SSNAP | Sentinel Stroke National Audit Programme

KING'S College LONDON

Critical Time Standards for Stroke

Help Notes

Help Notes for Critical Time Standards for Stroke

Introduction

Stroke Critical Time Standards Measures:

There are four measures which SSNAP collects that will be reported on for the Critical Time Standards for Stroke. These are:

1. **Clinical Assessment:**
   - The proportion of stroke patients who are assessed (in person or virtually), within one hour, by a trust-designated clinician with approved stroke competencies who is authorised to decide the patient's diagnosis and to initiate their management plan – including, but not limited to, reperfusion therapy.
2. **Brain Scanning:**
   - **Plain CT Head:** the proportion of stroke patients who receive a plain CT head scan within one hour of arrival at first hospital. Does not include patients who had their stroke whilst already in hospital.
   - **CTA:** the proportion of stroke patients who receive a CTA scan within one hour of arrival at first hospital. Does not include patients who had their stroke whilst already in hospital.
   - **CT Head or CTA:** Proportion of stroke patients who receive either a plain CT head scan or a CTA scan within one hour of arrival at first hospital. Does not include patients who had their stroke whilst already in hospital. *Note: this combined measure is not one of the standards, but will be reported in SSNAP reports*
3. **Thrombolysis:**
   - **Gross Rate:** the proportion of stroke patients who receive thrombolysis.
   - **Within One Hour:** the proportion of thrombolysed stroke patients who receive their thrombolysis within one hour of arrival at first hospital. Does not include patients who had their stroke whilst already in hospital.
4. **Intracerebral Haemorrhage (ICH):**
   - The proportion of anticoagulated ICH patients and ICH patients with systolic blood pressure over 150 mmHg who are given, respectively, reversal agents or antihypertensives within one hour.

Inclusion Criteria for the audit:

- All stroke patients admitted to hospital (or who suffer an acute stroke whilst in hospital for standards 1 and 4).
- Adults aged 16 and over.
- A confirmed diagnosis of stroke (I61, I63, I64).

Exclusion Criteria:

- All patients who have a stroke whilst in hospital (for standards 2 and 3 only).

Eligible teams:

- All routinely admitting teams in England.

Clock Start

We use the term 'clock start' in SSNAP. This refers to the date/time a patient arrives at the first hospital (i.e. as soon as they are in the hospital, not time of admission to a ward) except for those patients who were already in hospital at the time of new stroke occurrence, where 'clock start' refers to the date/time of onset of stroke symptoms.

Data Collection:

From 1 September, data will be collected and inputted on a monthly basis. Data for admissions from the beginning to the end of the calendar month should be entered onto SSNAP and **locked to 72 hours** within 5 working days following the last day of the month (16:59:59), allowing time for data entry and sign-off.

If the patient dies or is discharged within 1 hour it is preferable that you complete as much of the proforma as possible and record the discharge destination in Q7.1. In many of these cases, you will not be able to lock the record.

If the record is transferred to another team within 72 hours, the record will only be analysed if locked to 72 hours by any team in the pathway. The record will be assigned to the team starting the record (i.e., the directly admitting team).

Participation:

From 1 September 2022, SSNAP/NHSE CPU will provide shadow reports of CTS measures to all participating routinely admitting teams. Participation is optional at this time and will be mandatory in due course. All teams are encouraged to participate in anticipation of the official launch.

As SSNAP will monitor monthly case ascertainment and participation during the shadow-reporting phase of this initiative, **we require that any trust/team planning to participate notify the SSNAP Helpdesk of their plans to participate**. Please email ssnap@kcl.ac.uk with the following information: Trust and team name, SSNAP team code, key contact information (if different from SSNAP lead).

Reporting:
Prior to the data locking deadline each month, SSNAP will inform participating teams of their case ascertainment to support teams with their preparations.

SSNAP will provide results tables of CTS measures for all participating routinely admitting teams AND any routinely admitting teams locking at least the threshold of 75% of expected monthly caseload (regardless of participation status). The results from participating teams only will be shared with NHSE.

