

## Acute Ischemic Stroke (AIS) IPEC Data Collection Help Document

### 1. Identifying patients with ischemic stroke

To capture both stroke admissions and in-hospital strokes, a variety of methods are recommended:

A. ICD-9 code lists. Local Information Resources Management and/or Clinical Applications Coordinators can assist with pulling monthly lists of patients with ischemic stroke discharge diagnoses codes. Suggested codes that should be included are:

433.01	OCCLUSION AND STENOSIS OF BASILAR ARTERY WITH CEREBRAL INFARCTION
433.10	OCCLUSION AND STENOSIS OF CAROTID ARTERY WITHOUT CEREBRAL INFARCTION
433.11	OCCLUSION AND STENOSIS OF CAROTID ARTERY WITH CEREBRAL INFARCTION
433.21	OCCLUSION AND STENOSIS OF VERTEBRAL ARTERY WITH CEREBRAL INFARCTION
433.31	OCCLUSION AND STENOSIS OF MULTIPLE AND BILATERAL PRECEREBRAL ARTERIES WITH CEREBRAL INFARCTION
433.81	OCCLUSION AND STENOSIS OF OTHER SPECIFIED PRECEREBRAL ARTERY WITH CEREBRAL INFARCTION
433.91	OCCLUSION AND STENOSIS OF UNSPECIFIED PRECEREBRAL ARTERY WITH CEREBRAL INFARCTION
434.00	CEREBRAL THROMBOSIS WITHOUT MENTION OF CEREBRAL INFARCTION
434.01	CEREBRAL THROMBOSIS WITH CEREBRAL INFARCTION
434.11	CEREBRAL EMBOLISM WITH CEREBRAL INFARCTION
434.91	CEREBRAL ARTERY OCCLUSION UNSPECIFIED WITH CEREBRAL INFARCTION
436	ACUTE, BUT ILL-DEFINED, CEREBROVASCULAR DISEASE

B. Active surveillance. Since ICD-9 lists will not identify all patients with in-hospital stroke and those that are transferred, active surveillance is also suggested as a supplement to identify all cases of acute ischemic stroke. Admission logs, Neurology consult logs, Rapid Response Team logs, and Radiology logs may be useful, depending on the practice at your facility.

C. Reports. If your facility is using Reminder Dialogs (templated CPRS stroke notes with embedded Health Factors) then Fileman Reports can be constructed to capture cases with these Health Factors. For example, the tPA checklist and NIH Stroke Scale elements may be done this way. Searching can also be accomplished using CPRS note titles. However, these reports should not be the sole source of case identification since the reports only identify patients where the specific note template or title was used.

## 2. NIH Stroke Scale Indicator

### Overview of the NIHSS indicator

This indicator evaluates the proportion of patients with ischemic stroke who have an NIH Stroke Scale (NIHSS) score documented in the medical record. The timing of the documentation varies for patients who are potentially eligible for thrombolysis (tPA) versus those who are not eligible for thrombolysis. This indicator requires that the NIHSS be documented within 45 minutes of arrival for patients eligible for tPA and within 24 hours of arrival for patients not eligible for tPA.

A. Denominator (included patients). Patients with ischemic stroke who are cared for at your facility and patients who are transferred from your facility to another acute care facility are eligible for this indicator. The module asks for you to report separately the (1) total number of ischemic stroke patients cared for at your facility (patients ischemic stroke on arrival to acute care and patients with a stroke who are already admitted to the hospital) and (2) the total number of ischemic stroke patients transferred out of your facility to another hospital for acute stroke care.

B. Exclusions. Patients are not eligible for this indicator if they were admitted for performance of elective carotid endarterectomy or if they were discharged prior to end of hospital day 1.

C. Numerator. Documentation of:

- the NIHSS score within 45 minutes of arrival (or 45 minutes of symptom recognition for patients with in-hospital stroke) for patients  $\leq 120$  minutes of stroke symptom onset,
- within 24 hours of admission (or symptom recognition for patients with in-hospital stroke) for patients minutes  $> 120$  minutes of symptom onset, or
- prior to transfer for patients being transferred to another hospital for acute stroke care pass this quality indicator.

D. Documentation and Timing. The NIHSS can be recorded as a total summed score, or as individual items without a summed score. The summed score is preferable as it provides additional clinical information about stroke severity which may guide clinical decision making. The NIHSS may be documented as free text in a note or with a template. The use of a Reminder Dialog note can be very helpful, since a report could be run monthly to assess which patients had this note type completed. If the summed NIHSS score is stored as a health factor in such a note then the report could also provide that information. However, since some providers may just use free text to record the NIHSS it is strongly recommended that you search any patients in whom the templated note is not used to be sure to capture all patients that pass the indicator.

