دائـــــرة الـصـــحـــة
DEPARTMENT OF HEALTH

# Primary Care (PC) Service Jawda Guidance

## Version 7

# Table of Contents

## Executive Summary

The Department of Health– Abu Dhabi (DOH) is the regulatory body of the healthcare sector in the Emirate of Abu Dhabi and ensures excellence in healthcare for the community by monitoring the health status of its population.

The Emirate of Abu Dhabi is experiencing a substantial growth in the number of hospitals, centers and clinics. This is ranging from school clinics and mobile units to internationally renowned specialist and tertiary academic centers. Although, access and quality of care has improved dramatically over the last couple of decades, mirroring the economic upturn and population boom of Emirate of Abu Dhabi, however challenges remain in addressing further improvements.

The main challenges that are presented with increasingly dynamic population include an aging population with increased expectation for treatment, utilization of technology and diverse workforce leading to increased complexity of healthcare provision in Abu Dhabi. All of this results in an increased and inherent risk to quality and patient safety.

DOH has developed dynamic and comprehensive quality framework in order to bring about improvements across the health sector. This guidance relates to the quality indicators that DOH is mandating the quarterly reporting against by the operating general and specialist hospitals in Abu Dhabi.

The guidance sets out the full definition and method of calculation for patient safety and clinical effectiveness indicators. For enquiries about this guidance, please contact jawda@doh.gov.ae

This document is subject for review and therefore it is advisable to utilize online versions available on the DOH website at all times.

Issued: Version 1: October, 2019
Published Updates Version 5: October 2021
Version 6: Q3 2022

## About this Guidance

The guidance sets out the definitions and reporting frequency of JAWDA Stroke (STK) performance indicators. Department of Health (DoH) with consultation of local and international cardiovascular diseases and stroke quality of care expertise developed stroke performance indicators that are aimed for assessing the degree to which a provider competently and safely delivers the appropriate clinical services to the patient within the optimal time period.

The stroke performance indictors in this guidance include measures to monitor morbidity and mortality among stroke patients I.e., (acute treatment, prevention of recurrence, prevention and treatment of common medical complications, rehabilitation, and patient education, and counselling). Healthcare providers are the most qualified professionals to develop and evaluate quality of care measures for adults hospitalized with Acute Stroke. Therefore, it is crucial that clinicians retain a leadership position in defining Stroke quality of care.

**Who is this guidance for?**
All DoH licensed healthcare facilities providing care for stroke services (general and specialist hospitals) in the Emirate of Abu Dhabi.

**How do I follow this guidance?**
Each provider will nominate one member of staff to coordinate, collect, monitor and report stroke quality performance indicators data as per communicated dates. The nominated healthcare facility lead must in the first instance e-mail their contact details (if different from previous submission) to jawda@doh.gov.ae and submit the required quarterly quality performance indicators through Jawda online portal.

**What are the Regulation related to this guidance?**

- Legislation establishing the Health Sector
- As per DoH Policy for Quality and Patient Safety issued January 15th 2017, this guidance applies to all DOH Licensed Hospital Healthcare Facilities in the Emirate of Abu Dhabi in accordance with the requirements set out in this Standard.

**Type Quality Indicator** **Indicator Number: STK001**

| | |
|---|---|
| **KPI Description (title):** | Stroke (STK): Time to intravenous thrombolytic therapy (door-to-needle time) of ≤60 min |
| **Domain** | Process |
| **Sub-Domain** | Timeliness |
| **Definition:** | Ischemic stroke patients receiving intravenous tPA therapy ≤60 min of emergency department arrival. |
| **Calculation** | ***Numerator:*** Total number of ischemic stroke patients (18 years or older) who arrived within 3.5 hours of last known well and for whom IV thrombolytic therapy was initiated within ≤60 minutes of arrival.<br>***Denominator***: Total adult patients with a principal discharge diagnosis of ischemic stroke whose time of arrival is within 3.5 hours (less than or equal to 210 minutes) of time last known well **(See Appendix- A for stroke ICD_10 Diagnosis Codes)**<br><br>***Denominator Exclusions:***<br>• Patients less than 18 years of age<br>• Length of stay >120 days<br>• Patients admitted for Elective Carotid Intervention (***refer to Appendix-B***)<br>• Time Last Known Well to arrival in the Emergency Department greater than 3.5 hours<br>• Patients with a documented reason for extending the initiation of IV Thrombolytic<br>• Patients with a documented reason for not initiating IV Thrombolytic |
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | % of initiated IV thrombolytic therapy within target time. |
| **International comparison if available** | The Joint Commission<br>European Stroke Organization |
| **Target** | ***≥90%*** |
| **Notes for all providers** | |
| **Data sources and guidance:** | - Patient's records<br>- Claim data |

**Type: Quality Indicator** **Indicator Number: STK002**

| | |
|---|---|
| **KPI Description (title):** | Stroke (STK): Admission to the Stroke or Neuro Intensive Care Unit within 3 hours of arrival at hospital |
| **Domain** | Process |
| **Sub-Domain** | Timeliness |
| **Definition:** | Patients presenting with acute stroke symptoms admitted to stroke unit or neuro intensive care bed within 3 hours of arrival at hospital emergency department. |
| **Calculation** | ***Numerator:*** Total number of adults 18 years or older presenting with a principal discharge diagnosis of ischaemic or haemorrhagic who were admitted to a stroke or neuro intensive care unit within 3 hours of arrival at hospital emergency department.<br><br>***Acute Stroke: Patients with acute onset of a focal neurological deficit within ≤24 hours***<br><br>***Denominator***: Total adult 18 years or older with a principal discharge diagnosis of ischemic or hemorrhagic stroke who were admitted via the hospital emergency department with acute stroke symptoms. (**See Appendix- A- for stroke ICD_10 Diagnosis Codes)**<br><br>***Denominator Exclusions:***<br>• Patients who left against medical advice<br>• Patients less than 18 years of age<br>• Patient who present with non-stroke related symptoms<br>• Patients who are admitted to procedural area for stroke intervention prior to transfer to hospital bed<br>• Patient requires MRI prior to admission to inpatient unit<br>• Episodes with a discharge of death<br><br>**Guidance note:** *This KPI applies to all hospitals who admit stroke patients, irrespective of admission to a designated stroke unit or intensive care bed.* |
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | % admitted to Stroke or Neuro Intensive Care unit within target time. |
| **International comparison if available** | The Joint Commission<br>European Stroke Organization |
| **Target** | ***≥90%*** |
| **Notes for all providers** | |

| | |
|---|---|
| **Data sources and guidance:** | - Patient's records<br>- Claim data |