Technical information

Term	Definition	Relevant Question(s) in SSNAP core dataset version 5.1.1
Clock start	Refers to the date and time of arrival at first hospital for newly arrived patients, or to the date and time of symptom onset if patient already in hospital at the time of their stroke.	**Question 1.13**: Date/time patient arrived at first hospital OR **Question 1.11**: Date/time of onset/awareness of symptoms
Hospital Arrival	Refers to the date and time of arrival at hospital for newly arrived patients.	**Question 1.13:** Date/time patient arrived at first hospital
Out-of-hospital Symptom Onset	Patients whose first stroke symptom occurred while they were not already admitted to a hospital (for any reason)	**Question 1.10:** Was the patient already an inpatient at the time of stroke?
Confirmed Diagnosis of Stroke	Patients whose definitive diagnosis was stroke.	**Question 1.9:** What was the diagnosis?
Stroke Subtype	Corresponds to the Stroke Subtype (i.e., 'Infarction' or 'Primary Intracerebral Haemorrhage')	**Question 2.5:** What was the type of stroke?

For each standard the specific SSNAP questions to be used in calculating the standard are described below. This requires all questions in Sections 1-3 to be complete. If the patient dies within 1 hour please record this in Q7.1 and the date of death in Q7.1.1.

Standard 1: Patients are assessed by a trust-designated clinician with stroke competencies within 1 hour of clock start

Clock start to Stroke Clinician Assessment Time	Time from clock start to assessment by stroke specialist (as specified in question 3.3a, either in person or by telemedicine) **Denominator**: All patients are eligible	**Question 1.9:** What was the diagnosis? **Question 1.10:** Was the patient already an inpatient at the time of stroke? **Question 1.11**: Date/time of onset/awareness of symptoms **Question 1.13:** Date/time patient arrived at first hospital **Question 3.3a:** Date and time contact was first made with a stroke specialist consultant about this case (whether in person or otherwise) following a clinical assessment. **Question 3.3b:** How was first contact made with the stroke consultant? (Options: In Person & Telemedicine) **Question 3.3c:** If first contact with consultant was not in person, date and time first assessed by stroke specialist consultant in person

Standard 2: Patients with stroke are scanned within 1 hour of arrival at hospital

Hospital Arrival to Brain Scan Time	Time from hospital arrival to brain scan time. **Denominator:** All patients with confirmed diagnosis of stroke and out-of-hospital symptom onset.	**Question 1.9:** What was the diagnosis? **Question 1.10:** Was the patient already an inpatient at the time of stroke? **Question 1.13:** Date/time patient arrived at first hospital **Question 2.4:** Date and time of first brain imaging after stroke **Question 2.4.1:** Modality of first brain imaging after stroke

Standard 3: Patients receive thrombolysis within 1 hour of arrival at hospital

Gross thrombolysis rate	Proportion of stroke patients who receive thrombolysis. **Denominator**: All patients are eligible	**Question 1.9:** What was the diagnosis? **Question 2.6:** Was the patient given thrombolysis?
Hospital Arrival to Intravenous Thrombolysis	Time from arrival at hospital to administration of intravenous thrombolysis. **Denominator**: All patients with confirmed diagnosis of stroke and out-of-hospital symptom onset and received thrombolysis.	**Question 1.9:** What was the diagnosis? **Question 1.10:** Was the patient already an inpatient at the time of stroke? **Question 1.13:** Date/time patient arrived at first hospital **Question 2.6**: Was the patient given thrombolysis? **Question 2.7:** Date and time patient was thrombolysed.

Standard 4: Patients with a haemorrhagic stroke and being prescribed an anticoagulant should have a reversal of the anticoagulant within 1 hour, OR patients with haemorrhagic stroke with elevated systolic blood pressure (>150) should be given BP-lowering agents within 1 hour.

Clock start to Anticoagulant Reversal or BP-lowering	Time from clock start to administration of appropriate anticoagulant reversal agent. **Denominator:** Confirmed primary intracerebral haemorrhage patients who were on anticoagulant medication amenable to reversal prior to admission. AND Confirmed primary intracerebral haemorrhage patients, with elevated systolic BP (>150).	**Question 1.9:** What was the diagnosis? **Question 1.10:** Was the patient already an inpatient at the time of stroke? **Question 1.11:** Date/time of onset/awareness of symptoms **Question 1.13:** Date/time patient arrived at first hospital **Question 2.1.7:** Was the patient on anticoagulant medication prior to admission? **Question 2.1.7a:** What anticoagulation was the patient prescribed before their stroke? **Question 2.5:** What was the type of stroke? **Question 2.12:** What was the patient's systolic blood pressure on arrival at hospital (the first SBP taken in the hospital)? **Question 2.13:** Date/time of acute blood pressure lowering treatment, if given to the patient within 24 hours of onset? **Question 2.14:** Date/time SBP (Systolic Blood Pressure) of 140mmHg or lower was first achieved?

