## 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 scan (0-42)[[1]](#footnote-1):
2. Scan purpose (Select all that apply):

Diagnostic

Post-treatment Follow-up

Monitoring

Other, specify

## Technical Information

1. Imaging modality (Select all that apply):

MRI:

* 1. MRI Scanner strength:

1.5 T  3.0 T

4.0 T  7.0 T

Other, specify:

* 1. MRI Sequences acquired and slice thickness (Select all that apply, if selected provide slice thickness and gap:)

DWI / ADC (mm):

GRE (mm):

SWI (mm):

PWI (mm):

FLAIR (mm):

Post-contrast FLAIR (mm):

T1-weighted (mm):

T2-weighted (mm):

Post-contrast T1-weighted (mm):

COW MRA

TOF Neck MRA

CE MRA

Other, specify (mm):

CT:

* + 1. Scanner number of slices:
    2. Sequences acquired and slice thickness:

Non-contrast head CT(mm):

Perfusion CT (mm):

CT angiogram head (mm):

CT angiogram neck (mm):

Postcontrast head CT (mm):

Other, specify (mm):

Other, specify (mm):

## Ischemic Disease

1. Acute infarct(s) present:

Definitely present

Equivocal

Definitely absent

1. Number of acute infarcts:

Zero

Single

Multiple

* 1. If more than one, are they all in one vascular territory?

Yes

No (If No skip to 3)

Not applicable

* 1. Circulations involved (Select all that apply):

Anterior

Posterior

* 1. Structures involved (Select all that apply):

Right hemisphere

Left hemisphere

Brainstem

Cerebellum

1. Location of acute infarct (Select all that apply. N/A – Not present should be default response for each region):

Brain Region Table

| Brain Region | Side |
| --- | --- |
| Frontal lobe | Right  Left  Bilateral  N/A – Not present |
| Parietal lobe | Right  Left  Bilateral  N/A – Not present |
| Temporal lobe | Right  Left  Bilateral  N/A – Not present |
| Occipital lobe | Right  Left  Bilateral  N/A – Not present |
| Insula | Right  Left  Bilateral  N/A – Not present |
| Cerebellum | Right  Left  Bilateral  N/A – Not present |
| Pons | Right  Left  Bilateral  N/A – Not present |
| Midbrain | Right  Left  Bilateral  N/A – Not present |
| Medulla | Right  Left  Bilateral  N/A – Not present |
| Corona radiata | Right  Left  Bilateral  N/A – Not present |
| Anterior limb IC | Right  Left  Bilateral  N/A – Not present |
| Posterior limb IC | Right  Left  Bilateral  N/A – Not present |
| Caudate | Right  Left  Bilateral  N/A – Not present |
| Globus Pallidus | Right  Left  Bilateral  N/A – Not present |
| Putamen | Right  Left  Bilateral  N/A – Not present |
| Thalamus | Right  Left  Bilateral  N/A – Not present |

1. Vascular distribution (Select all that apply. N/A – Not present should be default response for each region.):

Vascular Territory Table

| Vascular Territory | Side |
| --- | --- |
| ICA | Right  Left  Bilateral  N/A – Not present |
| ACA | Right  Left  Bilateral  N/A – Not present |
| M1 | Right  Left  Bilateral  N/A – Not present |
| M2 and beyond | Right  Left  Bilateral  N/A – Not present |
| Lenticulostriates | Right  Left  Bilateral  N/A – Not present |
| PCA | Right  Left  Bilateral  N/A – Not present |
| VB | Right  Left  Bilateral  N/A – Not present |
| Venous | Right  Left  Bilateral  N/A – Not present |
| Borderzone | Right  Left  Bilateral  N/A – Not present |

1. Additional findings (Select all that apply):

Malignant edema

Hyperdense artery, specify:

Hyperdense venous sinus or cortical vein, specify:

1. Acute ischemic lesion volume:
   1. Planimetric (cc) (Planimetric = specific total volume for all acute lesions):
   2. Lesion count:
   3. Indicate sequence (Select all that apply):

DWI / ADC

FLAIR

Other, specify:

* 1. Indicate method:

Manually drawn

Relative Threshold:

Absolute Threshold:

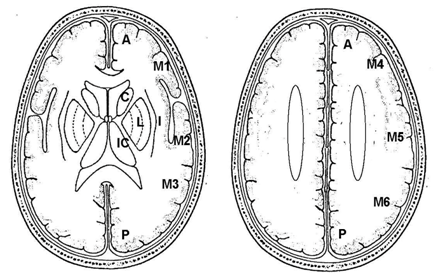
1. 1/3 MCA territory involved:

Yes

No

Not applicable

ASPECT Score Figure



1. ASPECT Score:

Segmental assessment of the following MCA territory (0=Involved, 1=Not involved):

* 1. C=caudate (0, 1):
  2. L=lentiform (0, 1):
  3. IC=internal capsule (0, 1):
  4. I=insular ribbon (0, 1):
  5. M1=anterior MCA cortex (0, 1):
  6. M2=MCA cortex lateral to insular ribbon (0, 1):
  7. M3=posterior MCA cortex (0, 1):
  8. M4=anterior superior to M1, rostral to basal ganglia (0, 1):
  9. M5=lateral superior to M2 rostral to basal ganglia (0, 1):
  10. M6=posterior superior to M3, rostral to basal ganglia (0, 1):
  11. Total Score (0-10, sum of A-J above):

1. Chronic Infarct(s):
   1. Present?

Yes

No (Skip to 10)

* 1. If Yes, number of chronic infarcts:

Zero

Single

Multiple

* 1. If Yes, location(s) of chronic infarcts (Select all that apply. N/A – Not present should be default response for each region):

Chronic Infarcts Location Table

| Brain Region | Side |
| --- | --- |
| Frontal lobe | Right  Left  Bilateral  N/A – Not present |
| Parietal lobe | Right  Left  Bilateral  N/A – Not present |
| Temporal lobe | Right  Left  Bilateral  N/A – Not present |
| Occipital lobe | Right  Left  Bilateral  N/A – Not present |
| Insula | Right  Left  Bilateral  N/A – Not present |
| Cerebellum | Right  Left  Bilateral  N/A – Not present |
| Pons | Right  Left  Bilateral  N/A – Not present |
| Midbrain | Right  Left  Bilateral  N/A – Not present |
| Medulla | Right  Left  Bilateral  N/A – Not present |
| Corona radiata | Right  Left  Bilateral  N/A – Not present |
| Anterior limb IC | Right  Left  Bilateral  N/A – Not present |
| Posterior limb IC | Right  Left  Bilateral  N/A – Not present |
| Caudate | Right  Left  Bilateral  N/A – Not present |
| Globus Pallidus | Right  Left  Bilateral  N/A – Not present |
| Putamen | Right  Left  Bilateral  N/A – Not present |
| Thalamus | Right  Left  Bilateral  N/A – Not present |

1. Leukoaraiosis on MRI:
   1. Sequence employed (Select all that apply):

FLAIR

T2-weighted

Other, specify:

* 1. Fazekas scale:
     1. Periventricular:

0 = Absence

1 = “Caps” or pencil lining

2 = Smooth “halo”

3 = Irregular periventricular hyperintensities extending into the deep white matter

* + 1. Deep white matter:

0 = Absence

1 = Punctuate foci

2 = Beginning confluence of foci

3 = Large confluent areas

* + 1. Total score (Sum of items I. and II):
  1. Modified Scheltens scale:

Use the following for I. – IV:

0 = No abnormalities

1 = ≤ 3mm and the number of lesions (n) ≤ 5

2 = ≤ 3mm and number of lesions (n) ≤ 6

3 = 4 to 10mm and the number of lesions (n) ≤ 5

4 = 4 to 10mm and the number of lesions (n) ≥ 6

5 = ≥ 11mm and the number of lesions (n) ≥ 1

6 = Confluent

* + 1. Frontal:
    2. Parietal:
    3. Occipital:
    4. Temporal:

Use the following for V. – VII:

0 = No abnormalities

1 = Periventricular hyperintensities ≤5mm

2 = Periventricular hyperintensities > 5mm and ≤ 10

* + 1. Occipital caps:
    2. Frontal caps:
    3. Periventricular bands:
    4. Total score (Sum of scores I. – VII):
  1. Age Related White Matter Changes (ARWMC) scale:

Use the following for I. – IV.:

0 = No lesion

1 = Focal lesions

2 = Beginning confluence of lesions

3 = Diffuse involvement

* + 1. Frontal:
    2. Parieto-occipital:
    3. Temporal:
    4. Infratentorial / Cerebellum:
    5. Basal Ganglia:

Use the following for V:

0 = No lesion

1 = 1 focal lesion ≥ 5 mm

2 = > 1 focal lesion

3 = Confluent lesions

* + 1. Total score (Sum of scores I – V):
  1. Volumetric measure (cc):

1. Leukoaraiosis on CT:
   1. Van Swieetten Scale:
      1. Anterior white matter:

No lesion

Lesions partly involving the white matter

Lesions extending up to the subcortical region

* + 1. Posterior white matter:

No lesion

Lesions partly involving the white matter

Lesions extending up to the subcortical region

* 1. Volumetric measure (cc):

## Hemorrhage

1. Intraparenchymal hematoma:
   1. Acute hematoma present:

Yes

No (Skip to 2)

* 1. Intracerebral hemorrhage (ICH) volume (ABC/2):
  2. ICH volume (planimetric):
  3. For MRI, indicate sequence employed (Select all that apply):

GRE

SWI

Other, specify:

* 1. Location of hematoma (Select all that apply. N/A – Not present should be default response for each region):

Lobar Region Table

| Lobar Region | Side |
| --- | --- |
| Frontal | Right  Left  Bilateral  N/A – Not present |
| Parietal | Right  Left  Bilateral  N/A – Not present |
| Temporal | Right  Left  Bilateral  N/A – Not present |
| Occipital | Right  Left  Bilateral  N/A – Not present |

Deep Region Table

| Deep Region | Side |
| --- | --- |
| Caudate | Right  Left  Bilateral  N/A – Not present |
| Putamen | Right  Left  Bilateral  N/A – Not present |
| Globus Pallidus | Right  Left  Bilateral  N/A – Not present |
| Thalamus | Right  Left  Bilateral  N/A – Not present |
| Cerebellum | Right  Left  Bilateral  N/A – Not present |
| Midbrain | N/A – Not present |
| Pons | N/A – Not present |
| Medulla | N/A – Not present |

* 1. Perihematomal edema volume (cc):
  2. For MRI, indicate sequence employed for perihematomal edema volume (Select all that apply):

FLAIR

T2-weighted

Other, specify:

* 1. Positive spot sign (CT Only):

Yes

No

* 1. Spot sign score (CT Only):

Spot sign score Table

| # | 0 Points | 1 Point | 2 Points |
| --- | --- | --- | --- |
| Number of spot signs: | Data to be entered by site | 1-2 | ≥ 3 |
| Maximum axial dimension: | 1-4 mm | ≥ 5 mm |  |
| Maximum attenuation: | 120-179 HU | ≥ 180 HU |  |

Total score (Summation of points from boxes selected above):

* 1. Chronic hematoma present:

Yes, specify number:

No

* 1. Microbleeds present:

Yes

No (Skip to 2)

* + 1. Right lobar count:
    2. Left lobar count:
    3. Right deep count:
    4. Left deep count:
    5. Brainstem count:
    6. Cerebellum count:

1. Intraventricular hemorrhage (IVH) present:

Present  Absent (Skip to 3)

Indeterminate

* 1. Graeb IVH scale:

Use the following for I – II:

1= Trace amount of blood or mild bleeding;

2 = < Half of the ventricle filled with blood;

3= > Half of the ventricle filled with blood;

4= Ventricle expanded and filled with blood

* + 1. Right lateral ventricle score:
    2. Left lateral ventricle score:

Use the following for III – IV:

1= Blood present without dilatation;

2= Ventricle expanded and filled with blood

* + 1. Third ventricle score:
    2. Fourth ventricle score:
    3. Total score (Sum of scores I. – IV.; maximum score is 12):
  1. Volume (cc):

1. Subarachnoid hemorrhage (SAH) present:

Yes

No (Skip to 4)

* 1. Fisher grade:

Grade 1: No hemorrhage evident

Grade 2: SAH less than 1 mm thick

Grade 3: SAH more than 1 mm thick

Grade 4: SAH of any thickness with IVH or parenchymal extension

* 1. Modified Fisher scale:

Grade 0: No SAH or IVH

Grade 1: SAH less than 1 mm thick, no IVH

Grade 2: SAH less than 1 mm thick, with IVH

Grade 3: SAH more than 1 mm thick, no IVH

Grade 4: SAH more than 1 mm thick, with IVH

* 1. Hijdra scale (Select all that apply in table below):