**Department of Health JAWDA Stroke Quality Performance Indicators**

**Type: Quality Indicator** **Indicator Number: STK003**

| | |
|---|---|
| **KPI Description (title):** | Stroke (STK): Venous Thromboembolism (VTE) Prophylaxis |
| **Domain** | Process |
| **Sub-Domain** | Prevention |
| **Definition:** | Ischemic and hemorrhagic stroke patients who received VTE prophylaxis the day of or the day after hospital admission. |
| **Calculation** | ***Numerator:*** Total number of ischemic and hemorrhagic stroke patients (18 years or older) who received VTE prophylaxis or have a documented reason for not ordering both mechanical and pharmacologic prophylaxis the day of or the day after hospital admission.<br><br>***Denominator***: Total adult patients with a principal discharge diagnosis of ischemic or hemorrhagic stroke. **(See Appendix-A for stroke ICD_10 Diagnosis Codes)**<br><br>***Denominator Exclusions:***<br>• Patients less than 18 years of age<br>• Patients with length of stay <2 days<br>Patient with length of stay >120 days<br>• Patients admitted for an Elective Carotid Intervention (***refer to Appendix-B***) |
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | % of VTE prophylaxis |
| **International comparison if available** | The Joint Commission European Stroke Organization |
| **Target** | ***≥90%*** |
| **Notes for all providers** | |
| **Data sources and guidance:** | - Patient's records -<br>Claim data |

**Type: Quality Indicator** **Indicator Number: STK004**

| | |
|---|---|
| **KPI Description (title):** | Stroke (STK): Discharged on Antithrombotic Therapy |
| **Domain** | Process |
| **Sub-Domain** | Prevention |
| **Definition:** | Ischemic stroke patients prescribed antithrombotic therapy at hospital discharge. |
| **Calculation** | **Numerator**: Total number of ischemic stroke patients (18 years or older) who were prescribed antithrombotic therapy at hospital discharge. **Denominator**: Total adult patients with a principal discharge diagnosis of Ischemic stroke. (**See Appendix- A for stroke ICD_10 Diagnosis Codes*) Denominator Exclusions:***<br>• Less than 18 years of age<br>• Length of stay >120 days<br>• Patients who left against medical advice<br>• Patients discharged to another acute care hospital • Patients who deceased<br>• Patients discharged on hospice care<br>• Patients admitted for an Elective Carotid Intervention (***refer to Appendix-B)***<br>• Patients with documented reason for not prescribing antithrombotic therapy at discharge. (examples include):<br>○ Allergy to all antithrombotic medications<br>○ Aortic dissection<br>○ At increased risk of bleeding<br>○ Haemorrhage any type<br>○ Extensive/metastatic cancer<br>○ Unrepaired intracranial aneurysm<br>○ Planned surgery within 7 days of discharge<br>○ Patient/family refusal of antithrombotic medication<br>○ Peptic ulcer<br>○ Haemorrhagic transformation of infarct |
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | % of discharged on antithrombotic therapy |
| **International comparison if available** | The Joint Commission European Stroke Organization |
| **Target** | ***≥90%*** |
| **Notes for all providers** | |
| **Data sources and guidance:** | - Patient's records<br>- Claim data |

**Type: Quality Indicator** **Indicator Number: STK005**

| | |
|---|---|
| **KPI Description (title):** | Stroke (STK): Antithrombotic Therapy by End of Hospital Day Two |
| **Domain** | Process |
| **Sub-Domain** | Prevention |
| **Definition:** | Ischemic stroke patients who received antithrombotic therapy by the end of hospital day two. |
| **Calculation** | ***Numerator:*** Total number of ischemic stroke patients (18 years or older) who received antithrombotic therapy by the end of hospital day two.<br>***Denominator***: Total adult patients with a principal discharge diagnosis of ischemic stroke. (**See Appendix- A-for stroke ICD_10 Diagnosis Codes)**<br>***Denominator Exclusions:***<br>• Patients less than 18 years of age<br>• Length of stay <2 days<br>• Length of stay >120 days<br>• Patients discharged prior to the end of hospital day 2<br>• Admitted for Elective Carotid Intervention (**refer to Appendix-B**)<br>• IV or IA Thrombolytic (t-PA) therapy administered during this admission or within 24 hours of admission<br>• Patients with documented reason for not prescribing antithrombotic therapy prior to end of hospital day two (examples include):<br>  • Allergy to all antithrombotic medications<br>  • Aortic dissection<br>  • At increased risk of bleeding<br>  • Extensive/metastatic cancer<br>  • Hemorrhage, any type<br>  • Hemorrhagic transformation<br>  • Peptic ulcer |
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | % Antithrombotic Therapy |
| **International comparison if available** | The Joint Commission European Stroke Organization |
| **Target** | ***≥90%*** |

| **Notes for all providers** | |
|---|---|
| **Data sources and guidance:** | -Patient's records<br>-Claim data |

**Type: Quality Indicator** **Indicator Number: STK006**

| | |
|---|---|
| **KPI Description (title):** | Stroke (STK): Discharged on Statin Medication |
| **Domain** | Process |
| **Sub-Domain** | Prevention |
| **Definition:** | Ischemic stroke patients who are prescribed statin medication at hospital discharge |
| **Calculation** | ***Numerator:*** Total number of Ischemic stroke patients (18 years or older) who are prescribed statin medication at hospital discharge.<br><br>***Denominator***: Total adult patients with a principal discharge diagnosis of Ischemic stroke. **(See Appendix- A for stroke ICD_10 Diagnosis Codes)**<br><br>***Denominator Exclusions:***<br>• Less than 18 years of age<br>• Length of stay >120 days<br>• Patients with discharge disposition of deceased<br>• Principal diagnosis of cerebral venous thrombosis<br>• Patients who left against medical advice<br>• Patients discharged to another acute care hospital<br>• Patients admitted for Elective Carotid Intervention (refer to Appendix-B)<br>• Patients with documented reason for not prescribing statin medications at discharge (examples include):<br>o Documentation of an allergy/sensitivity<br>o Patient/family refusal of statin medications<br>o Liver dysfunction |
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | % of discharged statin medication |
| **International comparison if available** | The Joint Commission European Stroke Organization |
| **Target** | ***≥90%*** |
| **Notes for all providers** | |
| **Data sources and guidance:** | - Patient's records -<br>Claim data |

**Type: Quality Indicator** **Indicator Number: STK007**

| | |
|---|---|
| **KPI Description (title):** | Stroke (STK): Stroke Education |
| **Domain** | Process |
| **Sub-Domain** | Prevention |
| **Definition:** | Ischemic or Hemorrhagic stroke patients or their caregiver were given education and/or educational materials during the hospital stay addressing the five elements of stroke education |
| **Calculation** | ***Numerator:*** Total number of ischemic and hemorrhagic stroke patients (18 years or older) or their caregiver who were given or have documentation of refusal of the written educational material addressing the following risk factors for stroke.<br>1. Activation of emergency medical system (999)<br>2. Follow-up after discharge<br>3. Medications prescribed at discharge<br>4. Risk factors for stroke<br>5. Warning signs and symptoms of stroke<br><br>***Denominator***: Total adult patients with a principal discharge diagnosis of ischemic or hemorrhagic stroke. **(See Appendix- A for stroke ICD_10 Diagnosis Codes)**<br><br>***Denominator Exclusions:***<br>• Patients with discharge disposition of deceased<br>• Patients who left against medical advice<br>• Patients discharged to another acute care hospital<br>• Patients discharged to another healthcare facility (long-term care, transitional care unit, rehabilitation center).<br>• Patients less than 18 years of age |
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | % of Stroke Education |
| **International comparison if available** | The Joint Commission<br>European Stroke Organization |
| **Target** | ***≥90%*** |
| **Notes for all providers** | |
| **Data sources and guidance:** | - Patient's records<br>- Claim data |