		Question 2.15: Was the patient given anticoagulant reversal therapy? **Question 2.15.1:** What reversal agent was given **Question 2.15.2:** Date and time reversal agent was given

Helpnotes for relevant questions

Question no	Question	Answer options	Guidance / definitions	Critical Time Standard this question relates to
1.9	What was the diagnosis?	Stroke; TIA; Other	If stroke is entered, please continue the core dataset. If TIA or Other is selected, please go straight to the TIA/Other section (non-mandatory). 'Move to TIA/Other patient dataset' tab will appear once either of these diagnoses is selected. All stroke patients should be entered onto the web tool, whether this is known prospectively (when they are admitted) or retrospectively (by checking hospital coding). It is optional to enter TIA patients (inpatients and outpatients) and patients who elicit a response from the stroke team (stroke mimics). These records will not be included in our analysis but can be used for internal reporting purposes. To change the diagnosis once a record is started: If the record was started as a stroke but confirmed as TIA or Other, select TIA or Other in question 1.9 to change diagnosis. If the record was started as Other or TIA, but confirmed as a stroke, choose either "TIA" or "Other" in the diagnosis drop-down on Clinical Case Management and find the record. Within the record choose "Change to stroke	Standard 1 Standard 2 Standard 3 Standard 4

Question no	Question	Answer options	Guidance / definitions	Critical Time Standard this question relates to
			care" above the progress bar. The record will now show under "Acute stroke" in Clinical Case Management.	
1.10	Was the patient already an inpatient at the time of stroke?	Yes; No	Timings will be measured from time of onset of symptoms rather than time of arrival if patient was an inpatient. Previous national audits (Sentinel and SINAP) have shown the quality of care to be worse for patients who suffer a stroke while an inpatient.	Standard 1 Standard 2 Standard 3 Standard 4
1.11	Date/time of onset/awareness of symptoms	dd/mm/yyyy hh:mm	If best estimate or stroke during sleep (for 1.11.1), the date should be the date last known to be well. The time can be the time last known to be well, or left blank if a best estimate cannot be made (and not known entered for 1.11.2). However, for inpatients who had a stroke during sleep, enter the date/ time the patient first woke up (cannot be not known for inpatient, and should not be time last well, as for inpatient strokes, standards are measured from time of onset).	Standard 1 Standard 4
1.13	Date/time patient arrived at first hospital	dd/mm/yyyy hh:mm	*Must be after 1.11 and 1.12 unless 1.10="Yes"* The soonest time should be used (preferably ambulance to hospital handover time). If, for instance, the time the patient is clerked as having arrived at hospital is later than the time on their scan, the scanning time should be used as arrival time, as the patient must have arrived at the hospital even though the time on the hospital system is later.	Standard 1 Standard 2 Standard 3 Standard 4
2.1.7	Was the patient on anticoagulant medication prior to admission?	Yes; No; No but	*Yes is available even if patient is not in AF prior to this admission.* To select 'No but' in answer to this question means that it is recorded that a prescriber judged the patient's risk of a bleeding	Standard 4

