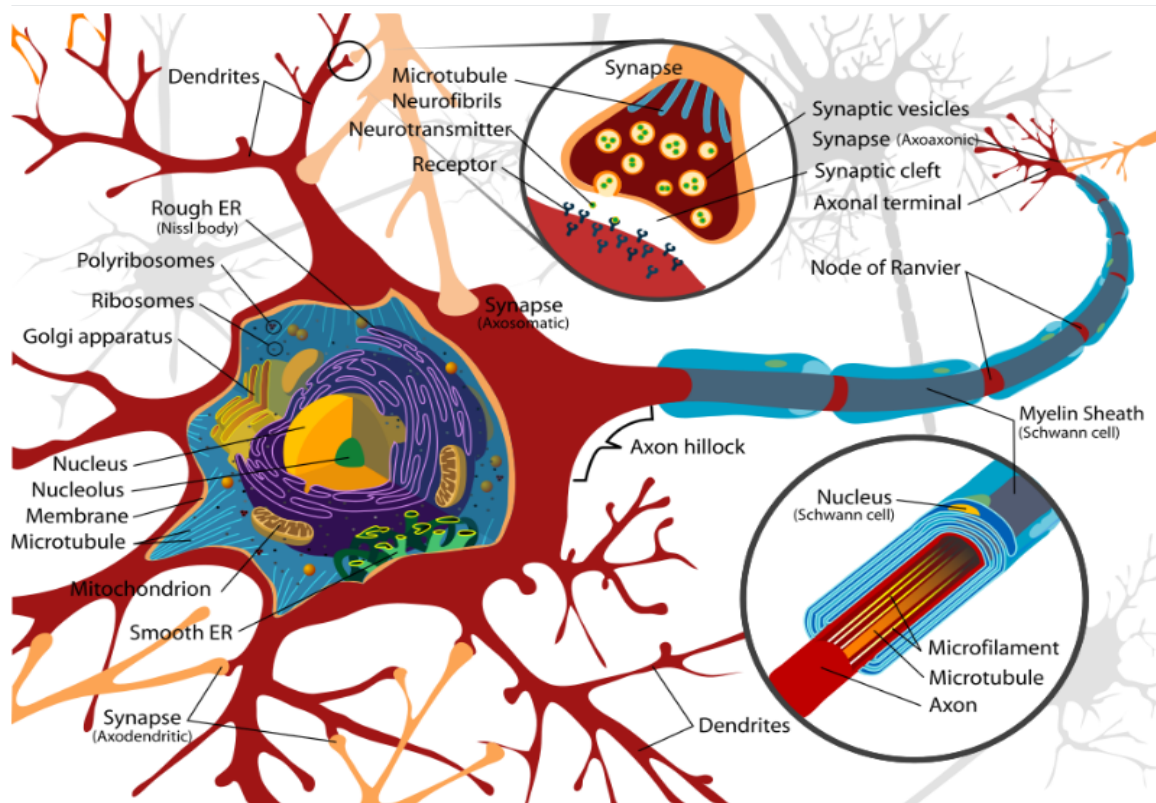
insulated layer of specialized cells wrapped around the axon & used to send an (action potential) or signal (Schwann cell)

NODES OF RANVIER

open section between myelin sheath cells, the signals ability to jump from node to node causes the action potential to speed up

AXON TERMINAL

small structures at the end of the axon that release signals to other dendrites of other neurons (Synapse)



https://commons.wikimedia.org/wiki/File:Complete_neuron_cell_diagram_en.svg