## Technical Information

1. Imaging study date and time // (24 hour clock)
2. Imaging modality (choose one):

Non-contrast CT

X-Ray Angiography

Contrast CT

MRI

CT Angiography

1. Imaging scanner strength (choose one):

1.5T  3.0T  4.0T  7.0T  Other, specify:

1. Imaging scanner manufacturer name (choose one):

Agfa

Hitachi

Philips

Other, specify

Carestream

Hologic

Siemens

GE

Konica Minolta

Toshiba

1. Imaging scanner model name
2. Imaging scanner software version number
3. Imaging sequence (choose all that apply):

T1

DWI

DTI

Other, specify

T2

GRE

MRSI

FLAIR

SWI

PWI

## Findings

1. \*Brain imaging result (choose one):

Normal Abnormal Not done Unknown

If answered #8 “Normal,” “Not done,” or “Unknown,” skip remaining questions

1. Skull fracture (choose one):

Present Indeterminate Absent

1. Epidural hematoma (choose one):

Present Indeterminate Absent

1. Extraaxial hematoma (choose one):

Present Indeterminate Absent

1. Acute subdural hematoma (choose one):

Present Indeterminate Absent

1. Subacute or chronic subdural hematoma (choose one):

Present Indeterminate Absent

1. Subdural hematoma - mixed density or CSF-like collection (choose one):

Present Indeterminate Absent

1. Subarachnoid hemorrhage(choose one):

Present Indeterminate Absent

1. Vascular dissection (choose one):

Present Indeterminate Absent

1. Traumatic aneurysm (choose one):

Present Indeterminate Absent

1. Venous sinus injury (choose one):

Present Indeterminate Absent

1. Midline shift supratentorial (choose one):

Present Indeterminate Absent

1. Cisternal compression (choose one):

Present Indeterminate Absent

If answered #20 “Indeterminate,” or “Absent,” skip to question 22.

1. Cisternal compression type

Visible but compressed - Asymmetric

Visible but compressed - Symmetric

Mixed (some cisterns open, others compressed/obliterated)

Obliterated (all cisterns)

1. Fourth ventricle shift or effacement (choose one):

Present Indeterminate Absent

1. Contusion (choose one):

Present Indeterminate Absent

If answered #23 “Indeterminate,” or “Absent,” skip to question 25.

1. Contusion findings (choose all that apply)

Hemorrhagic

Subcortical

Non-hemorrhagic

Probable brain laceration (linear hemorrhagic or non-hemorrhagic pattern, often associated with overlying skull fracture) Intracerebral hemorrhage (choose one):

Deep brain structures

Cortical

Present Indeterminate Absent

1. Intraventricular hemorrhage (choose one):

Present Indeterminate Absent

1. Diffuse axonal injury (choose one):

Present Indeterminate Absent

If answered #26 “Indeterminate,” or “Absent,” skip to question 28.

1. Diffuse axonal injury anatomic site (choose all that apply):

Frontal – L

Frontal - R

Parietal - R

Temporal - R

Occipital - R

Thalamus/Basal ganglia – R

Midbrain - R

Pons - R

Medulla - R

Cerebellum - R

Corpus Callosum: Genu - R

Corpus Callosum: Body - R

Corpus Callosum: Splenium - R

Subcortical White matter: Frontal - R

Subcortical White matter: Parietal - R

Subcortical White matter: Temporal - R

Subcortical White matter: Occipital - R

Internal Capsule: Anterior limb - R

Internal Capsule: Posterior limb -R

Brainstem: Dorsolateral rostral - R

Brainstem: other - R

Cerebellar Peduncles – R

Parietal – L

Temporal – L

Occipital – L

Thalamus/Basal ganglia – L

Midbrain – L

Pons – L

Medulla –L

Cerebellum – L

Corpus Callosum: Genu – L

Corpus Callosum: Body – L

Corpus Callosum: Splenium – L

Subcortical White matter: Frontal – L

Subcortical White matter: Parietal – L

Subcortical White matter: Temporal – L

Subcortical White matter: Occipital – L

Internal Capsule: Anterior limb – L

Internal Capsule: Posterior limb –L

Brainstem: Dorsolateral rostral - L

Brainstem: other – L

Cerebellar Peduncles – L

1. Penetrating injury (choose one):

Present Indeterminate Absent

If answered #28 “Indeterminate,” or “Absent,” skip to question 30.

