1. Multiple aneurysms:

Yes

No

1. Number of aneurysms treated:
2. \*\*Type of vessel repaired:

Ophthalmic/paraclinoid  PCA - P1

Pcomm  PCA - P2

AChoA  PCA - distal

ICA terminus  basilar bifurcation

Dorsal ICA  SCA

ACA - A1  AICA

ACA - Acomm  Basilar trunk

ACA -Pericallosal/callosomarginal  PICA – proximal

MCA – M1  PICA - distal

MCA - bifurcation/trifurcation/anterior temporal  Vertebral

MCA - distal MCA (Distal MCA is beyond the MCA bifurcation or trifurcation)

Vertebral-basilar junction

1. \*\*Day of intervention from the moment of subarachnoid hemorrhage (SAH) ictus:
2. Intervention time (hours):
3. Ventriculostomy placement for hydrocephalus:

Yes

No

1. Lumbar drain placement:

Yes

No

1. \*Intervention - surgery:

Yes

No

Attempt failed

1. \*Intervention – endovascular:

Yes

No

Attempt failed

1. Antithrombotic type used during procedure:

Heparin

Aspirin

tPA

Clopidogrel

None

Other

Surgery details

1. SAH surgery type:

Clipping

Trapping alone

Wrapping

Hunterian ligation alone

Bypass

None/attempted

Other

1. Surgical intervention result:

Complete occlusion

Partial occlusion – neck remnant

Partial occlusion – residual fundus

Unsecured

1. Intraprocedural physiological monitoring:

Yes

No

1. Intraoperative rupture:

Yes - major

Yes – minor

No

1. Intraoperative assessment of vessel patency and/or aneurysm occlusion:

Microvascular doppler

Ultrasonic transit-time flowmetry

Fluorescence videoangiography

Intraoperative catheter angiography

1. Type of intraoperative complication:

Vessel thrombosis

Unintended vessel occlusion

Brain swelling caused by surgical trauma

Aneurysm hemorrhage resulting in need for transfusion

Known perforator occlusion at time of surgery

Unintended neural injury at the time of surgery

Other

1. Surgery duration (minutes):
2. Blood transfusion during surgery?

Yes

No

1. Amount of blood lost during surgery (cc):
2. Postoperative complication:

Hemorrhage

Brain swelling related to surgical trauma

Other

1. Type of craniotomy:

Standard

Minimally invasive

1. Craniectomy performed?

Yes

No

1. Hematoma evacuation:

Yes

No

1. Temporary vessel occlusion:

Yes

No

1. \*\*\*Number of temporary occlusions:
2. Maximum duration of temporary occlusion (minutes):
3. Total duration of temporary occlusions:

Endovascular Intervention details

1. Type of endovascular repair:

Coil

Coil with balloon remodeling

Stent/coil

Stent only

Vessel occlusion

Flow diverter

None/attempted

Other

1. Evidence of intraoperative rupture?

Yes

No

1. Endovascular intraprocedural complication type:

Perforation

Vessel dissection

Vessel occlusion

Thromboembolism

Coil migration

Femoral access complication

Other

1. Endovascular postprocedural complication type:

Femoral access complication

Vessel occlusion

Vessel dissection

Other

1. Endovascular fluoroscopy dose (mGy):
2. Endovascular procedure duration (minutes):
3. Endovascular intervention result:

Raymond-Roy grade 1

Raymond-Roy grade 2

Raymond-Roy grade 3

## General Instructions

This CRF Module is recommended to collect information on surgical/procedural interventions for subarachnoid hemorrhage (SAH) studies.

Some elements on this CRF are classified as Core, Supplemental – Highly Recommended or Exploratory, as indicated by asterisks below:

\*Element is classified as Core

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

\*\*\*Element is classified as Exploratory

All remaining elements are classified as Supplemental.

