## Required PSC Metrics for Invasive Procedures

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<tr>
<th>Procedure</th>
<th>QM.9 REQUIRED METRIC</th>
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<td><strong>THROMBECTOMY</strong></td>
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<td><strong>SUBARACHNOID TREATMENT INTERVENTIONAL</strong></td>
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<td>i.e. Coiling, Pipeline...</td>
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<td><strong>SUBARACHNOID TREATMENT CLIPPING</strong></td>
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<td><strong>ICH</strong></td>
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<td>Metric 19</td>
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**PLEASE NOTE:** This list of required metrics is only applicable for the organizations that are performing any of the above-mentioned procedures. See Addendum A and B for details of the metrics. If your PSC program is not performing any of the mentioned procedures, these metrics are NOT REQUIRED.
ADDENDUM A:

2019-2020 DNV GL Primary Stroke Center Metrics for Measuring Processes and Quality

QM.9 Metrics For Measuring Quality Of PSC Care

The PSC Program shall ensure that it provides the following core quality metrics that are listed in Metrics for Measuring Quality of Care in Primary Stroke Centers, American Heart Association/American Stroke Association Recommendations: A Statement for Healthcare Professionals from the Detailed Follow-Up to Brain Attack Coalition Comprehensive Stroke Center Stroke 2011, 42:849-877.

These metrics have been included for the PSC organizations that are providing invasive procedures. These are the same metrics that are required of CSCs that are performing the same invasive procedures. These procedures, if performed in a PSC, should meet the same requirements and quality focus as in CSCs. If your PSC program does not perform any of these procedures, these metrics are **not applicable** to your program.

**2019**

*For GWTG crosswalk STKs to DNV GL metric numbers and description of changes to the metrics, please see Addendum B.*

*For description of metric changes, see Addendum B*

CR.1

**Metric 1: Percentage of all stroke/TIA patients who have a deficit at the time of the initial RN note, ED Physician or Neurology consultation note for whom an NIHSS score is documented.**

**Numerator:**
Number of patients with ischemic stroke or TIA with a deficit at the time of the initial admitting (or neurological consultation note) for whom an NIHSS is documented.

Patients are to be included in the numerator if the NIHSS is recorded in the first admitting note (or in the first neurology consultation note), Patients with acute ischemic stroke treated with IV or IA Alteplase or with an acute endovascular procedure should be included in the numerator only if the NIHSS is performed before the start of these treatments.

**Denominator:**
All patients who have an ischemic stroke or TIA with a deficit at the time of the initial admitting or neurology consultation note or who undergo intravenous alteplase or acute endovascular treatment with complete resolution of their deficit.

**Note:** Patients with a TIA should be included if they still have a deficit at the time of the initial admitting or consultation note.
CR. 2

Metric 2: Percentage of ischemic stroke patients eligible for intravenous thrombolysis who receive it within the appropriate time window.

**Numerator:**
Patients who arrive within 3 hours of last known well are candidates for Alteplase up to 4.5 hours since last known well and are treated with Alteplase within this time, are to be included in the numerator.

**Denominator:**
Patients who arrive within 3 hours of last known well and are candidates for Alteplase up to 4.5 hours after last known well are included in the denominator.

**Note:** For patients with an in-hospital stroke, the time of arrival should be the time that the deficit was first discovered.

Patients who are transferred to the PSC after Alteplase is started at another hospital, should be excluded from this metric for the receiving PSC, unless the PSC was consulted on diagnosis and treatment.

CR. 3

Metric 3: Percentage of patients who are treated for acute ischemic stroke with intravenous thrombolysis whose treatment is started within 60 minutes after arrival.

**Numerator:**
Patients treated with Alteplase for acute ischemic stroke whose treatment is started within 60 minutes after arrival.

**Denominator:**
All patients treated with intravenous thrombolysis for acute ischemic stroke.

**Note:** For patients with an in-hospital stroke, the time of arrival should be the time that the deficit was first discovered.

Patients who are transferred to the PSC after Alteplase is started at another hospital should be excluded from this metric for the receiving PSC, unless the PSC was consulted on diagnosis and treatment.

CR. 4

Metric 4: Time from arrival to the start of initial imaging workup for all patients who arrive within 8 hours of last known well.

No numerator/ denominator.

**Note:** Patients should be excluded from this if there is a documented reason for not performing multimodal imaging quickly. *(If advanced imaging study was ordered.) ICH would not necessarily order advance imaging.* For patients with an in-hospital stroke, the time of arrival should be the time that the deficit was first discovered.
CR. 6

**Metric 6**: Median time from arrival to start of treatment for acute ischemic stroke patients undergoing an endovascular intervention.

*No Numerator/Denominator*

The start of treatment is defined here as the start of intra-arterial infusion of a thrombolytic drug or the first pass with a device.