Question no	Question	Answer options	Guidance / definitions	Critical Time Standard this question relates to
			complication to outweigh the benefit in stroke risk reduction. If this cannot be confirmed then the answer to this question is 'No'. Anticoagulation refers to treatment with an anticoagulant: Vitamin K antagonists: Warfarin and Phenindione DOAC = Direct Oral Anticoagulant: Apixaban (Eliquis), Rivaroxaban (Xarelto) and Dabigatran (Pradaxa), Edoxaban (Lixiana). Heparin = Includes treatment dose unfractionated heparin and Low Molecular Weight Heparin Anticoagulation does not refer to treatment with aspirin, clopidogrel or another antiplatelet agent.	
2.1.7(a)	What anticoagulation was the patient prescribed before their stroke?	• Vitamin K antagonist; (includes Warfarin) • DOAC; • Heparin	*Available if 2.1.7 = 'Yes'. Select all that apply.* Vitamin K antagonists: Warfarin and Phenindione DOAC = Direct Oral Anticoagulant: Apixaban (Eliquis), Rivaroxaban (Xarelto) and Dabigatran (Pradaxa), Edoxaban (Lixiana). Heparin = Includes treatment dose unfractionated heparin and Low Molecular Weight Heparin Anticoagulation does not refer to treatment with aspirin, clopidogrel or another antiplatelet agent.	Standard 4
2.4	Date and time of first brain imaging after stroke	Either Date dd/mm/yyyy and time	*Must be after 1.11 and 1.13*	Standard 2

Question no	Question	Answer options	Guidance / definitions	Critical Time Standard this question relates to
		hh:mm OR "Not imaged"	If the patient was scanned at another hospital: Option 1: If the first admitting hospital is registered on SSNAP then they should start a stroke record. Sections 1, 4, and the transfer information in section 7 should be answered. Question 2.4 'Date and time of first imaging after stroke' should also be answered by the first admitting hospital. The patient record can then be transferred to the next team treating the patient. Option 2: If the first admitting hospital is not registered on SSNAP, then the team to which the patient is transferred following the scan should start the record, entering the patient's scan time as one minute after the arrival time at the second team. Option 3: If the stroke patient had their scan by a non-admitting team before being transferred to another hospital, then the admitting team should start the record and enter the time of scan as 1 minute after arrival at the admitting hospital. Option 4: For thrombectomy patients ONLY: the SSNAP record should be started by the team performing the initial assessments. If your team sees the patient first and performs the initial assessment (even if they were not admitted to the hospital) you should start the record and then transfer to the thrombectomy centre.	

Question no	Question	Answer options	Guidance / definitions	Critical Time Standard this question relates to
			If the patient was scanned as an outpatient but not admitted until a later date (e.g. 24 or 48 hours later): The date that the patient arrived as an outpatient should be entered as the arrival time on SSNAP. The scanning time can be entered as the time when the scan was carried out.	
2.4.1	Modality of first brain imaging after stroke	Plain/non-contrast CT; CT Intracranial angiogram; CT Perfusion; Plain/non-contrast MRI; Contrast-enhanced MRA; MR Perfusion	Unavailable if 2.4 = “Not imaged” Only one option can be selected, and this should be the modality used for the first brain imaging after stroke onset. If multiple scans were carried out during the patient’s first visit to the Radiology Department/scanner, the most advanced method of imaging should be selected, e.g. if the patient had a plain CT followed by a CT angiogram (CTA) followed by CT perfusion (CTP) on the same first visit to the scanner, then select ‘CT perfusion’	Standard 2
2.5	What was the type of stroke?	Either "Infarction" OR "Primary Intracerebral haemorrhage"	*Unavailable if 2.4="Not imaged"* Suspected haemorrhagic conversion of an infarct should be recorded as ‘infarction’. A Venous stroke should be entered as a comment.	Standard 4
2.6	Was the patient given thrombolysis?	Yes; No; No but	*"No but" auto-selected if 2.5 is "Primary Intracerebral Haemorrhage"*	Standard 3
2.7	Date and time patient was thrombolysed.	dd/mm/yyyy hh:mm	Must be after 1.11 or 1.13 or 2.4 and cannot be more than 12 hours after 1.11 or 1.13	Standard 3