1. Penetrating injury associated findings (choose all that apply):

Indriven fragments (bone, foreign bodies)

Through and through trajectory (entrance and exit sites)

Transventricular trajectory

Crosses midline

1. Gunshot wound caliber number
2. Cervicomedullary junction or brainstem injury (choose one):

Present Indeterminate Absent

If answered #31 “Indeterminate,” or “Absent,” skip to question 33.

1. Cervicomedullary junction or brainstem injury anatomic site (choose all that apply):

Midbrain Pons Medulla Cervical

1. Edema (choose one):

Present Indeterminate Absent

1. Brain swelling (choose one):

Present Indeterminate Absent

If answered #34 “Indeterminate,” or “Absent,” skip to question 36.

1. Brain swelling extent (choose one):

Focal

Hemispheric

Global

Lobar

Bihemispheric

Multilobar

Posterior fossa

1. Ischemia or infarction or hypoxic-ischemic injury (choose one):

Present Indeterminate Absent

1. Brain atrophy or encephalomalacia (choose one):

Present Likely Indeterminate Absent

## Additional Supplemental Elements:

1. Marshall CT classification code (Choose one)

1; Diffuse injury, NVP: Intracranial pathology not visible on CT scan

2; Diffuse injury: Cisterns present with shift 0-5 mm, lesions present, but no high or mixed density lesion >25 cc. May include bone fragments and foreign bodies

3; Diffuse injury with swelling: Cisterns compressed or absent, shift 0-5 mm, no high or mixed density lesion >25 cc;

4; Diffuse injury with shift: Shift >5 mm, no high or mixed density lesion >25 cc.

5; Mass lesions: High or mixed density lesion > 25cc.

1. Skull fracture (Choose one)

Present

Absent

Indeterminate

1. Skull fracture anatomic site (Choose all that apply)

Frontal R  L

Parietal R  L

Temporal R  L

Occipital R  L

Skull base R  L

Anterior fossa

Middle fossa

Posterior fossa

1. Skull fracture morphology findings type (Choose all that apply)

Depressed (>1 cm or full thickness of skull)

Ping pong fracture –

(Smooth depression typically seen in infants and toddlers, without a complete bony cortical disruption)

Diastatic (Separated more than 3 mm, or separation of a suture)

Compound (Communication with the skin, mastoid air cells, or paranasal sinuses)

Penetrating (Resulting from an indriven foreign body, such as knife or missile)

Probable fracture –

(One in which fracture itself cannot be seen definitively, but is suspected to be present based on other findings such as adjacent subgaleal and extra-axial hemorrhage, intracranial air, or other findings)

Pneumocephalus (Pneumocephalus – Present)

Other craniofacial fractures –

(For children <3 years, of interest for relevance for inflicted injuries)

Linear (Includes simple and branched)

Comminuted (Involving at least one separate non-contiguous bone segment)

1. Epidural hematoma (Choose one)

Present

Absent

Indeterminate

1. Epidural hematoma anatomic site (Choose all that apply)

Frontal R  L

Parietal R  L

Temporal R  L

Occipital R  L

Posterior fossa R  L

1. Epidural hematoma volume measurement:

cm3

1. Epidural hematoma findings type (Choose all that apply)

Likely venous (due to association with adjacent bony injury/fracture, venous sinus, size, distribution, timing)

Likely arterial (due to "swirl", different densities, location near major dural artery)

1. Extraaxial hematoma (Choose one)

Present

Absent

Indeterminate

1. Extraaxial hematoma anatomic site

Frontal R  L

Parietal R  L

Temporal R  L

Occipital R  L

Interhemispheric supratentorial  Anterior (frontoparietal)