For patients who are transferred immediately to another VA or non-VA facility, the NIHSS should be documented as part of the acute stroke assessment prior to transfer, so patients being transferred will typically be eligible for this indicator and documentation of the NIHSS should be present in the notes recorded prior to transfer.

The time that a note containing the NIHSS was started should be used as the time of the NIHSS (not the time that the note was signed, since this may be delayed) unless other documentation is specifically provided about the time that the NIHSS was done.

An NIHSS Reminder Dialog is available by contacting the Stroke QUERI Administrative Coordinator (Jennifer.Myers@va.gov); this must be sent to a local Clinical Applications Coordinator so please identify the person at your facility that should receive this Reminder Dialog.

### 3. tPA indicator

#### Overview of the thrombolysis indicator

This indicator evaluates the proportion of patients with acute ischemic stroke who are eligible for thrombolytic therapy who receive it within the recommended time frame. Specifically, this indicator examines two populations of patients:

- (a) those who arrive within 120 minutes of symptom onset or whose symptoms are recognized within 120 minutes for inpatients, and
- (b) those who arrive between 121 minutes and 210 minutes after symptom onset or whose symptoms are recognized between 121 minutes and 210 minutes after symptom onset for inpatients.

For this measure thrombolytic therapy involves the use of tissue plasminogen activator (t-PA) delivered intravenously (IV). For patients with symptoms within 120 minutes of symptom onset, IV t-PA should be initiated (at this hospital or at the hospital to which the patient is transferred) within 180 minutes (3 hours) of symptom onset and for patients within 121-210 minutes of symptom onset, IV t-PA should be initiated within 270 minutes (4 ½ hours) of symptom onset.

In order to identify those patients eligible for thrombolysis, the proportion of patients within the tPA time window who have specific exclusions to thrombolysis are also recorded. Although many patients have more than one exclusion for thrombolysis, a single exclusion criteria felt to be primarily responsible for excluding the patient should be recorded.

A. Denominator (included patients). This measure includes patients with a diagnosis of ischemic stroke on arrival to acute care, and patients with a diagnosis of ischemic stroke who are already admitted to the hospital (in-hospital stroke), and patients with a diagnosis of ischemic stroke on arrival to acute care who are transferred to another hospital for acute ischemic stroke care.

The most critical aspect is identifying the time from symptom onset, since this is the element that most commonly makes patients ineligible for tPA. **Symptom onset is defined as the time when the patient first experienced stroke symptoms OR if that time is not known, the time the patient was last reported to be in their normal state/last known well.**

As described above, two populations of patients are eligible for this indicator:

1. Patients with acute ischemic stroke with hospital arrival time within 2 hours ( $\leq 120$  minutes) after symptom onset and patients who have a stroke while admitted for any reason whose stroke symptoms are recognized within 2 hours ( $\leq 120$  minutes) after symptom onset.
2. Patients with acute ischemic stroke with hospital arrival time between 2 hours and 1 minute ( $\geq 121$  minutes) and 210 minutes ( $\leq 3 \frac{1}{2}$  hours) after symptom onset and patients who have a stroke while admitted for any reason whose stroke symptoms are recognized between 2 hours and 1 minute ( $\geq 121$  minutes) and 210 minutes ( $\leq 3 \frac{1}{2}$  hours) after symptom onset.

**B. Exclusions.** Patients are not eligible for this indicator if they:

1. Are admitted for the performance of elective carotid endarterectomy;
2. Arrive at the facility >210 minutes (>3 ½ hours) after symptom onset or stroke symptoms were recognized >210 minutes (>3 ½ hours) after symptom onset for inpatients;
3. Have an unknown time of symptom onset;
4. Have a documented reason for no thrombolytic administration (e.g., the documentation of any contraindication to thrombolytic therapy including allergy per the NINDS trial criteria for patients treated within 3 hours or the ECASS-III trial criteria for patients treated between 3 and 4 ½ hours);
5. Have documentation that the patient refused thrombolysis; or
6. Received t-PA at another hospital prior to coming to this hospital.

**C. Numerator.** For patients with acute ischemic stroke within 2 hours (≤120 minutes) after symptom onset, documentation of IV thrombolytic therapy that was initiated at this hospital within 3 hours (≤ 180 minutes) of symptom onset.