*If the time that treatment was started cannot be determined accurately, centers may use the time halfway between puncture and completion of the procedure.*

CR. 7

**Metric 7**: Ischemic stroke patients who develop a symptomatic intracranial hemorrhage (i.e., clinical deterioration ≥ 4 point increase on NIHSS and brain image finding of parenchymal hematoma, or subarachnoid hemorrhage, or intraventricular hemorrhage) within (≤) 36 hours after the onset of treatment with intra-venous (IV) or intra-arterial (IA) thrombolytic (t-PA) therapy, or mechanical endovascular reperfusion procedure (i.e., mechanical endovascular thrombectomy with a clot retrieval device).

**Numerator:**
Ischemic stroke patients who develop a symptomatic intracranial hemorrhage ≤ 36 hours after the onset of treatment with IV thrombolytic (Alteplase) therapy, or IA thrombolytic (Alteplase) therapy, or mechanical endovascular reperfusion therapy

**Denominator:**
Ischemic stroke patients treated with IV thrombolytic (Alteplase) therapy only (IVO) or IA thrombolytic (Alteplase) therapy, or who undergo mechanical endovascular reperfusion therapy

CR. 7a

**Metric 7a** Ischemic stroke patients who develop a symptomatic intracranial hemorrhage (i.e., clinical deterioration ≥ 4-point increase on NIHSS and brain image finding of parenchymal hematoma, or subarachnoid hemorrhage, or intraventricular hemorrhage) within (≤) 36 hours after the onset of treatment with intra-venous (IV) thrombolytic (t-PA) therapy only.

**Numerator:**
Ischemic stroke patients who develop a symptomatic intracranial hemorrhage ≤ 36 hours after the onset of treatment with IV thrombolytic (Alteplase) therapy only (IVO)

**Denominator:**
Ischemic stroke patients treated with IV thrombolytic (Alteplase) therapy only
CR. 7b

**Metric 7b Ischemic stroke patients who develop a symptomatic intracranial hemorrhage (i.e., clinical deterioration ≥ 4-point increase on NIHSS and brain image finding of parenchymal hematoma, or subarachnoid hemorrhage, or intraventricular hemorrhage) within (≤) 36 hours after the onset of treatment with IA thrombolytic (t-PA) therapy or mechanical endovascular reperfusion therapy (i.e., mechanical endovascular thrombectomy with a clot retrieval device).**

**Numerator:**
*Ischemic stroke patients who develop a symptomatic intracranial hemorrhage ≤ 36 hours after the onset of treatment with IA thrombolytic (Alteplase) therapy or mechanical endovascular reperfusion therapy*

**Denominator:**
*Ischemic stroke patients treated with IA thrombolytic (Alteplase) therapy or mechanical endovascular reperfusion therapy*

CR. 9

**Metric 9: Percentage of acute ischemic stroke patients who are treated with intravenous thrombolysis or who undergo endovascular recanalization procedure for whom there is documentation of a pre-morbid, discharge and 90-day mRS score.**

**Numerator:**
All patients with ischemic stroke acutely treated with intravenous thrombolysis or with an endovascular recanalization procedure who had an mRS performed during hospitalization, before discharge and approximately 90 days after the stroke, either in person or by telephone if it was not possible to perform in person.

**Denominator:**
All patients admitted with ischemic stroke acutely treated with intravenous thrombolysis or with an endovascular recanalization procedure.

**Note:** The mRS should be conducted by a trained person using a standardized interview. The mRS may be based on information obtained from the patient, family member or caregiver. The mRS should be performed within 2 weeks of the date (before or after) at which it has been 90 days since stroke onset.

CR.10

**Metric 10: Percentage of patients undergoing CEA, or carotid angioplasty or stenting, with stroke or death within 30 days of the procedure.**

CR.11

**Metric 11: Percentage of patients undergoing intracranial angioplasty and/or stenting for atherosclerotic disease with stroke or death within 30 days of the procedure.**
CR.12

**Metric 12 SAH and ICH stroke patients for whom a severity measurement is performed prior to surgical intervention in patients undergoing surgical intervention and documented in the medical record; OR documented within 6 hours of hospital arrival for patients who do not undergo surgical intervention.**

**Numerator:**
The number of SAH patients for whom the Hunt and Hess scale or the World Federation of Neurological Surgeons Scale is documented and the number of ICH patients whom the ICH score is documented.

**Denominator:**
The sum of the number of SAH patients and the number of ICH patients that underwent surgical intervention.

**Note:** For a patient to be counted in the numerator, the Hunt and Hess (and GCS) or the World Federation of Neurological Surgeons Scale for SAH patients and the ICH scores for the ICH patients should be documented in the initial neurological or neurosurgical admitting or consultation note or in a separate earlier note and should be evaluated before the start of any endovascular or surgical procedure. The ICH score may be determined later after an analysis of imaging.

**Note:** This combined ratio should be calculated as the primary metric, but separate ratios should also be calculated for each scale.