Posterior (occip)

Tentorial R  L

Posterior fossa R  L

1. Extraaxial hematoma volume measurement:

cm3

1. Acute subdural hematoma (Choose one)

Present

Absent

Indeterminate

1. Subdural hematoma acute anatomic site (Choose all that apply)

Frontal R  L

Parietal R  L

Temporal R  L

Occipital R  L

Interhemispheric supratentorial  Anterior (frontoparietal)

Posterior (occip)

Tentorial R  L

Posterior fossa Interhemispheric infratentorial R

Interhemispheric infratentorial L

1. Subdural hematoma acute volume measurement:

cm3

1. Subdural hematoma acute type (Choose one)

Heterogeneous (i.e. mixed density)

Homogeneous

1. Subacute or chronic subdural hematoma (Choose one)

Present

Absent

Indeterminate

1. Subdural hematoma subacute or chronic anatomic site (Choose all that apply)

Frontal R  L

Parietal R  L

Temporal R  L

Occipital R  L

Interhemispheric  Anterior (frontoparietal)

Posterior (occip)

Tentorial R  L

Posterior fossa R  L

1. Subdural hematoma subacute or chronic volume measurement:

cm3

1. Subdural hematoma subacute or chronic findings type (Choose all that apply)

Heterogeneous

Loculations/Septations

Homogeneous

1. Subdural hematoma – mixed density or CSF-like collection (Choose one)

Present

Absent

Indeterminate

1. Subdural hematoma mixed density or CSF-like collection anatomic site (Choose all that apply)

Frontal R  L

Parietal R  L

Temporal R  L

Occipital R  L

Interhemispheric  Anterior (frontoparietal)

Posterior (occip)

Tentorial R  L

Posterior fossa R  L

1. Subdural hematoma mixed density or CSF-like collection volume measurement:

cm3

1. Subdural hematoma mixed density or CSF-like collection findings type (Choose all that apply)

Hyperintense/dense

Isointense/dense

Hypointense/dense

1. Subarachnoid hemorrhage (Choose one)

Present

Absent

Indeterminate

1. Subarachnoid hemorrhage anatomic site (Choose all that apply)

Frontal R  L

Parietal R  L

Temporal R  L

Occipital R  L

Interhemispheric  Anterior (frontoparietal)

Posterior (occip)

Suprasellar Tentorial R  L

Posterior fossa R  L

Perimesencephalic

1. Subarachnoid hemorrhage extent type (Choose one)

Diffuse (Involving more than two contiguous lobes or brain regions, supra- and infratentorical compartments, or multiple basal cisterns)

Focal (In 1-2 locations or lobes of the brain)

1. Subarachnoid hemorrhage findings type (Choose all that apply)

Linear

Mass-like (>3mm thickness, splaying of Sylvian fissure or other cistern)

Acute hydrocephalus

1. Vascular dissection (Choose one)

Present

Absent

Indeterminate

1. Vascular dissection anatomic site (Choose all that apply)

Carotid R  L

Vertebral R  L

Other R  L

Cervical R  L

Intracranial R  L

1. Vascular dissection site type (Choose one)

Intracranial

Cervical

1. Vascular dissection extent type (Choose one)

Luminal narrowing greater than 50% (including "string sign")

Vessel occlusion

Luminal narrowing less than 50%

1. Vascular dissection findings type (Choose one)

Watershed or embolic infarction in the territory of the dissected vessel with SAH

Watershed or embolic infarction in the territory of the dissected vessel without SAH

Adjacent skull fracture (e.g. carotid canal)

1. Traumatic aneurysm (Choose one)

Present

Absent

Indeterminate

1. Traumatic aneurysm anatomic site (Choose all that apply)

Carotid R  L

Vertebral R  L

ACA R  L

MCA R  L

PCA R  L

Basilar

Other (Describe): R  L

1. Traumatic aneurysm volume measurement:

mm3

1. Traumatic aneurysm findings type (Choose one)

Intraluminal thrombus

Cavernous (intradural)