**Type: Quality Indicator** **Indicator Number: STK008**

| | |
|---|---|
| **KPI Description (title):** | Stroke (STK): Assessed/received for Rehabilitation |
| **Domain** | Process |
| **Sub-Domain** | Clinical effectiveness |
| **Definition:** | Ischemic and Hemorrhagic stroke patients who were assessed for or received rehabilitation services. |
| **Calculation** | ***Numerator:*** Total number of ischemic and hemorrhagic stroke patients (18 years or older) who were assessed for/received, or there is documentation of refusal of rehabilitation services.<br><br>***Denominator***: Total adult patients with a principal discharge diagnosis of ischemic or hemorrhagic stroke. (**See Appendix- A for stroke ICD_10 Diagnosis Codes)**<br><br>***Denominator Exclusions:***<br>• Patients less than 18 years of age •<br>Length of stay >120 days<br>• Admitted for Elective Carotid Intervention (refer to Appendix-B)<br>• Patients with discharge disposition of deceased<br>• Patients who left against medical advice<br>• Patients discharged on hospice care<br>• Patients discharged to another acute care hospital<br>• TIA |
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | % of assessed rehabilitation |
| **International comparison if available** | The Joint Commission European Stroke Organization |
| **Target** | ***≥90%*** |
| **Notes for all providers** | |
| **Data sources and guidance:** | - Patient's records -<br>Claim data |

**Type: Quality Indicator** **Indicator Number: STK009**

| | |
|---|---|
| **KPI Description (title):** | Stroke (STK): All cause 30-day Unplanned Hospital Readmissions After Ischemic Stroke |
| **Domain** | Outcome |
| **Sub-Domain** | Complications |
| **Definition:** | Ischemic stroke patients (18 years or older) re-admitted unplanned to the hospital within 30 days of discharge from index stroke discharge. |
| **Calculation** | ***Numerator:*** Total number of ischemic stroke patients (18 years or older) with unplanned readmission to the hospital within 30 days of discharge from index ischemic stroke encounter.<br><br>***Numerator guidance***: If patient has multiple readmissions within 30 days of index discharge, only count as a single readmission.<br><br>***Denominator***: Total number of patients (18 years or older) with principal discharge diagnosis of ischemic stroke during index admission. **(See Appendix- A for stroke ICD_10 Diagnosis Codes)**<br><br>**Denominator Guidance: All index stroke admissions are counted in the denominator, but it is only the index admission (and not the readmission) which is counted in the denominator. In case of multiple readmissions the index admission is only counted once**<br><br>***Denominator Exclusions:***<br>• Patients with discharge disposition of deceased<br>• Patients who left against medical advice<br>• Patients less than 18 years of age<br>• Length of stay >120 days<br>• Patients that were transferred to another acute care facility |
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | % of stroke readmission |
| **International comparison if available** | The Joint Commission<br>European Stroke Organization |
| **Target** | ***≤12%*** |
| **Notes for all providers** | |
| **Data sources and guidance:** | - Patient's records<br>- Claim data |

**Type: Quality Indicator** **Indicator Number: STK010**

| | |
|---|---|
| **KPI Description (title):** | Stroke Level Disability Assessment on discharge |
| **Domain** | Outcome |
| **Sub-Domain** | Recovery and Disability |
| **Definition:** | Stroke patients who are assessed for functional outcome status prior to hospital discharge |
| **Calculation** | ***Numerator:*** Total number of stroke patients for whom a Modified Rankin Scale (mRS) is taken prior to hospital discharge.<br><br>***Denominator***: Total adult patients with a diagnosis of ischemic or hemorrhagic stroke.( **See Appendix- A for stroke ICD_10 Diagnosis Code)**<br><br>***Denominator Exclusions:***<br>• Patients with discharge disposition of deceased<br>• Patients less than 18 years of age<br>• Length of stay >120 days<br>• Patients admitted for Elective Carotid Intervention (refer to Appendix-B) |
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | % of patients with mRS taken prior to discharge. |
| **International comparison if available** | The Joint Commission<br>European Stroke Organization |
| **Target** | ***≥90%*** |
| **Notes for all providers** | |
| **Data sources and guidance:** | - Patient's records<br>- Claim data |

**Type: Quality Indicator** **Indicator Number: STK011**

| | |
|---|---|
| **KPI Description (title):** | Rate of death occurring within 30 days of stroke Diagnosis |
| **Domain** | Outcome |
| **Sub-domain** | Mortality |
| **Definition:** | Rate of death occurring within 30 days of first admission to an acute care hospital with a principal diagnosis of Haemorrhagic and Ischemic stroke. |
| **Calculation:** | ***Numerator:*** Number of deaths occurring among adult stroke patients (18 years or older) within 30 days of first admission to an acute care hospital with a principle diagnosis of Haemorrhagic and Ischemic stroke.<br><br>***Denominator:*** Total adult patients with admitted principle diagnosis of Ischemic or Haemorrhagic stroke during a reporting period. **(**See **Appendix- A for stroke ICD_10 Diagnosis Codes)** |
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | Rate per 100 deaths |
| **International comparison if available** | *OECD, AHRQ* |
| **Desired direction:** | Lower is better |
| **Notes for all facilities** | |
| **Data Source/ Report Name:** | - Patient's records<br>- Claim data |

**Type: Quality Indicator** **Indicator Number: STK012**

| | |
|---|---|
| **KPI Description (title):** | Symptomatic intracranial hemorrhage after IV thrombolysis |
| **Domain** | Outcome |
| **Sub-domain** | Complication |
| **Definition:** | 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 |
| **Calculation:** | ***Numerator:*** Total number of Ischemic stroke patients (18 years and older) who develop a symptomatic intracranial hemorrhage ≤ 36 hours after the onset of treatment with IV thrombolytic (t-PA) therapy only (IVO)<br>***Denominator:*** Total number of adult (18 years or older) with principal discharge diagnosis of ischemic stroke patients who received only IV thrombolysis treatment during a reporting period.<br><br>(See Appendix- A for relevant stroke ICD_10 Diagnosis Codes)<br><br>***Denominator Exclusions:***<br>• Patients less than 18 years of age<br>• Patients with length of stay > 120 days<br>• Patients admitted for Elective Carotid Intervention<br>• Patients who receive BOTH iv-tPA AND mechanical thrombectomy<br>• Patients transferred to this hospital following treatment with IV thrombolytic therapy or mechanical endovascular reperfusion therapy initiated prior to arrival<br>• Patients who hemorrhage prior to onset of therapy |
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | % of Symptomatic intracranial hemorrhage after IV thrombolysis |
| **International comparison if available** | *OECD, AHRQ* |
| **Desired direction:** | Lower is better |
| **Notes for all facilities** | |

| | |
|---|---|
| **Data Source/ Report Name:** | - Patient's records<br>- Claim data |