CR.12a

**Metric 12a SAH stroke patients for whom a severity measurement is performed prior to surgical intervention in patients undergoing surgical intervention and documented in the medical record; OR documented within 6 hours of hospital arrival for patients who do not undergo surgical intervention.**

**Numerator:**
The number of SAH patients for whom the Hunt and Hess scale or the World Federation of Neurological Surgeons Scale is documented.

**Denominator:**
The sum of the number of SAH patients that underwent surgical intervention.

CR.12b

**Metric 12b ICH stroke patients for whom a severity measurement is performed prior to surgical intervention in patients undergoing surgical intervention and documented in the medical record; OR documented within 6 hours of hospital arrival for patients who do not undergo surgical intervention.**
Numerator: The number of ICH patients for whom the ICH score is documented.

Denominator: The sum of the number of ICH patients that underwent surgical intervention.

CR.14 Metric 14: Percentage of patients with aneurysmal SAH arriving within 48 hours of hemorrhage for whom a coiling or clipping procedure was not started within 36 hours of arrival who have a documented reason for not having undergone coiling or clipping within 36 hours of arrival.

CR.15 Metric 15: Percentage of patients with documented aneurysmal SAH for whom Nimodipine treatment (60 mg every 4 hours or 30 mg every 2 hours) is started within 24 hours of diagnosis and for whom such treatment is continued until 21 days after the hemorrhage or until discharge if they are discharged less than 21 days after the SAH.

Numerator: Patients with documented aneurysmal SAH treated with Nimodipine 60 mg every 4 hours (or 30 mg every 2 hours) within 24 hours of diagnosis and who continue this treatment until 21 days after their hemorrhage, or until discharge if they are discharged less than 21 days after the SAH, or until they develop a contraindication to Nimodipine.

Denominator: All patients with a diagnosis of aneurysmal SAH.

Note: Acceptable contraindications include documentation of intractable hypotension or allergy to Nimodipine.

Patients whose dose of Nimodipine is reduced because of hypotension will be considered to be in compliance with this metric.

Patients who have a known contraindication to Nimodipine and are therefore not treated with it will also be considered to be in compliance with this metric.

Patients who arrive at a CSC with documented aneurysmal SAH should receive Nimodipine within 24 hours of admission.

CR.16 Metric 16: Percentage of SAH patients with diminished level of consciousness and ventriculomegaly who are treated with EVD.

CR.17 Metric 17: Median frequency of noninvasive monitoring performed for surveillance for vasospasm in patients with aneurysmal SAH during the period between 3 and 14 days after SAH.
CR.18

**Metric 18: Complication rates for aneurysm coiling and clipping**

**Numerator:**
Patients undergoing coiling or clipping of a ruptured or un-ruptured aneurysm who have complications of death, stroke or bleeds within 24 hours of the procedure or any re-bleeding and/or second treatment for residual aneurysm within 30 days of the procedure.

**Denominator:**
All patients undergoing coiling or clipping of a ruptured or un-ruptured cerebral aneurysm.

CR.18a

**Metric 18a Numerator:**
Patients with unruptured cerebral aneurysms undergoing coiling with complications.

**Denominator:**
All patients undergoing coiling of an unruptured cerebral aneurysm.

CR.18b

**Metric 18b Numerator:**
Patients with a ruptured cerebral aneurysm undergoing coiling with complications

**Denominator:**
All patients undergoing coiling of a ruptured cerebral aneurysm

CR.18c

**Metric 18c Numerator:**
Patients with unruptured cerebral aneurysms undergoing clipping with complications

**Denominator:**
All patients undergoing clipping of an unruptured cerebral aneurysm

CR.18d

**Metric 18d Numerator:**
Patients with ruptured cerebral aneurysms undergoing clipping with complications

**Denominator:**
All patients undergoing clipping of a ruptured cerebral aneurysm

**Note:** Bleeding complications should be classified by pre-procedural (such as bleeding leading to herniation), procedural, and post-procedural if within the first 30 days. The three distinct classifications of bleeds should be tracked separately.

For ruptured aneurysms, only consider ischemic strokes and death within 24
hours of the procedure.

**CR. 19**

**Metric 19:** Intracerebral hemorrhage (ICH) stroke patients with an INR value > 1.4 at hospital arrival who are treated with a procoagulant reversal agent (i.e., fresh frozen plasma, recombinant factor VIIa, prothrombin complex concentrates)

**Numerator:**
ICH stroke patients treated with a procoagulant reversal agent.

**Denominator:**
ICH stroke patients with INR > 1.4 at hospital arrival

**Note:** Patients with an elevated INR should be excluded from this if a reason is documented for not treating them, for example, if there is a decision to treat the patient with comfort measures only or if the risks of reversing anticoagulation are judged to outweigh the benefits. Times for this metric should be recorded in minutes.

**CR. 20**

Metric 20: Percentage of patients undergoing surgical or endovascular treatment of an AVM with stroke or death within 30 days of the procedure.