Question no	Question	Answer options	Guidance / definitions	Critical Time Standard this question relates to
			Available if 2.6 = Yes	
2.12	What was the patient's systolic blood pressure on arrival at hospital (the first SBP taken in the hospital) (note: if onset in hospital, first systolic blood pressure after stroke onset) (mmHg)?	Value range: 30-300 mmHG	*Answer required for all haemorrhagic patients (2.5=PIH)* Should be the first systolic blood pressure (SBP) taken in hospital. If stroke onset was in hospital, this should be the first SBP recorded after stroke onset. Blood pressure is measured in 'millimetres of mercury' (mmHg) and is written for example as 120/80mmHg (blood pressure is '120 over 80'). The first (or top) number is the **systolic** blood pressure (SBP).	Standard 4
2.13	Date/time of acute blood pressure lowering treatment, if given to the patient within 24 hours of onset? (if onset is unknown, only answer if given within 1 day of stroke onset)	dd/mm/yyyy hh:mm; Not given	*Answer required for all haemorrhagic patients (2.5=PIH).* Time of start of first dose or start of infusion/treatment If onset is known (1.11.1 is 'precise' and 1.11.2 is 'precise' or 'best estimate') date/time of blood pressure lowering must be within 24 hours of on 1.11 If onset is not known date/time of blood pressure lowering must be on the same day or next day of 1.11.	Standard 4
2.14	Date/time SBP (Systolic Blood Pressure) of 140mmHg or lower was first achieved?	dd/mm/yyyy hh:mm; Not achieved within 24 h	*Answer if Q2.12 is greater than 140* *Date/Time must be within 24 hours of clock start* Where a patient has an SBP of over 140 upon arrival at hospital (or onset of stroke if onset in hospital), and where the SBP is	Standard 4

Question no	Question	Answer options	Guidance / definitions	Critical Time Standard this question relates to
			lowered to 140 or below, enter the first time an SBP of 140 or below was achieved, where this time is within 24 hours of clock start.	
2.15	Was the patient given anticoagulant reversal therapy?	Yes; No	*Available if 2.1.7 = 'Yes' and 2.5 = PIH.* Refers to specific treatment to reverse the effects of anticoagulant treatment, including PCC (Prothrombin Complex Concentrate), DOAC antidote, FFP (Fresh Frozen Plasma), Protamine and/or Vitamin K.	Standard 4
2.15.1	If 2.15=yes, what reversal agent was given?	PCC; DOAC antidote; FFP; Protamine; Vitamin K	*Available if 2.15 = 'Yes'. Select all that apply.* PCC = Prothrombin Complex Concentrate DOAC antidote = Direct Oral Anticoagulant antidote. Includes Idarucizumab, Andexanet alfa. FFP = Fresh Frozen Plasma Protamine Vitamin K	Standard 4
2.15.2	Date and time reversal agent was given.	dd/mm/yyyy hh:mm	*Available if 2.15 = 'Yes'.* Time of START of infusion If more than one reversal agent given, enter time of first reversal agent. Must be after time of arrival/onset of stroke for inpatients.	Standard 4

Question no	Question	Answer options	Guidance / definitions	Critical Time Standard this question relates to
3.3a	Date and time contact was first made with a stroke specialist consultant about this case (whether in person or otherwise) following a clinical assessment	dd/mm/yyyy hh:mm No contact made	Enter the date and time of first contact with a stroke specialist consultant regarding this patient following a clinical assessment. The purpose of the clinical assessment is to make a decision about how the patient will be managed, and therefore this assessment needs to be undertaken by a competent professional trained in undertaking assessments of neurological patients. The assessment would normally include examination of the patient, taking a detailed history, and would take the results of the imaging into consideration. First contact with the consultant can be made in person, by telephone or via telemedicine (must include the option to view the patient via video if required). In scenarios where the paramedic had received specific training to undertake assessments of neurological patients, this first contact could be before the patient arrives at hospital.	Standard 1
3.3b	How was first contact made with the stroke consultant?	In person; By telephone; Telemedicine (must include the option to view the patient via video if required)	*Must be completed if Q3.3a is not "no contact made". Not available to answer if Q3.3a is "no contact made".* Telemedicine is a system of remote patient assessment including review of brain imaging. It may include direct visual assessment of the patient via video call, although this is not essential, but must always include clinician to clinician discussion and visual review of brain imaging to enable acute management of stroke patients by specialists not on site.	Standard 1

Question no	Question	Answer options	Guidance / definitions	Critical Time Standard this question relates to
3.3c	If first contact with consultant was not in person, date and time first assessed by stroke specialist consultant in person	dd/mm/yyyy hh:mm	*Only available if 3.3b= "by telephone" or "telemedicine"* (must include the option to view the patient via video if required)*"* *Must be after Q3.3a "Date and time contact was first made with a stroke specialist consultant about this case (whether in person or otherwise)".*	Standard 1