**Type: Quality Indicator** **Indicator Number: STK013**

| | |
|---|---|
| **KPI Description (title):** | **National Institutes of Health Stroke Scale (NIHSS Score Performed for Ischemic Stroke Patients)** |
| **Domain** | Patient Safety |
| **Sub-Domain** | Process |
| **Definition:** | This measure addresses acute Ischemic stroke patients, who reach the ED within 24h of onset of symptoms, 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. |
| **Calculation:** | **Numerator**<br>Patients with a principle admitting diagnosis of ischemic stroke, who reach the ED within 24h of onset of the stroke symptoms, and for whom a NIHSS score is performed and documented in the medical record, prior to any acute recanalization therapy in patients undergoing recanalization therapy, OR performed within 12 hours of hospital arrival and documented in the medical record, for patients who do not undergo recanalization therapy.<br><br>**Denominator**<br>Number of patients with a principle admitting diagnosis of acute ischemic stroke, patients who reach the ED within 24 hours of onset of symptoms during the reporting period **(See Appendix- A for relevant stroke ICD_10 Diagnosis Codes)**<br><br>**Denominator Exclusions**<br>• Patients less than 18 years of age<br>• Patients who are not admitted with a principle diagnosis of acute ischaemic stroke<br>Patients with acute stroke symptoms identified more than 24 hours prior to reaching the ED |
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | Percentage |
| **International comparison if available** | Stroke Center Certification - American Stroke Association |

| | |
|---|---|
| **Desired direction:** | Higher numbers are better |
| | |
| **Data sources and guidance:** | -Patient medical record<br>-Hospital administrative data |

**Type: Quality Indicator** **Indicator Number: STK014**

| | |
|---|---|
| **KPI Description (title):** | **Severity Measurement Performed for SAH and ICH Patients (Overall Rate)** |
| **Domain** | Effectiveness |
| **Sub-Domain** | Process |
| **Definition:** | The measure addresses subarachnoid hemorrhage (SAH) and intracerebral hemorrhage (ICH) stroke patients for whom a severity measurement (i.e., Hunt and Hess Scale for SAH patients or ICH Score for ICH patients) is performed prior to surgical intervention (e.g. clipping, coiling, or any surgical intervention) in patients undergoing surgical intervention and documented in the medical record; or documented within 6 hours of arrival at the hospital emergency department for patients who do not undergo surgical intervention. |
| **Calculation:** | **Numerator**<br>The number of 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 arrival at the hospital emergency department for patients who do not undergo surgical intervention.;<br><br>**Inclusion:**<br>• The number of SAH patients for whom a Hunt and Hess Scale 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.<br><br>• The number of ICH stroke patients for whom an ICH Score 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.<br><br>**Denominator**<br>Patients with principle discharge diagnosis of acute SAH and ICH stroke patients who arrive at this hospital emergency department (ED).<br>**(See Appendix- A for relevant stroke ICD_10 Diagnosis Codes)**<br><br>**Denominator Exclusions**<br>• Patients less than 18 years of age<br>• Patients who have a Length of Stay > 120 days |

| | |
|---|---|
| | • Patients with Comfort Measures Only documented on the day of or day after hospital arrival<br>• Non-surgical patients discharged within 6 hours of arrival at this hospital<br>• Patients with admitting diagnosis of traumatic brain injury (TBI), (S06)<br>• unruptured arteriovenous malformation (AVM), (Q28.2) and non-traumatic subdural hematoma (162.00/162.01/162.02/162.03)<br>• Patients admitted for elective treatment of prior SAH or aneurysm |
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | Percentage |
| **International comparison if available** | Stroke Center Certification - American Stroke Association |
| **Desired direction:** | Higher numbers are better |
| | |
| **Data sources and guidance:** | -Patient medical record<br>-Hospital administrative data |

**Type: Quality Indicator** **Indicator Number: STK015**

| **KPI Description (title):** | **Nimodipine Treatment Administered in aneurysmal SAH** |
|---|---|
| **Domain** | Effectiveness |
| **Sub-Domain** | Process |
| **Definition:** | aneurysmal Subarachnoid hemorrhage (SAH) patients for whom nimodipine treatment was administered within 24 hours of arrival at this hospital. |
| **Calculation:** | **Numerator**<br>aneurysmal SAH patients for whom nimodipine treatment was administered within 24 hours of arrival at this hospital.<br><br>**Denominator**<br>Total Number of discharged patients with principal diagnosis of aneurysmal subarachnoid hemorrhage (SAH) patients during the reporting period<br>**(See Appendix- A for relevant stroke ICD_10 Diagnosis Codes)**<br><br>**Denominator Exclusions**<br>• Patients less than 18 years of age<br>• Patients who have a Length of Stay > 120 days<br>• Patients with Comfort Measures Only documented on day of or after hospital arrival<br>• Patients enrolled in clinical trials<br>• Patients discharged within 24 hours of arrival at this hospital<br>• Left against medical advice |

| | |
|---|---|
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | Percentage |
| **International comparison if available** | Stroke Center Certification - American Stroke Association |
| **Desired direction:** | Higher numbers are better |
| | |
| **Data sources and guidance:** | -Patient medical record<br>-Hospital administrative data |

**Type: Quality Indicator** **Indicator Number: STK016**

| **KPI Description (title):** | **Time to Revascularization for mechanical thrombectomy ≤90 minutes** |
|---|---|
| **Domain** | Effectiveness |
| **Sub-Domain** | Process |
| **Definition:** | This measure addresses 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. |
| **Calculation:** | **Numerator**<br>Patients for whom arterial puncture time is ≤90 minutes after hospital arrival.<br><br>**Denominator**<br>All patients in the initial patient population who received mechanical endovascular reperfusion therapy during the hospital admission.<br>**61645 (See Appendix- A for relevant stroke ICD_10 Diagnosis Codes)**<br><br>**Denominator Exclusions**<br>• Patients less than 18 years of age<br>• Patients who have a Length of Stay > 120 days<br>• Patients admitted for Elective Carotid Intervention(***refer to Appendix-B***)<br>• Patients who have a Delayed Endovascular Rescue Procedure later than 8 hours after hospital arrival<br>• Patient who needed stabilization clinically<br>• Refusal of consent or delayed consent , as patients or family took a long time<br>• Patients who initially have relatively mild symptoms and are deemed NOT appropriate for mechanical thrombectomy but who subsequently deteriorate clinically resulting in delayed change in clinical decision<br>• Patients who require MRI prior to mechanical thrombectomy for safe selection of candidates and to reduce futile procedures<br>• Arrived at the hospital more than 8 hours after time symptoms identified |

| | |
|---|---|
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | Percentage |
| **International comparison if available** | Stroke Center Certification - American Stroke Association |
| **Desired direction:** | Higher numbers are better |
| | |
| **Data sources and guidance:** | -Patient medical record<br>-Hospital administrative data |