Skull fracture, with penetrating injury

Skull fracture, without penetrating injury

1. Venous sinus injury (Choose one)

Present

Absent

Indeterminate

1. Venous sinus injury morphology type (Choose all that apply)

Compression

Occlusion

Laceration

1. Venous sinus injury anatomic site (Choose all that apply)

Sagittal sinus  Posterior (occipital)

Anterior (frontoparietal)

Transverse sinus  R  L

Sigmoid sinus  R  L

1. Midline shift supratentorial (Choose one)

Present

Absent

Indeterminate

1. Midline shift supratentorial measurement:

mm

1. Side of the midline shift

Right-to-left

Left-to-right

1. Cisternal compression laterality type

Right

Left

Bilateral

Midline

Unknown

1. Cisternal compression anatomic site (Choose all that apply for each abnormal cistern)

Perimesencephalic cistern

Suprasellar cistern

Cisterna magna

Prepontine cistern

Superior cerebellar cistern

1. Ventricle- fourth shift or effacement status (Choose one)

Present

Absent

Indeterminate

1. Ventricle - fourth shift or effacement measurement:

mm

1. Ventricle - fourth shift or effacement displacement type

Right-to-left

Left-to-right

Anterior

Posterior

1. Ventricle - fourth shift or effacement findings type

Brainstem compression

Hydrocephalus

1. Contusion Status (Choose one)

Present

Absent

Indeterminate

1. Contusion anatomic site (Choose all that apply. List each lesion as a separate entry.)

Frontal R  L

Parietal R  L

Temporal R  L

Occipital R  L

Internal Capsule R  L

Thalamus/Basal Ganglia R  L

Midbrain R  L

Pons R  L

Medulla R  L

Cerebellum R  L

1. Contusion volume measurement:

cm3

1. Contusion findings type

Non-hemorrhagic

Cortical

Subcortical

Deep brain structure

Probable brain laceration (linear hemorrhagic or non hemorrhagic pattern, often associated with overlying skull fracture)

Hemorrhagic

1. Intracerebral hemorrhage indicator (Choose one)

Present

Absent

Indeterminate

1. Intracerebral hemorrhage anatomic site (Choose all that apply)

Frontal R  L

Parietal R  L

Temporal R  L

Occipital R  L

Internal Capsule R  L

Thalamus/Basal Ganglia R  L

Midbrain R  L

Pons R  L

Medulla R  L

Cerebellum R  L

1. Intracerebral hemorrhage hemorrhagic component volume measurement:

cm3

1. Intracerebral hemorrhage entire lesion volume measurement:

cm3

1. Intracerebral hemorrhage findings type

Surrounding ring of non-hemorrhagic signal (edema)

Layered (i.e., with fluid level)