**CR. 21**

Metric 21: Percentage of patients with ischemic or hemorrhagic stroke or TIA transferred from another hospital to the CSC with documentation of the time from the first call from the transferring hospital to the CSC (to a member of a stroke program or to a centralized transfer center) to arrival time at the CSC.

**CR. 22**

Metric 22: Percentage of patients admitted to each type of unit to which patients with ischemic or hemorrhagic stroke or TIA are initially admitted (e.g., neurological/neurosurgical ICU, medical ICU, surgical ICU, general ICU, coronary care unit, burn ICU, stroke unit, other intermediate-level-of-care unit, neurology floor, or other designated floor). A separate percentage should be calculated for each type of unit.

**CR. 24**

**CR. 25**

Metric 24: Percentage of patients who have a diagnosis of ischemic or hemorrhagic stroke who undergo EVD and then develop ventriculitis.

Metric 25: Median number of days from admission to completion of evaluations for physical therapy, occupational therapy, speech-language pathology, and rehabilitation medicine, unless there is documentation on admission that some or all of these evaluations are not needed or that the patient cannot tolerate them because of medical instability.
CR.26
Metric 26: Percentage of patients admitted with diagnoses of ischemic stroke, SAH, AVM, intracranial hemorrhage, extracranial cervical stenosis, intracranial stenosis, or TIA who are enrolled in a clinical research study.

CR. 27
Metric 27 Ischemic stroke patients with a post-treatment reperfusion grade of TICI 2B or higher in the vascular territory beyond the target arterial occlusion at the end of treatment with intra-arterial (IA) thrombolytic (t-PA) therapy and/or mechanical endovascular reperfusion therapy.

**Numerator:**
Ischemic stroke patients with a post-treatment reperfusion grade of TICI 2B or higher

**Denominator:**
Ischemic stroke patients treated with IA thrombolytic (Alteplase) therapy and/or mechanical endovascular reperfusion therapy.

CR.28
Metric 28: Ischemic stroke patients with a large vessel cerebral occlusion (i.e., internal carotid artery (ICA) or ICA terminus (T-lesion; T-occlusion), middle cerebral artery (MCA) M1 or M2, basilar artery) who receive mechanical endovascular reperfusion (MER) therapy (time of first pass or deployment of device) within 120 minutes (>= 0 min. and <= 150 min.) of hospital arrival and achieve TICI 2B or higher at the end of treatment

**Numerator:**
Ischemic stroke patient who achieve TICI 2B or higher for the primary vessel occlusion within 120 minutes (>=0 min. and <=150 min.) of hospital arrival

**Denominator:**
Ischemic stroke patients treated with mechanical endovascular reperfusion therapy for a large vessel occlusion (LVO)

CR.29
Metric 29: Ischemic stroke patients with a large vessel cerebral occlusion (i.e., internal carotid artery (ICA) or ICA terminus (T-lesion; T-occlusion), middle cerebral artery (MCA) M1 or M2, basilar artery) who receive mechanical endovascular reperfusion (MER) therapy (time of first pass or deployment of device) and achieve TICI 2B or higher less than (<) or equal to 60 minutes from the time of skin puncture.

**Numerator:**
Ischemic stroke patient who achieve TICI 2B or higher for the primary vessel occlusion less (<) than or equal to 60 minutes from the time of skin puncture.
**Denominator:**
*Ischemic stroke patients treated with mechanical endovascular reperfusion therapy for a large vessel occlusion (LVO).*
### ADDENDUM B: 2019-2020
DNV GL/GWTG Primary Stroke Center Crosswalk for Metric Requirements