**Type: Quality Indicator** **Indicator Number: STK017**

| **KPI Description (title):** | **Thrombolysis in Cerebral Infarction (TICI Post-Treatment Reperfusion Grade)** |
|---|---|
| **Domain** | Effectiveness |
| **Sub-Domain** | Process |
| **Definition:** | This measure addresses 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. |
| **Calculation:** | **Numerator**<br>Ischemic stroke patients, treated with IA thrombolytic (t-PA) therapy and/or mechanical endovascular reperfusion therapy, with a post-treatment reperfusion grade of TICI 2B or higher<br><br>**Denominator**<br>Ischemic stroke patients treated with IA thrombolytic (t-PA) therapy and/or mechanical endovascular reperfusion therapy. including failed attempt at thrombectomy.<br>**61645 (See Appendix- A for relevant stroke ICD_10 Diagnosis Codes)**<br><br>**Denominator Exclusions**<br>• Patients less than 18 years of age.<br>• Patients who have a Length of Stay > 120 days.<br>• Patients admitted for Elective Carotid Intervention.<br>• Patient who only undergo diagnostic angiography with no attempt at thrombectomy or IA thrombolysis. |
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | Percentage |
| **International comparison if available** | Stroke Center Certification - American Stroke Association |

| | |
|---|---|
| **Desired direction:** | Higher numbers are better |
| | |
| **Data sources and guidance:** | -Patient medical record<br>-Hospital administrative data |

**Type: Quality Indicator** **Indicator Number: STK018**

| **KPI Description (title):** | **Timelines of Reperfusion: Arrival Time to TICI 2B or Higher** |
|---|---|
| **Domain** | Effectiveness |
| **Sub-Domain** | Process |
| **Definition:** | Ischemic stroke patients with large vessel occlusion in the internal carotid artery (ICA) or ICA terminus, middle cerebral artery (MCA) M1 or M2, basilar artery, who receive mechanical endovascular reperfusion therapy within 120 minutes of hospital arrival and achieve TICI 2B or higher at the end of treatment |
| **Calculation:** | **Numerator**<br>Ischemic stroke patients who undergo mechanical thrombectomy of the distal ICA or ICA terminus, M1 or M2 segments of the MCA or of the basilar artery and who achieve TICI 2B or higher for the primary vessel occlusion within 120 minutes of arrival.<br><br>**Denominator**<br>Total number of adult patients (18 years old and above) with principal diagnosis of Ischemic stroke treated with mechanical endovascular reperfusion treatment for large vessel occlusion of the distal ICA or ICA terminus, M1 or M2 segments of the MCA or of the basilar artery (including failed attempt at thrombectomy).<br>61645 (See Appendix- A for relevant stroke ICD_10 Diagnosis Codes)<br><br>**Denominator Exclusions**<br>• Patients less than 18 years of age<br>• Patients who have a Delayed Endovascular Rescue Procedure later than 8 hours after hospital arrival<br>• Patient who needed stabilization clinically<br>• Refusal of consent or delay consent, as patients or family took a long time<br>• Patients who initially have relatively mild or resolved symptoms and are deemed NOT appropriate for mechanical thrombectomy but who subsequently deteriorate clinically resulting in delayed change in clinical decision<br>• Patients who require MRI prior to mechanical thrombectomy for safe selection of candidates and to reduce futile procedures<br>• Arrived at the hospital more than 8 hours after time symptoms identified<br>• Patients with length of stay > 120 days<br>• Enrolled in a clinical trial as part of their treatment for stroke<br>• Patients admitted for Elective carotid intervention (refer to Appendix-B) |
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | Percentage |

| | |
|---|---|
| **International comparison if available** | Stroke Center Certification - American Stroke Association |
| **Desired direction:** | Higher numbers are better |
| | |
| **Data sources and guidance:** | -Patient medical record<br>-Hospital administrative data |

**Type: Quality Indicator** **Indicator Number: STK019**

| **KPI Description (title):** | **Anticoagulation Therapy for Atrial Fibrillation / Flutter** |
|---|---|
| **Domain** | Effectiveness |
| **Sub-Domain** | Process |
| **Definition:** | This measure addresses ischemic stroke patients with a clinical diagnosis of atrial fibrillation/flutter who are prescribed anticoagulation therapy at hospital discharge. |
| **Calculation:** | **Numerator**<br>All eligible ischemic stroke patients who received a prescription for anticoagulant at time of discharge.<br><br>**Denominator**<br>All eligible ischemic stroke patients with atrial fibrillation. I48 .- Series codes<br>**(See Appendix- A for relevant stroke ICD_10 Diagnosis Codes)**<br><br>**Denominator Exclusions**<br>• Patients with a documented reason for not prescribing anticoagulation therapy at discharge.<br>I. Examples include haemorrhagic transformation<br>High risk of bleeding etC<br>• Patients admitted for Elective Carotid Intervention. (***refer to Appendix-B***)<br>• Patients with contraindications to anticoagulant therapy.<br>• Patients with length of stay greater than 120 days.<br>• Patients transferred to another acute care facility, left Against Medical Advice, or expired.<br>• Patients enrolled in clinical trials.<br>• Patients under the age of 18.<br>• Patients who refused anticoagulation therapy |
| **Reporting Frequency:** | Quarterly |
| **Unit of Measure:** | Percentage |

| | |
|---|---|
| **International comparison if available** | Stroke Center Certification - American Stroke Association |
| **Desired direction:** | Higher numbers are better |
| | |
| **Data sources and guidance:** | -Patient medical record<br>-Hospital administrative data |

# Appendix- A (Stroke ICD_10 Diagnosis Codes)

Ischemic Stroke ICD-10 Diagnosis Codes:

| Code | Shortened Description |
|---|---|
| I6300 | Cerebral infarction due to thrombosis of unspecified precerebral artery |
| I63011 | Cerebral infarction due to thrombosis of right vertebral artery |
| I63012 | Cerebral infarction due to thrombosis of left vertebral artery |
| I63.013 | Cerebral infarction due to thrombosis of bilateral vertebral arteries |
| I63019 | Cerebral infarction due to thrombosis of unspecified vertebral artery |
| I6302 | Cerebral infarction due to thrombosis of basilar artery |
| I63031 | Cerebral infarction due to thrombosis of right carotid artery |
| I63032 | Cerebral infarction due to thrombosis of left carotid artery |
| I63.033 | Cerebral infarction due to thrombosis of bilateral carotid arteries |
| I63039 | Cerebral infarction due to thrombosis of unspecified carotid artery |
| I6309 | Cerebral infarction due to thrombosis of other precerebral artery |
| I6310 | Cerebral infarction due to embolism of unspecified precerebral artery |
| I63111 | Cerebral infarction due to embolism of right vertebral artery |
| I63112 | Cerebral infarction due to embolism of left vertebral artery |
| I63.113 | Cerebral infarction due to embolism of bilateral vertebral arteries |
| I63119 | Cerebral infarction due to embolism of unspecified vertebral artery |
| I6312 | Cerebral infarction due to embolism of basilar artery |
| I63131 | Cerebral infarction due to embolism of right carotid artery |
| I63132 | Cerebral infarction due to embolism of left carotid artery |
| I63.133 | Cerebral infarction due to embolism of bilateral carotid arteries |
| I63139 | Cerebral infarction due to embolism of unspecified carotid artery |
| I6319 | Cerebral infarction due to embolism of other precerebral artery |
| I6320 | Cerebral infarction due to unspecified occlusion or stenosis of unspecified precerebral arteries |
| I63211 | Cerebral infarction due to unspecified occlusion or stenosis of right vertebral artery |
| I63212 | Cerebral infarction due to unspecified occlusion or stenosis of left vertebral artery |
| I63.213 | Cerebral infarction due to unspecified occlusion or stenosis of bilateral vertebral arteries |
| I63219 | Cerebral infarction due to unspecified occlusion or stenosis of unspecified vertebral arteries |
| I6322 | Cerebral infarction due to unspecified occlusion or stenosis of basilar artery |
| I63231 | Cerebral infarction due to unspecified occlusion or stenosis of right carotid arteries |
| I63232 | Cerebral infarction due to unspecified occlusion or stenosis of left carotid arteries |
| I63.233 | Cerebral infarction due to unspecified occlusion or stenosis of bilateral carotid arteries |
| I63239 | Cerebral infarction due to unspecified occlusion or stenosis of unspecified carotid arteries |
| I6329 | Cerebral infarction due to unspecified occlusion or stenosis of other precerebral arteries |
| I6330 | Cerebral infarction due to thrombosis of unspecified cerebral artery |
| I63311 | Cerebral infarction due to thrombosis of right middle cerebral artery |
| I63312 | Cerebral infarction due to thrombosis of left middle cerebral artery |
| I63.313 | Cerebral infarction due to thrombosis of bilateral middle cerebral arteries |
| I63319 | Cerebral infarction due to thrombosis of unspecified middle cerebral artery |
| I63321 | Cerebral infarction due to thrombosis of right anterior cerebral artery |
| I63322 | Cerebral infarction due to thrombosis of left anterior cerebral artery |
| I63.323 | Cerebral infarction due to thrombosis of bilateral anterior cerebral arteries |
| I63329 | Cerebral infarction due to thrombosis of unspecified anterior cerebral artery |

| | |
|---|---|
| I63331 | Cerebral infarction due to thrombosis of right posterior cerebral artery |
| I63332 | Cerebral infarction due to thrombosis of left posterior cerebral artery |
| I63.343 | Cerebral infarction to thrombosis of bilateral cerebellar arteries |
| I63339 | Cerebral infarction due to thrombosis of unspecified posterior cerebral artery |
| I63341 | Cerebral infarction due to thrombosis of right cerebellar artery |
| I63342 | Cerebral infarction due to thrombosis of left cerebellar artery |
| I63349 | Cerebral infarction due to thrombosis of unspecified cerebellar artery |
| I6339 | Cerebral infarction due to thrombosis of other cerebral artery |
| I6340 | Cerebral infarction due to embolism of unspecified cerebral artery |
| I63411 | Cerebral infarction due to embolism of right middle cerebral artery |
| I63412 | Cerebral infarction due to embolism of left middle cerebral artery |
| I63419 | Cerebral infarction due to embolism of unspecified middle cerebral artery |
| I63421 | Cerebral infarction due to embolism of right anterior cerebral artery |
| I63422 | Cerebral infarction due to embolism of left anterior cerebral artery |
| I63429 | Cerebral infarction due to embolism of unspecified anterior cerebral artery |
| I63431 | Cerebral infarction due to embolism of right posterior cerebral artery |
| I63432 | Cerebral infarction due to embolism of left posterior cerebral artery |
| I63439 | Cerebral infarction due to embolism of unspecified posterior cerebral artery |
| I63441 | Cerebral infarction due to embolism of right cerebellar artery |
| I63442 | Cerebral infarction due to embolism of left cerebellar artery |
| I63449 | Cerebral infarction due to embolism of unspecified cerebellar artery |
| I6350 | Cerebral infarction due to unspecified occlusion or stenosis of unspecified cerebral artery |
| I63511 | Cerebral infarction due to unspecified occlusion or stenosis of right middle cerebral artery |
| I63512 | Cerebral infarction due to unspecified occlusion or stenosis of left middle cerebral artery |
| I63519 | Cerebral infarction due to unspecified occlusion or stenosis of unspecified middle cerebral artery |
| I63521 | Cerebral infarction due to unspecified occlusion or stenosis of right anterior cerebral artery |
| I63522 | Cerebral infarction due to unspecified occlusion or stenosis of left anterior cerebral artery |
| I63529 | Cerebral infarction due to unspecified occlusion or stenosis of unspecified anterior cerebral artery |
| I63531 | Cerebral infarction due to unspecified occlusion or stenosis of right posterior cerebral artery |
| I63532 | Cerebral infarction due to unspecified occlusion or stenosis of left posterior cerebral artery |
| I63539 | Cerebral infarction due to unspecified occlusion or stenosis of unspecified posterior cerebral artery |
| I63541 | Cerebral infarction due to unspecified occlusion or stenosis of right cerebellar artery |
| I63542 | Cerebral infarction due to unspecified occlusion or stenosis of left cerebellar artery |
| I63549 | Cerebral infarction due to unspecified occlusion or stenosis of unspecified cerebellar artery |
| I6359 | Cerebral infarction due to unspecified occlusion or stenosis of other cerebral artery |
| I636 | Cerebral infarction due to cerebral venous thrombosis, nonpyogenic |
| I638 | Other cerebral infarction |
| I639 | Cerebral infarction, unspecified |
| I63333 | Cerebral infarction due to thrombosis of bilateral posterior cerebral arteries |
| I63413 | Cerebral infarction due to embolism of bilateral middle cerebral arteries |
| I63423 | Cerebral infarction due to embolism of bilateral anterior cerebral arteries |
| I63433 | Cerebral infarction due to embolism of bilateral posterior cerebral arteries |

| | |
|---|---|
| I63443 | Cerebral infarction due to embolism of bilateral cerebellar arteries |
| I6349 | Cerebral infarction due to embolism of other cerebral artery |
| I63513 | Cerebral infarction due to unspecified occlusion or stenosis of bilateral middle cerebral arteries |
| I63523 | Cerebral infarction due to unspecified occlusion or stenosis of bilateral anterior cerebral |
| I63533 | Cerebral infarction due to unspecified occlusion or stenosis of bilateral posterior cerebral |
| I63543 | Cerebral infarction due to unspecified occlusion or stenosis of bilateral cerebellar arteries |

