## Patient Information

1. \*\*Study ID number:
2. \*\*Date and time of study (M M/D D/Y Y Y Y):

(HH:MM, 24 hr clock):

1. NIH Stroke Scale (NIHSS) at time of study (0-42):[[1]](#footnote-1)
2. Scan purpose (Select all that apply):

Diagnostic

Treatment

Post-treatment

Monitoring

Other, specify

## Technical Information

1. \*\*Imaging modality (Select all that apply):

DSA

MRA/MRV

CTA/CTV

Cone Beam Computed Tomography (CBCT)

1. Digital Subtraction Angiography (DSA)
   1. Site of access:

Brachial  Femoral

Radial  Other

* 1. Selective injections (Select all that apply in table below and side):

1 Technical Information Table

| Injection Site | Side |
| --- | --- |
| Arch | N/A – Not present |
| Common Carotid | Right  Left  Bilateral  N/A – Not present |
| Internal Carotid | Right  Left  Bilateral  N/A – Not present |
| Vertebral | Right  Left  Bilateral  N/A – Not present |
| Subclavian | Right  Left  Bilateral  N/A – Not present |

1. Magnetic Resonance Angiography (MRA): (Select all that apply)

Head (Time of Flight - TOF)

Neck (TOF)

Contrast enhanced Head and Neck

Magnetic Resonance Venography (MRV) with contrast

Magnetic Resonance Venography (MRV) without contrast

1. Computer Tomography Angiography (Select all that apply):

Head

Neck

Computer Tomography Venography (CTV)

## Findings

1. Arterial findings:
   1. Location:

CCA origin  M3 multiple

CCA to bifurcation  M4 single

ICA at origin  M4 multiple

C1 cervical  Vertebral origin

C2 petrous  Vertebral – cervical

C3 lacerum  Vertebral – intracranial proximal to PICA

C4 cavernous  Vertebral – distal to PICA

C5 clinoidal  Basilar – proximal

C6 – ophthalmic to PCOM  Basilar – mid

C6 – PCOM to terminus  Basilar – distal

A1  PCOM

A2  P1

M1 proximal to striate  P2

M1 distal to striate  P3

M2 single  SCA

M2 multiple  AICA

M3 single  PICA

* 1. Findings:

1 Findings Table

| Side | Right | Left |
| --- | --- | --- |
| Findings | Normal  Occlusion  Aneurysm  Stenosis  AVM  Other  Not visualized | Normal  Occlusion  Aneurysm  Stenosis  AVM  Other  Not visualized |

1. \*\*\*Qureshi Angiographic Occlusions Scale (Scores listed and defined directly below):

2 Occlusions Scale Table

| Score | Description |
| --- | --- |
| 0 | No Occlusion |
| 1 – MCA | MCA occlusion M3 segment |
| 1 – ACA | ACA occlusion A2 or distal segments |
| 1 – BA/VA | One BA/VA branch occlusion |
| 2 – MCA | MCA occlusion M2 segment |
| 2 – ACA | ACA occlusion A1 and A2 segments |
| 2 – BA/VA | Two or more BA/VA branch occlusions |
| 3A | MCA occlusion M1 segment with lentriculostriate arteries spared and/or leptomeningeal collaterals visualized |
| 3B | MCA occlusion M1 segment with no sparing of lentriculostriate arteries nor leptomeningeal collaterals visualized |
| 4A – ICA | ICA occlusion with collaterals filling MCA |
| 4A – BA | BA occlusion with partial anterograde filling |
| 4B – ICA | ICA occlusion with collaterals filling ACA |
| 4B – BA | BA occlusion with partial retrograde filling |
| 5 – ICA | ICA occlusion with no collaterals |
| 5 – BA | BA occlusion with no filling either directly or via collaterals |

1. Expanded Thrombolysis in Cerebral Infarction (eTICI) Perfusion Scale-Grade (Scores listed and defined directly below):