<table>
<thead>
<tr>
<th>Metric</th>
<th>2015 CSC Metric</th>
<th>2018 PSC Metric</th>
<th>AHA / ASA Measure</th>
<th>ASA Description</th>
<th>Accept AHA Measures</th>
<th>Legend</th>
<th>Further Information</th>
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<tbody>
<tr>
<td>Metric 1</td>
<td>Percentage of patients who have an ischemic stroke or who have a TIA with a deficit at the time of the initial admitting note or neurology consultation note for whom an initial NIHSS score is documented upon initial stroke assessment NIHSS is to be used for scoring deficits.</td>
<td>Percentage of all stroke/TIA patients who have a deficit at the time of the initial RN greet note, ED Physician or neurology consultation note for whom an NIHSS score is documented.</td>
<td>CSTK01</td>
<td>Ischemic stroke patients for whom an initial NIHSS score is performed prior to any acute recanalization therapy (i.e., IV thrombolytic (t-PA) therapy, or IA thrombolytic (t-PA) therapy, or mechanical endovascular reperfusion therapy) in patients undergoing recanalization therapy and documented in the medical record OR documented within 12 hours of arrival at the hospital emergency department for patients who do not undergo recanalization therapy.</td>
<td>No</td>
<td>NIHSS is used to support many treatment discussions. Obtaining the NIHSS from the RN or Physician as soon as possible is essential to facilitate the appropriate treatment options(s)</td>
<td>Must use DNV GL definition for abstraction</td>
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<tr>
<td>Metric 2</td>
<td>Percentage of ischemic stroke patients eligible for intravenous thrombolysis who receive it within the appropriate time window.</td>
<td>Percentage of ischemic stroke patients eligible for intravenous thrombolysis who receive it within the appropriate time window.</td>
<td>IV tPA Arrive by 2.5 Hours, treat by 3.5 Hour Arrive by 3.5 treat by 4.5</td>
<td>Percent of acute ischemic stroke patients who arrive at the hospital within 120 minutes (2 hours) of time last known well and for whom IV t-PA was initiated at this hospital within 180 minutes (3 hours) of time last known well.</td>
<td>Yes</td>
<td>Located in GWTG Admission Tab IV Thrombolytic Therapy</td>
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<tr>
<td>Metric 3</td>
<td>Percentage of patients who are treated for acute ischemic stroke with intravenous thrombolysis whose treatment is started within 60 minutes after arrival.</td>
<td>Percentage of patients who are treated for acute ischemic stroke with intravenous thrombolysis whose treatment is started within 60 minutes after arrival.</td>
<td>Time to Intravenous Thrombolytic Therapy - 60 min</td>
<td>Percent of acute ischemic stroke patients receiving intravenous tissue plasminogen activator (tPA) therapy during the hospital stay who have a time from hospital arrival to initiation of thrombolytic therapy administration (door-to-needle time) of 60 minutes or less</td>
<td>Yes</td>
<td>Located in GWTG Admission Tab IV Thrombolytic Therapy</td>
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<tr>
<td>Metric 4</td>
<td>Median time from arrival to start of multimodal CT or MR brain and vascular imaging (MRI/MRA or CT/CTA) for ischemic stroke patients arriving within 6 hours of the time that they were last known well, if one of the studies have been ordered.</td>
<td>Median time from arrival to start of multimodal CT or MR brain and vascular imaging (MRI/MRA or CT/CTA) for ischemic stroke patients arriving within 8 hours of the time that they were last known well, if one of the studies have been ordered.</td>
<td>Door to CT within 8 hours Last Known Well</td>
<td>Time from triage to initial imaging work-up for all patients who arrive within 8 hours from time Last Known Well. NOTE: If advanced imaging study was ordered. Not everyone will need advanced imaging. Example: ICH - would not necessarily do hyper acute advanced imaging.</td>
<td>Yes</td>
<td>DNV GL Changed time from 6 to 8 hours</td>
<td>Located in GWTG Hospitalization Tab Brain Imaging</td>
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<td>Metric 5</td>
<td>Percentage of Ischemic stroke patient seen within 6 hours of the time they were last known well who have documentation that an endovascular recanalization procedure either was performed or was considered and deemed not to be appropriate or possible. A reason should be documented if an endovascular procedure was not performed.</td>
<td>Embedded in the standards Medical Record</td>
<td>No ASA CSTK</td>
<td>No ASA definition</td>
<td>Not a ASA definition</td>
<td>This is in the standards MR.4 CR.6b</td>
<td>Deleted Now embedded in the standards MR.4 CR.6b</td>
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<tr>
<td>Metric 6</td>
<td>Median time from arrival to start of treatment for acute ischemic stroke patients undergoing an endovascular intervention.</td>
<td>Median time from hospital arrival to the time of skin puncture to access the artery (e.g., brachial, carotid, femoral, radial) selected for endovascular treatment (EVT), (i.e., intra-arterial (IA) thrombolytic (t-PA) infusion and/or mechanical embolectomy devices), of acute ischemic stroke.</td>
<td>CSTK-09</td>