For patients with acute ischemic stroke between 2 hours and 1 minute (≥121 minutes) and 210 minutes (≤3 ½ hours) after symptom onset, documentation that IV thrombolytic therapy was initiated at this hospital within 4 1/2 hours (≤ 270 minutes) of symptom onset.

**Patients eligible for the indicator who are transferred to another facility (VA or non-VA) for acute stroke care must be included in this indicator and the receipt of t-PA according to these definitions must be documented at the outside facility.**

**D. Documentation and Timing.** The most critical aspect is identifying the time from symptom onset, since this is the element that most commonly makes patients ineligible for tPA. Symptom onset is defined as the time when the patient first experienced stroke symptoms OR if that time is not known, the time the patient was last reported to be in their normal state.

The time of symptom onset (or time last known well) often varies as different people obtain the patient's history. For purposes of this indicator, if different times are documented use the time of symptom onset that is latest (giving maximal amount of time to give t-PA) or the time documented by the t-PA decision-maker (usually the neurologist or Stroke Team member). For example, if an ED triage note mentions time of onset as 08:00, but the Stroke Team note documents that the patient was actually seen dragging his right leg at 06:40, then the symptom onset time of 06:40 should be used in all future assessments of time to t-PA.

Patients with symptoms on awakening should not have the time of awakening counted as their symptom onset time. These patients should have their time last known well counted as the symptom onset time.

The time that t-PA infusion was started (not completed) should be documented in nursing and/or physician notes. If there is no specific documentation as to the time t-PA was started, use the

time that the note mentioning t-PA was started (not the time that the note was signed, since this may be delayed).

E. Other thrombolysis related data elements. In order to better understand and support high quality thrombolysis care for veterans with acute ischemic stroke, other data elements related to thrombolysis must also be reported. These include:

a. Number of patients who received t-PA (IV, IV-IA, IA) for acute ischemic stroke.

This total should include all patients who received t-PA for ischemic stroke treatment (not for myocardial infarction or any other reason) and should include patients who received t-PA by any routine (intravenous, intra-arterial). Do not exclude patients on the basis of time from symptom onset to hospital presentation for this data element.

b. Number of patients with ischemic stroke within 2 hours of symptom onset in whom a t-PA checklist is documented.

c. Number of patients with ischemic stroke within 3 ½ hours of symptom onset in whom a t-PA checklist is documented.

A t-PA checklist includes documentation that a patient does not have one of the many contraindications to thrombolytic therapy. The use of a checklist can be documented on paper and scanned into the record, or it can be documented using a templated note or Reminder Dialog. Provider text recording of “no exclusions” does not count as use of a checklist.

The use of a Reminder Dialog as shown below is highly recommended, since a report could be run monthly to assess which patients had this note completed. A tPA Checklist Reminder Dialog is available by contacting the Stroke QUERI Administrative Coordinator (Jennifer.Myers@va.gov); this must be sent to a local Clinical Applications Coordinator so please identify the person at your facility that should receive this Reminder Dialog.

Template: Acute Ischemic Stroke/t-PA Criteria

ACUTE ISCHEMIC STROKE/t-PA THERAPY INCLUSION/EXCLUSION CRITERIA

Patient:

INCLUSION CRITERIA:

- No Age 18 or over.
- No Clinical signs of ischemic stroke causing measurable neuro deficit: NIHSS 4-22
- No Time of symptom onset is less than 180 minutes before start of t-PA.

(Any answer of "NO" on inclusion criteria prohibits use of t-PA.)

EXCLUSION CRITERIA:

- No Evidence of intracranial hemorrhage on CT.
- No Minor symptoms or major symptoms, which are rapidly resolving.
- No High clinical suspicion of subarachnoid hemorrhage, even with normal CT.
- No Active internal (GI or GU) bleeding within 21 days.
- No Known bleeding diathesis, including but not limited to:  
platelet count < 100,000;  
heparin within 48 hrs. with PTT > upper limit of normal;  
anticoagulant use with PT>15 secs.
- No Within 3 mos. of intracranial surgery, serious head trauma or stroke.
- No Within 14 days of major surgery or serious trauma.
- No Recent arterial puncture at noncompressible site.
- No Lumbar puncture within 7 days.
- No History of intracranial hemorrhage & U malformation

\* Indicates a Required Field    Preview    OK    Cancel

*d. For all patients with ischemic stroke arriving within 2 hours of symptom onset and who were not given t-PA, the primary reason that the patient did not receive t-PA, and for all patients with ischemic stroke arriving between 2 hours and 1 minute and 3 ½ hours of symptom onset and who were not given t-PA, the primary reason that the patient did not receive t-PA .*