## Hemorrhagic Stroke ICD-10 Diagnosis Codes:

| Code | Shortened Description |
|---|---|
| **Subarachnoid Hemorrhage-I60.-** | |
| I6000 | Nontraumatic subarachnoid hemorrhage from unspecified carotid siphon and bifurcation |
| I6001 | Nontraumatic subarachnoid hemorrhage from right carotid siphon and bifurcation |
| I6002 | Nontraumatic subarachnoid hemorrhage from left carotid siphon and bifurcation |
| I6010 | Nontraumatic subarachnoid hemorrhage from unspecified middle cerebral artery |
| I6011 | Nontraumatic subarachnoid hemorrhage from right middle cerebral artery |
| I6012 | Nontraumatic subarachnoid hemorrhage from left middle cerebral artery |
| I602 | Nontraumatic subarachnoid hemorrhage from anterior communicating artery |
| I6030 | Nontraumatic subarachnoid hemorrhage from unspecified posterior communicating artery |
| I6031 | Nontraumatic subarachnoid hemorrhage from right posterior communicating artery |
| I6032 | Nontraumatic subarachnoid hemorrhage from left posterior communicating artery |
| I604 | Nontraumatic subarachnoid hemorrhage from basilar artery |
| I6050 | Nontraumatic subarachnoid hemorrhage from unspecified vertebral artery |
| I6051 | Nontraumatic subarachnoid hemorrhage from right vertebral artery |
| I6052 | Nontraumatic subarachnoid hemorrhage from left vertebral artery |
| I606 | Nontraumatic subarachnoid hemorrhage from other intracranial arteries |
| I607 | Nontraumatic subarachnoid hemorrhage from unspecified intracranial artery |
| I608 | Other nontraumatic subarachnoid hemorrhage |
| I609 | Nontraumatic subarachnoid hemorrhage, unspecified |
| Intracerebral Hemorrhage-I61.- | |
| I610 | Nontraumatic intracerebral hemorrhage in hemisphere, subcortical |
| I611 | Nontraumatic intracerebral hemorrhage in hemisphere, cortical |
| I612 | Nontraumatic intracerebral hemorrhage in hemisphere, unspecified |
| I613 | Nontraumatic intracerebral hemorrhage in brain stem |
| I614 | Nontraumatic intracerebral hemorrhage in cerebellum |
| I615 | Nontraumatic intracerebral hemorrhage, intraventricular |
| I616 | Nontraumatic intracerebral hemorrhage, multiple localized |
| I618 | Other nontraumatic intracerebral hemorrhage |
| I619 | Nontraumatic intracerebral hemorrhage, unspecified |

# Appendix- B (Elective Carotid Intervention CPT Codes)

| CPT Code | CPT Description |
|---|---|
| 33889 | Open subclavian to carotid artery transposition performed in conjunction with endovascular repair of descending thoracic aorta, by neck incision, unilateral |
| 33891 | Bypass graft, with other than vein, transcervical retropharyngeal carotid-carotid, performed in conjunction with endovascular repair of descending thoracic aorta, by neck incision |
| 34001 | Embolectomy or thrombectomy, with or without catheter; carotid, subclavian or innominate artery, by neck incision |
| 35001 | Direct repair of aneurysm, pseudoaneurysm, or excision (partial or total) and graft insertion, with or without patch graft; for aneurysm and associated occlusive disease, carotid, subclavian artery, by neck incision |
| 35002 | Direct repair of aneurysm, pseudoaneurysm, or excision (partial or total) and graft insertion, with or without patch graft; for ruptured aneurysm, carotid, subclavian artery, by neck incision |
| 35261 | Repair blood vessel with graft other than vein; neck |
| 35301 | Thromboendarterectomy, including patch graft, if performed; carotid, vertebral, subclavian, by neck incision |
| 35390 | Reoperation, carotid, thromboendarterectomy, more than 1 month after original operation (List separately in addition to code for primary procedure) |
| 35501 | Bypass graft, with vein; common carotid-ipsilateral internal carotid |
| 35506 | Bypass graft, with vein; carotid-subclavian or subclavian-carotid |
| 35508 | Bypass graft, with vein; carotid-vertebral |
| 35509 | Bypass graft, with vein; carotid-contralateral carotid |
| 35510 | Bypass graft, with vein; carotid-brachial |
| 35526 | Bypass graft, with vein; aortosubclavian, aortoinnominate, or aortocarotid |
| 35601 | Bypass graft, with other than vein; common carotid-ipsilateral internal carotid |
| 35606 | Bypass graft, with other than vein; carotid-subclavian |
| 35626 | Bypass graft, with other than vein; aortosubclavian, aortoinnominate, or aortocarotid |
| 35642 | Bypass graft, with other than vein; carotid-vertebral |
| 35691 | Transposition and/or reimplantation; vertebral to carotid artery |
| 35694 | Transposition and/or reimplantation; subclavian to carotid artery |
| 35695 | Transposition and/or reimplantation; carotid to subclavian artery |
| 35701 | Exploration (not followed by surgical repair), with or without lysis of artery; carotid artery |
| 36100 | Introduction of needle or intracatheter, carotid or vertebral artery |
| 36215 | Selective catheter placement, arterial system; each first order thoracic or brachiocephalic branch, within a vascular family |
| 36216 | Selective catheter placement, arterial system; initial second order thoracic or brachiocephalic branch, within a vascular family |
| 36217 | Selective catheter placement, arterial system; initial third order or more selective thoracic or brachiocephalic branch, within a vascular family |
| 36218 | Selective catheter placement, arterial system; additional second order, third order, and beyond, thoracic or brachiocephalic branch, within a vascular family (List in addition to code for initial second or third order vessel as appropriate) |

| | |
|---|---|
| 37184 | Primary percutaneous transluminal mechanical thrombectomy, noncoronary, arterial or arterial bypass graft, including fluoroscopic guidance and intraprocedural pharmacological thrombolytic injection(s); initial vessel |
| 37215 | Transcatheter placement of intravascular stent(s), cervical carotid artery, open or percutaneous, including angioplasty, when performed, and radiological supervision and interpretation; with distal embolic protection |
| 37216 | Transcatheter placement of intravascular stent(s), cervical carotid artery, open or percutaneous, including angioplasty, when performed, and radiological supervision and interpretation; without distal embolic protection |
| 37600 | Ligation; external carotid artery |
| 37605 | Ligation; internal or common carotid artery |
| 37606 | Ligation; internal or common carotid artery, with gradual occlusion, as with Selverstone or Crutchfield clamp |
| 60600 | Excision of carotid body tumor; without excision of carotid artery |
| 60605 | Excision of carotid body tumor; with excision of carotid artery |
| 61590 | Infratemporal pre-auricular approach to middle cranial fossa (parapharyngeal space, infratemporal and midline skull base, nasopharynx), with or without disarticulation of the mandible, including parotidectomy, craniotomy, decompression and/or mobilization of the facial nerve and/or petrous carotid artery |
| 61591 | Infratemporal post-auricular approach to middle cranial fossa (internal auditory meatus, petrous apex, tentorium, cavernous sinus, parasellar area, infratemporal fossa) including mastoidectomy, resection of sigmoid sinus, with or without decompression and/or mobilization of contents of auditory canal or petrous carotid artery |
| 61592 | Orbitocranial zygomatic approach to middle cranial fossa (cavernous sinus and carotid artery, clivus, basilar artery or petrous apex) including osteotomy of zygoma, craniotomy, extra- or intradural elevation of temporal lobe |
| 61596 | Transcochlear approach to posterior cranial fossa, jugular foramen or midline skull base, including labyrinthectomy, decompression, with or without mobilization of facial nerve and/or petrous carotid artery |
| 61610 | Transection or ligation, carotid artery in cavernous sinus; with repair by anastomosis or graft (List separately in addition to code for primary procedure) |
| 61611 | Transection or ligation, carotid artery in petrous canal; without repair (List separately in addition to code for primary procedure) |
| 61612 | Transection or ligation, carotid artery in petrous canal; with repair by anastomosis or graft (List separately in addition to code for primary procedure) |
| 61613 | Obliteration of carotid aneurysm, arteriovenous malformation, or carotid-cavernous fistula by dissection within cavernous sinus |
| 61624 | Transcatheter permanent occlusion or embolization (eg, for tumor destruction, to achieve hemostasis, to occlude a vascular malformation), percutaneous, any method; central nervous system (intracranial, spinal cord) |
| 61626 | Transcatheter permanent occlusion or embolization (eg, for tumor destruction, to achieve hemostasis, to occlude a vascular malformation), percutaneous, any method; non-central nervous system, head or neck (extracranial, brachiocephalic branch) |
| 61630 | Balloon angioplasty, intracranial (eg, atherosclerotic stenosis), percutaneous |
| 61635 | Transcatheter placement of intravascular stent(s), intracranial (eg, atherosclerotic stenosis), including balloon angioplasty, if performed |
| 61640 | Balloon dilatation of intracranial vasospasm, percutaneous; initial vessel |
| 61641 | Balloon dilatation of intracranial vasospasm, percutaneous; each additional vessel in same vascular family (List separately in addition to code for primary procedure) |
| 61642 | Balloon dilatation of intracranial vasospasm, percutaneous; each additional vessel in different vascular family (List separately in addition to code for primary procedure) |