<td>Median time from hospital arrival to the time of skin puncture to access the artery (e.g., brachial, carotid, femoral, radial) selected for endovascular treatment (EVT), (i.e., intra-arterial (IA) thrombolytic (t-PA) infusion and/or mechanical embolectomy devices), of acute ischemic stroke.</td>
<td>Yes</td>
<td>DNV GL Adopted this measure</td>
<td>Located in GWTG Comprehensive tab</td>
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<tr>
<td>Metric 7</td>
<td>Percentage of patients treated with intravenous thrombolysis who have a symptomatic intracranial hemorrhage within 36 hours of treatment.</td>
<td>CSTK-05</td>
<td>Ischemic stroke patients who develop a symptomatic intracranial hemorrhage (i.e., clinical deterioration ≥ 4-point increase on NIHSS and brain image finding of parenchymal hematoma, or subarachnoid hemorrhage, or intraventricular hemorrhage) within (≤) 36 hours after the onset of treatment with intravenous (IV) or intra-arterial (IA) thrombolytic (t-PA) therapy, or mechanical endovascular reperfusion procedure (i.e., mechanical endovascular thrombectomy with a clot retrieval device).</td>
<td>Yes</td>
<td>DNV GL adopted this metric to further define symptomatic bleeds. Centers can abstract non-symptomatic bleeds and report on it, but it is not mandatory</td>
<td>Located in GWTG Comprehensive Tab Aligns with CSTK-05</td>
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<td>Metric 7a</td>
<td>Ischemic stroke patients who develop a symptomatic intracranial hemorrhage (i.e., clinical deterioration ≥ 4-point increase on NIHSS and brain image finding of parenchymal hematoma, or subarachnoid hemorrhage, or intraventricular hemorrhage) within (≤) 36 hours after the onset of treatment with intravenous (IV) thrombolytic (t-PA) therapy only</td>
<td>CSTK-05A IV Alteplase only</td>
<td>Ischemic stroke patients who develop a symptomatic intracranial hemorrhage (i.e., clinical deterioration ≥ 4-point increase on NIHSS and brain image finding of parenchymal hematoma, or subarachnoid hemorrhage, or intraventricular hemorrhage) within (≤) 36 hours after the onset of treatment with intravenous (IV) thrombolytic (t-PA) therapy only</td>
<td>Yes</td>
<td>DNV GL adopted this metric to further define symptomatic bleeds. Centers can abstract non-symptomatic bleeds and report on it, but it is not mandatory</td>
<td>Located in GWTG Comprehensive Tab Aligns with CSTK-05a</td>
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<td>Metric 7b</td>
<td><strong>CSTK-05B IA</strong> thrombolytic (t-PA) therapy or mechanical endovascular reperfusion therapy (i.e., mechanical endovascular thrombectomy with a clot retrieval device).</td>
<td>Ischemic stroke patients who develop a symptomatic intracranial hemorrhage (i.e., clinical deterioration ≥ 4-point increase on NIHSS and brain image finding of parenchymal hematoma, or subarachnoid hemorrhage, or intraventricular hemorrhage) within (≤) 36 hours after the onset of treatment with IA thrombolytic (t-PA) therapy or mechanical endovascular reperfusion therapy (i.e., mechanical endovascular thrombectomy with a clot retrieval device).</td>
<td>Yes</td>
<td>DNV GL Adopted this metric to further define symptomatic bleeds. Centers can abstract non-symptomatic bleeds and report on it, but it is not mandatory.</td>
<td>Located in GWTG Comprehensive tab Aligns with CSTK-05b</td>
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<td>Metric 8</td>
<td>Percentage of acute ischemic stroke patients treated with endovascular interventions who develop significant intracranial hemorrhage within 36 hours of treatment.</td>
<td>Matches CSTK05</td>
<td>Not in GWTG</td>
<td>Deleted 7/1/2018</td>
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<tr>
<td>Metric 9</td>
<td>Percentage of acute ischemic stroke patients who are treated with intravenous thrombolysis or who undergo endovascular recanalization procedure for whom there is documentation of a 90-day mRS score.</td>
<td>Modified Rankin Score (mRS) at 90 days HISTORIC CSTK 02</td>
<td>Ischemic stroke patients treated with intra-venous (IV) or intra-arterial (IA) thrombolytic (t-PA) therapy or who undergo mechanical endovascular reperfusion therapy for whom a 90 day (≥75 days and ≤105 days) mRS is obtained via telephone or in-person</td>
<td>No</td>
<td>ASA Suspended CSTK 02</td>
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<tr>
<td>Metric 9 ctd</td>
<td>Ischemic stroke patients treated with intra-venous (IV) or intra-arterial (IA) thrombolytic (t-PA) therapy or who undergo mechanical endovascular reperfusion therapy and have a mRS less than or equal to 2 at 90 days (≥75 days and ≤105 days)</td>
<td>No</td>
<td>This is the GWTG new definition for mRS</td>
<td>DNV GL will not use this definition to collect the 90 day mRS</td>
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<td>Metric 12</td>
<td>Percentage of SAH patients for whom initial severity measures are documented.</td>
<td>SAH and ICH stroke patients for whom a severity measurement is performed prior to surgical intervention in patients undergoing surgical intervention and documented in the medical record; OR documented within 6 hours of hospital arrival for patients who do not undergo surgical intervention. <strong>CSTK 03</strong></td>