3 Perfusion Scale Cause and Symptomology Table

| Score | Description |
| --- | --- |
| Grade 0 | No reperfusion or 0% filling of downstream territory. |
| Grade 1 | Thrombus reduction without any reperfusion of distal arteries. |
| Grade 2a | Reperfusion in less than half or 1-49% of the territory. |
| Grade 2b50 | 50-66% reperfusion, exceeding the modified TICI (mTICI) 2B threshold but below the original TICI 2B cut-off point. |
| Grade 2b67 | 67-89% reperfusion, exceeding TICI but below TICI 2C. |
| Grade 2c | Equivalent to TICI 2C or 90-99% reperfusion. |
| Grade 3 | Complete or 100% reperfusion, tantamount to TICI 3. |

1. Arterial Occlusion Lesion (AOL) Recanalization Scale for DSA; Modified Arterial Occlusion Lesion (mAOL) Recanalization Scale for CTA and MRA (Scores listed and defined directly below):

4 Recanalization Scale Table

| Score | Description |
| --- | --- |
| 0 | No recanalization of the primary occlusive lesion |
| 1 | Incomplete or partial recanalization of the primary occlusive lesion with no distal flow |
| 2 | Incomplete or partial recanalization of the primary occlusive lesion with any distal flow |
| 3 | Complete recanalization of the primary occlusion with any distal flow |

1. Intracranial collateral segment status:

5 Intracranial collateral segment status Table

| Location | Side |
| --- | --- |
| ECA/OA - ICA | Left  Right  Bilateral  N/A – Not Present |
| ECA/Other - ICA | Left  Right  Bilateral  N/A – Not Present |
| AComA - A1 - MCA | Left  Right  Bilateral  N/A – Not Present |
| AComA – A2 – MCA pial | Left  Right  Bilateral  N/A – Not Present |
| PComA – ICA | Left  Right  Bilateral  N/A – Not Present |
| PCA – ACA pial | Left  Right  Bilateral  N/A – Not Present |
| PCA – MCA pial | Left  Right  Bilateral  N/A – Not Present |
| ICA to MCA/ACA Moyamoya | Left  Right  Bilateral  N/A – Not Present |
| Other: | Left  Right  Bilateral  N/A – Not Present |

1. Collateral grade (Grades listed and defined directly below):

6a ASITN Collateral Grade Table

| Score | Description |
| --- | --- |
| Grade 0 | No collaterals visible to the ischemic site |
| Grade 1 | Slow collaterals to the periphery of the ischemic site with persistence of some of the defect |
| Grade 2 | Rapid collaterals to the periphery of ischemic site with persistence of some of the defect and to only a portion of the ischemic territory |
| Grade 3 | Collaterals with slow but complete angiographic blood flow of the ischemic bed by the late venous phase |
| Grade 4 | Complete and rapid collateral blood flow to the vascular bed in the entire ischemic territory by retrograde perfusion |

6b Tan Collateral Score Table

| Score | Description |
| --- | --- |
| 0 | Absence of vessels on CTA source images (CTA-SI) |
| 1 | Collateral supply filling ≤50% but >0% of the occluded MCA territory |
| 2 | Collateral supply filling >50% but <100% of the occluded MCA territory |
| 3 | 100% collateral supply of the occluded MCA territory |

1. Venous findings:
   1. Superior Sagittal Sinus findings:

7 Findings Table

| Overall Assessment | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other |
| --- | --- |

1. Inferior Sagittal Sinus findings:

8 Findings Table

| Overall Assessment | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other |
| --- | --- |

1. Straight Sinus findings:

9 Findings Table

| Overall Assessment | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other |
| --- | --- |

1. Transverse Sinus findings:

10 Findings Table

| Side | Right | Left |
| --- | --- | --- |
| Overall Assessment | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other |

1. Sigmoid Sinus findings:

11 Findings Table

| Side | Right | Left |
| --- | --- | --- |
| Overall Assessment | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other |

1. Jugular Bulb findings:

12 Findings Table

| Side | Right | Left |
| --- | --- | --- |
| Overall Assessment | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other |

1. Cavernous Sinus findings:

13 Findings Table

| Side | Right | Left |
| --- | --- | --- |
| Overall Assessment | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other |

1. Internal Cerebral Vein findings:

14 Findings Table

| Side | Right | Left |
| --- | --- | --- |
| Overall Assessment | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other |

1. a. Vein of Galen findings:

15a Findings Table

| Overall Assessment | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other |
| --- | --- |

* 1. Frontal Cortical Vein findings:

15b Findings Table

| Side | Right | Left |
| --- | --- | --- |
| Overall Assessment | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other |