Specific Instructions

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

* For patient with multiple aneurysms, include documentation of treatment of additional aneurysm, whether ruptured or unruptured, at any time during the episode of SAH care.
* Type of vessel repaired: Location of vessel harboring the target ruptured aneurysm.
* Antithrombotic type: Any antithrombotic medication administered either prior to, during, or after the procedure for procedure-related indications.
* The day of intervention will be timed from the moment of SAH ictus; day of rupture is day 0.
* Intervention time: The start of intervention will be timed from the moment of SAH ictus in hours; start = 0.
* Ventriculostomy placement: External ventriculostomy placement for treatment of hydrocephalus at any time during the episode of care for aneurysmal SAH, placed either at bedside or in the operating room, alone or in combination with other procedures.
* Lumbar drain placement: Lumbar drain placement for treatment of communicating hydrocephalus, at any time during the episode of care for aneurysmal SAH. Placed either at bedside or in the operating room, alone or in combination with other procedures.
* Surgery: Surgery involves craniotomy and microsurgery, including one or more of the following: clipping, trapping, Hunterian ligation, bypass, or wrapping; attempted/failed includes all aneurysms which did not receive definitive treatment via one of the aforementioned modalities; "definitive" means that at the conclusion of the procedure the prevention of immediate re-rupture has been achieved.
* Endovascular treatment will include use of coils, stents, and/or other endovascular devices alone or in combination to occlude the aneurysm; attempted/failed includes all aneurysms which did not receive definitive treatment via one of the aforementioned modalities; "definitive" means that at the conclusion of the procedure the prevention of immediate re-rupture has been achieved.
* SAH surgery type: A craniotomy was performed and one or more of the listed techniques was performed. Bypass includes some other treatment for the aneurysm, e.g. trapping.
* Surgical intervention result: Success of surgical intervention describes degree of aneurysm occlusion, as measured by postoperative imaging with diagnostic radiology as gold standard; any residual aneurysm filling is graded as partial occlusion.
* Intraprocedural monitoring: Includes, SSEPs, MEP, BAERs, CN monitoring
* Intraoperative rupture: Any episode of intraoperative rupture of the ruptured aneurysm during the open aneurysm treatment procedure, at any time between incision and closure, whether spontaneous or as a result of microsurgical manipulation. Major - requiring blood transfusion, leading to increased intracranial pressure necessitating additional surgery (e.g. craniectomy, additional bone removal, brain resection), resulting in hypotension. Minor - any other rupture from any treated aneurysm.
* Intraoperative assessment of vessel patency/occlusion: Any imaging or objective method for assessing vessel patency performed at any time during the aneurysm clipping procedure, within the operating room while the patient is anesthetized, prior to completion of surgery.
* Intraoperative complication: Procedure-related complication, directly attributable to the microsurgical procedure.
* Surgery duration: Total microsurgical clipping time in minutes, from skin incision to closure.
* Blood transfusion during surgery: Any administration of blood products during the microsurgical clipping procedure.
* Postoperative complications: Procedure-related complication, directly attributable to the microsurgical procedure and identified after the procedure.
* Craniotomy type: Standard includes: pterional, orbitozygomatic, posterior fossa, subtemporal, modified orbitozygomatic. Minimally invasive includes supraorbital/eyebrow, LSO, mini-pterional.
* Craniectomy: If the bone flap is not replaced, then the procedure is listed as a craniectomy, whether or not the bone is replaced at a later time during the episode of care for SAH.
* Hematoma evacuation: Craniotomy for removal of an acute intraparenchymal, subdural, or epidural hematoma caused by the index aneurysm, for the purpose of reducing mass effect on the brain, with or without definitive open aneurysm treatment at the same episode of care.
* Temporary vessel occlusion: Placement of a temporary clip at any time during microsurgical aneurysm clipping; the temporary clip must be removed at some point during the microsurgical clipping.
* Number of temporary occlusions: Total number of temporary clip applications during the microsurgical clipping procedure; each time a clip is placed and then removed, on any vessel either in sequence or simultaneously, counts as a “temporary clip occlusion.”
* Temporary occlusion maximum duration: The maximum duration of any one temporary clip application from the time of placement until removal, in minutes.
* Temporary occlusion total duration: The sum of all temporary clip occlusion durations during the microsurgical clipping procedure. If clips are placed on more than one vessel simultaneously, the time of clip occlusion is considered overlapping and not summed.
* Endovascular repair: Type of endovascular repair described in detail including all endovascular devices utilized, alone or in combination. Flow diverters include all stent technology intended to alter flow into the aneurysm sac. Stent in this context means a non-flow diverting stent.
* Intraoperative endovascular rupture: Any evidence of intraoperative rupture, defined as contrast extravasation on angiographic imaging.
* Endovascular intraprocedural complication: Procedure-related complication, directly attributable to the endovascular procedure and identified during the procedure.
* Endovascular postprocedural complication: Procedure-related complication, directly attributable to the endovascular procedure and identified after the procedure.
* Endovascular procedure duration: From initiation of vascular access to access closure or equivalent during the procedure for treatment of the aneurysm.
* Endovascular intervention result: Degree of occlusion of aneurysm following endovascular repair, as confirmed with post-procedure angiography using Raymond-Roy grading.