<td>SAH and ICH stroke patients for whom a severity measurement is performed prior to surgical intervention in patients undergoing surgical intervention and documented in the medical record; OR documented within 6 hours of hospital arrival for patients who do not undergo surgical intervention. <strong>CSTK-03a</strong></td>
<td>Yes</td>
<td>DNV GL has adopted this definition that is in GWTG for initial severity measures</td>
<td>Can use the GWTG CSTK</td>
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<td>Metric 12a</td>
<td>SAH stroke patients for whom a severity measurement is performed prior to surgical intervention in patients undergoing surgical intervention and documented in the medical record; OR documented within 6 hours of hospital arrival for patients who do not undergo surgical intervention. <strong>CSTK-03a</strong></td>
<td>SAH stroke patients for whom a severity measurement is performed prior to surgical intervention in patients undergoing surgical intervention and documented in the medical record; OR documented within 6 hours of hospital arrival for patients who do not undergo surgical intervention. <strong>CSTK-03a</strong></td>
<td>Yes</td>
<td>DNV GL has adopted this definition that is in GWTG for initial severity measures</td>
<td>Can use the GWTG CSTK</td>
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<td>Metric 12b</td>
<td>CSTK - 03B</td>
<td>CSTK-06</td>
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<td>ICH stroke patients for whom a severity measurement is performed prior to surgical intervention in patients undergoing surgical intervention and documented in the medical record; OR documented within 6 hours of hospital arrival for patients who do not undergo surgical intervention.</td>
<td>ICH stroke patients for whom a severity measurement is performed prior to surgical intervention in patients undergoing surgical intervention and documented in the medical record; OR documented within 6 hours of hospital arrival for patients who do not undergo surgical intervention.</td>
<td>Yes</td>
<td>DNV GL has adopted this definition that is in GWTG for initial severity measures</td>
<td>Can use the GWTG CSTK</td>
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<td>Metric 15</td>
<td>Percentage of patients with documented aneurysmal SAH for whom Nimodipine treatment (60 mg every 4 hours or 30 mg every 2 hours) is started within 24 hours of diagnosis and for whom such treatment is continued until 21 days after the hemorrhage or until discharge if they are discharged 21 days after the SAH.</td>
<td>Percentage of patients with documented aneurysmal SAH for whom Nimodipine treatment (60 mg every 4 hours or 30 mg every 2 hours) is started within 24 hours of diagnosis and for whom such treatment is continued until 21 days after the hemorrhage or until discharge if they are discharged less than 21 days after the SAH.</td>
<td>No</td>
<td>Subarachnoid hemorrhage (SAH) patients for whom nimodipine treatment was administered within 24 hours of arrival at this hospital</td>
<td>DNV GL metric is more detailed than the GWTG definition and is required</td>
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<td>Metric 18a</td>
<td>Patients with <strong>unruptured</strong> cerebral aneurysms undergoing <strong>coiling</strong> with complications who have complications of death, stroke or bleed within 24 hours of procedure or any re-bleeds and/or second treatment of residual aneurysm within 30 days of the procedure</td>
<td>Patients with <strong>unruptured</strong> cerebral aneurysms undergoing <strong>coiling</strong> with complications who have complications of death, stroke or bleed within 24 hours of procedure or any re-bleeds and/or second treatment of residual aneurysm within 30 days of the procedure</td>
<td>CSTK-07 retired</td>
<td>Nothing current in GWTG</td>
<td>No</td>
<td>Not in GWTG. This is an important measure to track and report regarding cerebral aneurysms.</td>
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<tr>
<td>Metric 18b</td>
<td>Patients with <strong>ruptured</strong> cerebral aneurysms undergoing <strong>coiling</strong> with complications who have complications of death, stroke or bleed within 24 hours of procedure or any re-bleeds and/or second treatment of residual aneurysm within 30 days of the procedure</td>
<td>Patients with <strong>ruptured</strong> cerebral aneurysms undergoing <strong>coiling</strong> with complications who have complications of death, stroke or bleed within 24 hours of procedure or any re-bleeds and/or second treatment of residual aneurysm within 30 days of the procedure</td>
<td>CSTK-07 retired</td>
<td>Nothing current in GWTG</td>
<td>No</td>
<td>Not in GWTG. Important metric would need to be collected manually.</td>
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DNV GL metric is more detailed than the GWTG definition and is required.
<table>
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<tr>
<th>Metric 18c</th>
<th>Patients with <strong>unruptured</strong> cerebral aneurysms undergoing <strong>clipping</strong> with complications who have complications of death, stroke or bleed within 24 hours of procedure or any rebleeding and/or second treatment of residual aneurysm within 30 days of the procedure</th>