1. Intraventricular hemorrhage status (Choose one)

Present

Absent

Indeterminate

1. Intraventricular hemorrhage anatomic site (Choose all that apply)

Lateral ventricle--R

Lateral ventricle--L

Third ventricle

Fourth ventricle

1. Intraventricular hemorrhage ventriculomegaly status (Choose one)

Present

Absent

Indeterminate

1. Intraventricular hemorrhage volume measurement:

cm3

1. Intraventricular hemorrhage pattern type

Obstructive

Non-obstructive

1. Diffuse axonal injury status (Choose one)

Present

Absent

Indeterminate

1. Traumatic axonal injury status (Choose one)

Present

Absent

Indeterminate

1. Diffuse axonal injury and traumatic axonal injury anatomic site (Choose all that apply)

Frontal R  L

Parietal R  L

Temporal R  L

Occipital R  L

Thalamus/Basal Ganglia R  L

Midbrain R  L

Pons R  L

Medulla R  L

Cerebellum R  L

Corpus Callosum: Genu R  L

Corpus Callosum: Body R  L

Corpus Callosum: Splenium R  L

Subcortical White matter: Frontal R  L

Subcortical White matter: Parietal R  L

Subcortical White matter: Temporal R  L

Subcortical White matter: Occipital R  L

Internal Capsule: Anterior limb R  L

Internal Capsule: Posterior limb R  L

Brainstem: Dorsolateral rostral R  L

Brainstem: Other R  L

Cerebellar Peduncles R  L

1. Diffuse axonal injury and traumatic axonal injury lesions number
2. Penetrating injury brain status (Choose one)

Present

Absent

Indeterminate

1. Penetrating injuries deepest extent penetrated anatomic site

Scalp

Skull

Dura

Parenchyma

1. Penetrating injuries anatomic site (Choose all that apply)

Frontal R  L

Parietal R  L

Temporal R  L

Occipital R  L

Internal Capsule R  L

Thalamus/Basal Ganglia R  L

Midbrain R  L

Pons R  L

Medulla R  L

Cerebellum R  L

1. Gunshot wound caliber number:
2. Penetrating injury associated findings (Choose all that apply)

Through and through trajectory (entrance and exit sites)

Transventricular trajectory

Crosses midline

Indriven fragments (bone, foreign bodies)

1. Cervicomedullary junction or brainstem injury (Choose one)

Present

Absent

Indeterminate

1. Cervicomedullary junction or brainstem injury anatomic site

Midbrain

Pons

Medulla

Cervical

1. Cervicomedullary junction or brainstem injury type (Choose one)

Subtotal

Total

1. Edema (Choose one)

Present

Absent

Indeterminate

1. Edema anatomic site (Choose all that apply)

Frontal R  L

Parietal R  L

Temporal R  L

Occipital R  L

Deep grey matter R  L

Cerebellum R  L

Brainstem

1. Edema extent type (Choose all that apply)

Focal

Lobar

Multilobar

Hemispheric

Bihemispheric

Posterior fossa

Global

1. Edema findings type (Choose all that apply)

Cytotoxic

Vasogenic

Interstitial

Osmotic

Indeterminate

1. Edema volume measurement:

cm3

1. Brain swelling (Choose one)

Present

Absent

Indeterminate

1. Brain swelling anatomic site (Choose all that apply)

Frontal R  L

Parietal R  L

Temporal R  L

Occipital R  L

Deep grey matter R  L

Cerebellum R  L

Brainstem

1. Brain swelling extent

Focal

Lobar

Hemispheric

Bihemispheric

Posterior fossa

Global

1. Ischemia or infarction or hypoxic-ischemic injury (Choose one)

Absent

Indeterminate

Present

1. Ischemia or infarction or hypoxic-ischemic injury anatomic site (Choose all that apply)

Frontal R  L

Parietal R  L

Temporal R  L

Occipital R  L

Deep grey matter R  L

Cerebellum R  L

Brainstem

1. Ischemia or infarction or hypoxic-ischemic injury extent type (Choose one)

Focal

Lobar

Multilobar

Hemispheric

Bihemispheric

Posterior fossa

Global

1. Ischemia or infarction or hypoxic-ischemic injury, acute or subacute findings type (Choose all that apply)

Isodense (for CT)

Hyperdense (for CT)

Hypointense (for MRI)

Isointense (for MRI)

Bright (for MRI)

Normal (for MRI)

Mixed (for CT or MRI)

Hypodense (for CT)

1. Ischemia or infarction or hypoxic-ischemic injury pattern type (Choose one)

Arterial

Lacunar

Venous

Global

Dissection

Mixed

Indeterminate

Watershed

1. Brain atrophy or encephalomalacia

Present

Absent

Likely

Indeterminate

1. Brain atrophy or encephalomalacia anatomic site (Choose all that apply)

Frontal R  L

Parietal R  L

Temporal R  L

Occipital R  L

Deep grey matter R  L

Cerebellum R  L

Hippocampus R  L

Supratentorial white matter (corpus callosum, periventricular white matter)

R  L

1. Brain volumetric analysis measurement:

cm3

\*Element is classified as Core