Location Table

| Location | Value |
| --- | --- |
| Frontal | 0  1  2  3 |
| Lateral Sylvian Right | 0  1  2  3 |
| Lateral Sylvian Left | 0  1  2  3 |
| Basilar Sylvian Right | 0  1  2  3 |
| Basilar Sylvian Left | 0  1  2  3 |
| Suprasellar Right | 0  1  2  3 |
| Suprasellar Left | 0  1  2  3 |
| Ambient Right | 0  1  2  3 |
| Ambient Left | 0  1  2  3 |
| Quadrigeminal | 0  1  2  3 |
| Fourth Ventricle | 0  1  2  3 |
| Lateral Ventricle Right | 0  1  2  3 |
| Lateral Ventricle Left | 0  1  2  3 |

Total score:

1. Epidural Hematoma present:

Present  Absent (Skip to 5)

Indeterminate

* 1. Volume:
  2. Thickness
  3. Location:

Frontal Right  Left

Parietal Right  Left

Temporal Right  Left

Occipital Right  Left

Posterior fossa Right  Left

* 1. Hijdra scale (Select all that apply in table below):

6 Location Table

| Location | Value |
| --- | --- |
| Right | 0  1  2  3 |
| Left | 0  1  2  3 |
| Bilateral | 0  1  2  3 |

Total score:

* 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. Subdural Hematoma present:

Present  Absent (Skip to 6)

Indeterminate

* 1. Volume:
  2. Thickness:
  3. Location:

Frontal R  L

Parietal R  L

Temporal R  L

Occipital R  L

Interhemispheric supratentorial  Anterior (frontoparietal)

Posterior (occipital)

Tentorial R  L

Posterior fossa R  L

* 1. Hijdra scale (Select all that apply in table below):

7 Location Table

| Location | Value |
| --- | --- |
| Right | 0  1  2  3 |
| Left | 0  1  2  3 |
| Midline | 0  1  2  3 |
| Bilateral | 0  1  2  3 |

* 1. Subdural hematoma type:

Subacute

Acute

Chronic

1. Hemorrhagic Transformation:
   1. Present?

Yes

No (Skip 7B-C)

Unsure (Possible Contrast Staining)

* 1. Imaging type:

HI-1 (Hemorrhagic infarct type 1; small petechiae along the margins of the infarct)

HI-2 (Hemorrhagic infarct type 2; more confluent petechiae within the infarct area but without space-occupying effect)

PH-1 (Primary intracerebral hemorrhage type 1; blood clot(s) NOT exceeding 30% of the infarct area with some mild space occupying effect)

PH-2 (Primary intracerebral hemorrhage type 2; blood clots exceeding 30% of the infarct area with substantial space occupying effect)

RPH-1 (Remote primary intracerebral hemorrhage type 1; small or medium sized blood clots located remote from the actual infarct; a mild space occupying effect could be present)

RPH-2 (Remote primary intracerebral hemorrhage type 2; large confluent dense blood clots in an area remote from the actual infarct; substantial space occupying effect might be present)

SAH (Subarachnoid hemorrhage)

IVH (Intraventricular hemorrhage)

## Additional Findings

1. Any midline shift present?

Absent

Present

Indeterminate

If present, specify (mm):

1. Herniation present?

Yes

No (Skip to 3)

* 1. Location:

Subfalcine

Uncal right

Uncal left

Tonsillar

[Transcalvarial](https://www.google.com/search?client=firefox-b-1-d&q=transcalvarial+herniation&spell=1&sa=X&ved=0ahUKEwiMzejYz7bgAhWLiOAKHaJIAx0QkeECCCkoAA)

1. Hydrocephalus:

Yes

No

If yes, bicaudate index:

1. Arteriovenous malformation:

Yes

No

If yes, specify location:

1. Tumor present?

Yes

No

If yes, specify location:

1. Abscess present?

Yes

No

If yes, specify location:

1. Other findings?

Yes

No

If yes, specify:

## General Instructions

This CRF contains data that would be collected when an imaging study is performed to measure parenchyma. The data recorded attempt to divide the strokes into ischemic or hemorrhagic subtypes as distinction of hemorrhage versus infarction is the initial critical branch point in acute stroke triage.

Regional tables on the CRF include suggested potential regions. Researchers should choose which regions are needed based on the level of specificity needed for a study.

## Specific Instructions

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

Hematoma questions are specific to hematoma type and should only be answered if applicable. Extra-axial hematoma questions should be answered if there is uncertainty regarding whether a hematoma is epidural or subdural.

Hijdra total scores should be calculated automatically based upon scores in the Hijdra scale table.

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)