<th>Patients with <strong>unruptured</strong> cerebral aneurysms undergoing <strong>clipping</strong> with complications who have complications of death, stroke or bleed within 24 hours of procedure or any rebleeding and/or second treatment of residual aneurysm within 30 days of the procedure</th>
<th><strong>CSTK-07 retired</strong></th>
<th>Nothing current in GWTG</th>
<th>No</th>
<th>Not in GWTG Important metric would need to be collected manually</th>
<th>DNV GL metric is more detailed than the GWTG definition and is required</th>
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<tbody>
<tr>
<td>Metric 18d</td>
<td>Patients with <strong>ruptured</strong> cerebral aneurysms undergoing <strong>clipping</strong> with complications who have complications of death, stroke or bleed within 24 hours of procedure or any rebleeding and/or second treatment of residual aneurysm within 30 days of the procedure</td>
<td>Patients with <strong>ruptured</strong> cerebral aneurysms undergoing <strong>clipping</strong> with complications who have complications of death, stroke or bleed within 24 hours of procedure or any rebleeding and/or second treatment of residual aneurysm within 30 days of the procedure</td>
<td><strong>CSTK-07 retired</strong></td>
<td>Nothing current in GWTG</td>
<td>No</td>
<td>Not in GWTG Important metric would need to be collected manually</td>
<td>DNV GL metric is more detailed than the GWTG definition and is required</td>
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<td>Metric 19</td>
<td>Median time from arrival to start of treatment to reverse the INR with a procoagulant preparation (e.g., fresh frozen plasma, recombinant factor VIIa, prothrombin complex concentrates) for patients with warfarin-associated ICH and an elevated INR (INR &gt; 1.4).</td>
<td>Intracerebral hemorrhage (ICH) stroke patients with an INR value &gt; 1.4 at hospital arrival who are treated with a procoagulant reversal agent (i.e., fresh frozen plasma, recombinant factor VIIa, prothrombin complex concentrates)</td>
<td>CSTK 04</td>
<td>Intracerebral hemorrhage (ICH) stroke patients with an INR value &gt; 1.4 at hospital arrival who are treated with a procoagulant reversal agent (i.e., fresh frozen plasma, recombinant factor VIIa, prothrombin complex concentrates)</td>
<td>Yes</td>
<td>DNV GL has adopted this definition that is in GWTG CSTK</td>
<td>Can use the GWTG CSTK</td>
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<td>Metric 27</td>
<td>Thrombolysis in Cerebral Infarction (TICI Post-Treatment Reperfusion Grade)</td>
<td>Ischemic stroke patients with a post-treatment reperfusion grade of TICI 2B or higher in the vascular territory beyond the target arterial occlusion at the end of treatment with intra-arterial (IA) thrombolytic (t-PA) therapy and/or mechanical endovascular reperfusion therapy</td>
<td>CSTK-08</td>
<td>Ischemic stroke patients with a post-treatment reperfusion grade of TICI 2B or higher in the vascular territory beyond the target arterial occlusion at the end of treatment with intra-arterial (IA) thrombolytic (t-PA) therapy and/or mechanical endovascular reperfusion therapy</td>
<td>Yes</td>
<td>DNV GL has adopted this definition that is in GWTG CSTK</td>
<td>Can use the GWTG CSTK</td>
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<td>Metric 28</td>
<td>Timeliness of Reperfusion: Arrival Time to TICI 2B or Higher</td>
<td>Ischemic stroke patients with a large vessel cerebral occlusion (i.e., internal carotid artery (ICA) or ICA terminus (T-lesion; T-occlusion), middle cerebral artery (MCA) M1 or M2, basilar artery) who receive mechanical endovascular reperfusion (MER) therapy (time of first pass or deployment of device) within 120 minutes (≥ 0 min. and ≤ 150 min.) of hospital arrival and achieve TICI 2B or higher at the end of treatment</td>
<td>CSTK-11</td>
<td>Ischemic stroke patients with a large vessel cerebral occlusion (i.e., internal carotid artery (ICA) or ICA terminus (T-lesion; T-occlusion), middle cerebral artery (MCA) M1 or M2, basilar artery) who receive mechanical endovascular reperfusion (MER) therapy within 120 minutes (≥ 0 min. and ≤ 150 min.) of hospital arrival and achieve TICI 2B or higher at the end of treatment</td>
<td>Yes</td>
<td>DNV GL has adopted this definition that is in GWTG CSTK</td>
<td>Can use the GWTG CSTK-11</td>
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<td>Metric 29</td>
<td>Timeliness of Reperfusion: Skin Puncture to TICI 2B or Higher</td>
<td>Ischemic stroke patients with a large vessel cerebral occlusion (i.e., internal carotid artery (ICA) or ICA terminus (T-lesion; T-occlusion), middle cerebral artery (MCA) M1 or M2, basilar artery) who receive mechanical endovascular reperfusion (MER) therapy (time of first pass or deployment of device) and achieve TICI 2B or higher less than (&lt;) or equal to 60 minutes from the time of skin puncture.</td>
<td>CSTK-12</td>
<td>Ischemic stroke patients with a large vessel cerebral occlusion (i.e., internal carotid artery (ICA) or ICA terminus (T-lesion; T-occlusion), middle cerebral artery (MCA) M1 or M2, basilar artery) who receive mechanical endovascular reperfusion (MER) therapy and achieve TICI 2B or higher less than (&lt;) or equal to 60 minutes from the time of skin puncture.</td>
<td>Yes</td>
<td>DNV GL has adopted this definition that is in GWTG CSTK</td>
<td>Can use the GWTG CSTK</td>
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