For this data element, six options are available to describe the reasons patients were not given t-PA. An individual patient may have more than one reason but only include the primary reason that they are not eligible for t-PA (**one exclusion per patient**). The total number of patients that did not receive t-PA for one of the reasons listed below should be entered for each month. The “other” category should only be used if there is a documented reason for not giving thrombolysis but that reason does not fit into one of the other categories. The total exclusions will be summed and subtracted from the total number presenting within the two tPA time windows to identify the number of eligible patients (denominator) in each time window. The six options are as follows:

- Excess bleeding risk (as identified by the t-PA checklist of exclusion criteria)
- CT signs of infarct > 1/3 of MCA territory
- Symptoms rapidly improving
- Minor stroke (NIHSS <3)
- Patient or family refused
- Other



#### 4. Dysphagia indicator

Suggestions for capturing the key data elements in this indicator are given below. The most critical aspect is determining when the patient first had something by mouth, either a medication or food. This requires careful assessment of ED and inpatient nursing notes.

A. Denominator (Included patients): All patients with ischemic stroke (admissions and in-hospital strokes). Patients transferred to another hospital for stroke care may be eligible and are not automatically excluded (see below).

##### B. Exclusions:

- Patients who have no oral intake throughout the entire hospital stay (or for patients with in-hospital stroke, from the time of recognition of stroke symptoms to either transfer or discharge).
- Patients who are placed on comfort measures only prior to any oral intake.
- Patients with a documented reason for no dysphagia screening before oral intake.

C. Numerator: Patients with a documented dysphagia screening or dysphagia evaluation performed before administration of food, fluids, or medication by mouth.

Any documented type of dysphagia screening that is approved as part of routine stroke assessment and care at your facility is allowed. Examples include:

- A standardized dysphagia questionnaire in a nursing note
- A bedside water swallow test (by any clinician)
- A formal Speech Language Pathology evaluation
- Documentation by the provider (MD, NP, or PA) that the patient's swallowing is adequate for oral intake

Isolated elements of the neurologic exam (e.g. tongue protrusion or palate elevation) do not count as dysphagia screening. Mention in the review of systems that the patient reports no difficulty swallowing does not count as dysphagia screening.

D. Documentation and timing: it is very important to review ED notes to determine if the patient is given anything by mouth in the ED. If no food or medications were given in the ED and the patient was admitted, or if the patient had in-hospital stroke, then the BCMA logs can be used to identify time of medications and nursing notes can be used for time of food intake.

If a specific time notation is not given for a medication or food, then the time that the note was started may be used. Similarly, the time that a note that includes mention of dysphagia screening was started may be used as the time of the dysphagia screening (instead of using the time the note was signed).

## 5. Other resources for documentation and quality improvement help:

VA AIS Directive SharePoint site:

<http://vaww.infoshare.va.gov/sites/MedicalSurgical/strokecare/Shared%20Documents/Forms/AllItems.aspx>

This site contains recordings and PowerPoint presentations from the 8 hours of AIS training provided November-December 2011. It also contains AIS guidelines documentation, sample VA implementation plans, and sample AIS pathways.

Stroke QUERI website: <http://www.queri.research.va.gov/str/default.cfm>

This site summarizes the activities of the VA Stroke Quality Improvement Research Initiative, and includes links to the national VA Quality of Inpatient Stroke Care report (FY07 data), the AIS Directive SharePoint, the Stroke Toolkit, and the Stroke Quality Improvement Network (SQUINT) sign up information.

Stroke Toolkit <http://www.queri.research.va.gov/tools/stroke-quality/>

This toolkit contains resources and materials related to the inpatient stroke quality indicators measured in the national VA Quality of Inpatient Stroke Care report, including example pathways, policies, order sets, and data collection tools.

VA Stroke Quality Improvement Network (SQUINT) <http://www.queri.research.va.gov/str/squint/>

This is a national network of VA clinicians interested in improving stroke care. There is a monthly call and/or Live Meeting (first Tuesday of the month at 2P EST) to support stroke quality improvement efforts, facilitate communication about stroke care and programs, and serve as a forum to share best practices. To be added to the SQUINT Listserve contact [Laura.Plue@va.gov](mailto:Laura.Plue@va.gov).

### Non-VA stroke quality improvement

Other sources of information related to improving the quality of stroke care include:

- American Heart/American Stroke Association Get With the Guidelines-Stroke program
- Joint Commission Primary Stroke Center Certification Program
- National Quality Forum