| | |
|---|---|
| 61690 | Surgery of intracranial arteriovenous malformation; dural, simple |
| 61692 | Surgery of intracranial arteriovenous malformation; dural, complex |
| 61697 | Surgery of complex intracranial aneurysm, intracranial approach; carotid circulation |
| 61700 | Surgery of simple intracranial aneurysm, intracranial approach; carotid circulation |
| 61711 | Anastomosis, arterial, extracranial-intracranial (eg, middle cerebral/cortical) arteries |
| 61703 | Surgery of intracranial aneurysm, cervical approach by application of occluding clamp to cervical carotid artery (Selverstone-Crutchfield type) |
| 61705 | Surgery of aneurysm, vascular malformation or carotid-cavernous fistula; by intracranial and cervical occlusion of carotid artery |
| 61708 | Surgery of aneurysm, vascular malformation or carotid-cavernous fistula; by intracranial electrothrombosis |
| 61710 | Surgery of aneurysm, vascular malformation or carotid-cavernous fistula; by intra-arterial embolization, injection procedure, or balloon catheter |
| 64508 | Injection, anesthetic agent; carotid sinus (separate procedure) |
| 75894 | Transcatheter therapy, embolization, any method, radiological supervision and interpretation |



# Summary of Code Changes Updated to 2018 ICD-10 CM

## Quarter 3 2021

### APPENDIX A- for stroke ICD_10 Added Diagnosis Codes

| 2018 ICD | Description |
|---|---|
| I63.013 | Cerebral infarction due to thrombosis of bilateral vertebral arteries |
| I63.033 | Cerebral infarction due to thrombosis of bilateral carotid arteries |
| I63.113 | Cerebral infarction due to embolism of bilateral vertebral arteries |
| I63.133 | Cerebral infarction due to embolism of bilateral carotid arteries |
| I63.213 | Cerebral infarction due to unspecified occlusion or stenosis of bilateral vertebral arteries |
| I63.233 | Cerebral infarction due to unspecified occlusion or stenosis of bilateral carotid arteries |
| I63.313 | Cerebral infarction due to thrombosis of bilateral middle cerebral arteries |
| I63.323 | Cerebral infarction due to thrombosis of bilateral anterior cerebral arteries |
| I63.333 | Cerebral infarction to thrombosis of bilateral posterior cerebral arteries |
| I63.343 | Cerebral infarction to thrombosis of bilateral cerebellar arteries |
| I63.413 | Cerebral infarction due to embolism of bilateral middle cerebral arteries |
| I63.423 | Cerebral infarction due to embolism of bilateral anterior cerebral arteries |
| I63.433 | Cerebral infarction due to embolism of bilateral posterior cerebral arteries |
| I63.443 | Cerebral infarction due to embolism of bilateral cerebellar arteries |
| I63.49 | Cerebral infarction due to embolism of other cerebral artery |
| I63.513 | Cerebral infarction due to unspecified occlusion or stenosis of bilateral middle cerebral arteries |
| I63.523 | Cerebral infarction due to unspecified occlusion or stenosis of bilateral anterior cerebral arteries |
| I63.533 | Cerebral infarction due to unspecified occlusion or stenosis of bilateral posterior cerebral arteries |
| I63.543 | Cerebral infarction due to unspecified occlusion or stenosis of bilateral cerebellar arteries |

**Hemorrhagic ICD-10 codes: Deleted Codes**

| | |
|---|---|
| I60.20 | Nontraumatic subarachnoid hemorrhage from unspecified anterior communicating artery |
| I60.21 | Nontraumatic subarachnoid hemorrhage from right anterior communicating artery |
| I60.22 | Nontraumatic subarachnoid hemorrhage from left anterior communicating artery |

**Hemorrhagic ICD-10 codes: Added Codes**

| | |
|---|---|
| I60.2 | Nontraumatic subarachnoid hemorrhage from anterior communicating artery |

## Summary of Changes August 2022

| KPI # | **Changes in August 2022** |
|---|---|
| STK01 | Numerator: Total number of ischemic stroke patients (18 years or older) who arrived within 3.5 hours of last known well and for whom IV thrombolytic therapy was initiated within ≤60 minutes of arrival |
| STK02 | Numerator: Total number of adults 18 years or older presenting with a principal discharge diagnosis of ischaemic or haemorrhagic who were admitted to a stroke or neuro intensive care unit within 3 hours of arrival at hospital emergency department.<br><br>Denominator: Total adult 18 years or older with a principal discharge diagnosis of ischemic or haemorrhagic stroke who were admitted via the hospital emergency department with acute stroke symptoms. |
| STK04 | denominator exclusion:<br>o haemorrhagic transformation of infarct |
| STK06 | • denominator exclusion:<br><br>Principal diagnosis of cerebral venous thrombosis<br>o Liver dysfunction |
| STK08 | denominator exclusion:<br>TIA |
| STK09 | Denominator Guidance: All index stroke admissions are counted in the denominator, but it is only the index admission (and not the readmission) which is counted in the denominator. In case of multiple readmissions, the index admission is only counted once |
| STK011 | Add a word principle to definitions |
| STK012 | denominator exclusion:<br>Patients who receive both iv-tPA AND mechanical thrombectomy |
| ST013 to STK 19 | New KPIs |