1. Parietal Cortical Vein findings:

16 Findings Table

| Side | Right | Left |
| --- | --- | --- |
| Overall Assessment | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other |

1. Temporal Cortical Vein findings:

17 Findings Table

| Side | Right | Left |
| --- | --- | --- |
| Overall Assessment | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other |

1. Occipital Cortical Vein findings:

18 Findings Table

| Side | Right | Left |
| --- | --- | --- |
| Overall Assessment | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other | Normal  Small Caliber/Congenital Hypoplasia  Stenosis  Occlusion  Other |

## Aneurysm Details

1. Shape/pathology of aneurysm:

Saccular

Fusiform

Dissecting

1. Anatomic location:

C1 cervical  M4

C2 petrous  M4 single

C3 lacerum  M4 multiple

C4 cavernous  Vertebral origin

C5 clinoidal  Vertebral-cervical

C6 - ophthalmic to PCOM  Vertebral-intracranial proximal to PICA

C6 - PCOM to terminus  Vertebral-distal to PICA

A1  Basilar-distal to AICA

ACOM  Basilar-mid

A2  Basilar-proximal to AICA

M1 proximal to striate  PCOM

M1 distal to striate  P1

M2  P2

M2 single  P3

M2 multiple  SCA

M3  AICA

M3 single  PICA

M3 multiple

1. Location of aneurysm:

Cavernous

Persistent trigeminal

Medial paraclinoid

Lateral paraclinoid

Ophthalmic

Superior hypophyseal

Posterior communicating

Anterior choroidal

Internal carotid artery bifurcation

Middle cerebral artery bifurcation

Anterior communicating

Pericallosal

Posterior inferior cerebellar artery

Superior cerebellar

Basilar apex

Other

1. Dome size of aneurysm (mm):
2. Neck size of aneurysm (mm):
3. Aneurysm irregularity:

Yes

No

Unknown

1. Largest height/largest neck diameter for each aneurysm:
2. Presence of mural thrombus or partial thrombosis in aneurysm:

Yes

No

Unknown

1. \*\*\*Presence of 3D reconstruction of aneurysm:

Yes

No

Unknown

## Endovascular Aneurysm Treatment

1. \*\*\*Wall opposition for stents or flow diverters:

Good

Poor

Unknown

1. \*\*\*Occlusion percentage of aneurysm:
2. Raymond-Roy Occlusion Classification:

Complete occlusion

Dog ear

Residual neck

Residual aneurysm

1. Occlusion of parent or branch vessel related to aneurysm:

Yes

No

Unknown

## \*\*\*CFD: Volumetric

1. \*\*\*Mean kinetic energy measurement of aneurysm:
2. \*\*\*Mean velocity measurement of aneurysm (cm/sec):
3. \*\*\*Mean aneurysm shear rate:
4. \*\*\*Mean aneurysm vorticity:
5. \*\*\*Mean viscous dissipation:
6. \*\*\*Vortex coreline length (cm):

## \*\*\*CFD: Surface Factors

1. \*\*\*Mean wall shear stress of aneurysm (dyne/cm2):
2. \*\*\*Maximum wall shear stress (dyne/cm2):
3. \*\*\*Minimum wall shear stress (dyne/cm2):
4. \*\*\*Shear concentration index:
5. \*\*\*Percentage of aneurysm under low WSS:
6. \*\*\*Mean oscillatory shear stress:

## \*\*\*CFD: Hemodynamic Factors

1. \*\*\*Mean inflow rate of aneurysm (ml/sec):
2. \*\*\*Inflow concentration index:

## Additional Supplemental Elements

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

## General Instructions

This CRF contains data that would be collected when an imaging study is performed using angiography to examine the blood vessels of the body. There are separate sections to record arterial findings and venous findings.

\*\* Element is classified as Supplemental – Highly Recommended

\*\*\*Element is classified as Exploratory

The remaining data elements are Supplemental and should only be collected if the research team considers them appropriate for their study.

## Specific Instructions

Please see the Data Dictionary for definitions for each of the data elements included in this CRF Module.

1. NIHSS is also included on other Stroke CDE CRF Modules. This item should be pre-populated if initially collected elsewhere so as to avoid redundant data points. [↑](#footnote-ref-1)