



STROKE REGISTRY STANDARDS

Effective: April 15, 2022
Replaces: October 28, 2013

I. Purpose

The purpose of this policy is to establish standards for collecting and compiling information related to stroke patient care within Santa Clara County.

II. Definitions:

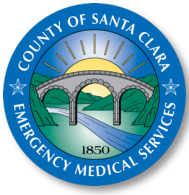
- A. Stroke Receiving Center: - Any hospital within Santa Clara County that has been designated by the Santa Clara County EMS Agency to receive stroke patients. This includes Primary Stroke Centers, Thrombectomy-capable Stroke Centers, and Comprehensive Stroke Centers.
- B. Stroke Registry- A registry is a list of patients and their relevant clinical data that can be sorted by a condition or set of conditions in order to improve and monitor the care of the population.

III. Policy

All designated Stroke Receiving Centers in Santa Clara County will provide the following data to Santa Clara County EMS Stroke System for monitoring and improvement.

IV. Data Collection

- A. Inclusion Criteria is based on clinical diagnosis rather than ICD codes but because they are required when entering primary reason for admission, they can be referenced for inclusion.
 - 1. Any patient who is diagnosed with the following:
 - a) Ischemic Stroke (ICD-10-163)
 - b) Subarachnoid hemorrhage (ICD-10-CM 160)
 - c) Intra-cerebral hemorrhage (ICD-10-CM 161)
 - d) Transient Ischemic Attack (ICD-10-CM G45, G46)
- B. Exclusion criteria:
 - 1. CEA without infarct
 - 2. Subdural Hematoma



C. Data elements to be collected (based on AHA Case Record Form):

1. Demographics:

- a) Gender
- b) Date of birth
- c) Age
- d) Zip Code
- e) Payment source
- f) Race
- g) Ethnicity

2. Admin data:

- a) Final Clinical Diagnosis related to stroke
- b) ICD9/ICD10 Codes
- c) Stroke etiology
- d) Arrival date and time
- e) Admit date
- f) If transferred from your ED, specify hospital name
- g) Reason for why patient transferred
- h) Reason for delay in transfer
- i) Discharge date
- j) Discharge disposition

3. Arrival and admission data:

- a) Patient location when stroke symptoms discovered
- b) Date and time the patient was last known to be well (Last Known Well)
- c) Date/Time of discovery
- d) How patient arrived at your facility
- e) If transferred, referral hospital discharge date/time
- f) If transferred, referral hospital name
- g) Referral hospital arrival date/time
- h) Reason for transfer to your hospital
- i) Was the patient an ED patient at the facility?
- j) Advanced notification by EMS?
- k) Patient location when stroke symptoms discovered

4. EMS Data (retrieved from ePCR):

- a) EMS Incident Number (run number)
- b) EMS unit dispatched date/time
- c) EMS unit arrived on scene date/time
- d) EMS arrived at patient date/time
- e) EMS unit left scene date/time
- f) Advanced notification by EMS? Date/time
- g) Discovery of stroke symptoms by EMS?
- h) Last Known Well documented by EMS?
- i) Blood glucose level documented by EMS
- j) Blood pressure documented by EMS
- k) Stroke Screen Tool used?
- l) Severity score (stroke screen tool total)
- m) If severity scale used, did it alter hospital destination (e.g., CSC vs. PSC).



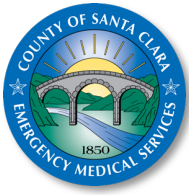
- n) EMS positive for LVO?
 - o) Destination decision made.
 - p) EMS thrombolytic checklist used.
 - q) Additional information provided as part of pre-notification?
 - r) Source used to obtain prehospital data
5. Medical History data:
- a) Previous known history of diabetes
 - b) Previous history of stroke
 - c) Ambulatory status prior to current event
 - d) Medications prior to admission:
 - a. Antiplatelet/anticoagulant
 - b. Antihypertensives
 - c. Cholesterol reducer
 - d. Antidepressant
6. Diagnosis and Evaluation Data:
- a) Had stroke symptoms resolved at time of presentation?
 - b) Initial NIH Stroke Scale/total score
 - c) Initial exam findings
 - d) Ambulatory status on admission
 - e) First Glasgow Coma Scale total
 - f) Brain imaging completed at your hospital for this episode of care.
 - a. Type
 - b. Date/time ordered
 - c. Date/time reported
 - d. Interpretation of first brain imaging after symptom onset
 - g) Vascular Imaging (CTA, MRA, DSA) performed?
 - a. Type
 - b. Date/time
 - c. MER ICA or MER MCA?
7. Thrombolytic Data:
- a) IV thrombolytic initiated at this hospital?
 - b) Date/time thrombolytic initiated?
 - c) Thrombolytic used?
 - d) Additional details related to this question per registry
 - e) Documented exclusion or relative exclusions for not initiating thrombolytics in respective time windows (per registry questions)
 - f) Cause for IV thrombolytic delay reasons (per registry questions)
8. Endovascular Therapy Data:
- a) Is there documentation of a suspected LVO in the medical record?
 - b) Is it that the patient is eligible for MER therapy or a mechanical thrombectomy procedure?
 - c) IA alteplase or MER initiation date/time
 - d) Is there documentation that the route of alteplase administration was intra-arterial?
 - a. Date and time that IA therapy was initiated.
 - b. Is there documentation that first endovascular treatment was greater than 8 hours after arrival at this hospital?
 - c. Date/time of skin puncture to access atrial site for endovascular treatment



- d. Reasons for not performing mechanical endovascular reperfusion therapy (per registry questions)
- e. If MER treatment, what type (per registry questions)
- f. Date and time of the first pass of clot retrieval device.
- g. Reason for delay in performing clot retrieval
- e) Complications of reperfusion therapy (either thrombolytic, or endovascular)?
- 9. Other hospital treatment and screening:
 - a) Dysphagia Screening? Results
 - b) NPO throughout hospital stay
 - c) VTE prophylaxis? Type
 - d) Was DVT or PE documented?
 - e) Active bacterial or viral infection on admission or during hospitalization
 - f) Modified Rankin Scale at discharge/total
 - g) Ambulatory status at discharge
 - h) Medications at discharge:
 - a. Antithrombotic
 - b. Anti-hypertensive treatment
 - c. Cholesterol reducing treatment
 - d. Statin medication
 - e. Anti-smoking treatment
 - f. Documented reason for not prescribing
 - i) Education/Lifestyle interventions
 - a. Risk factors for stroke
 - b. Warning signs and symptoms
 - c. Activation of EMS
 - d. Follow-up after discharge
 - e. Medications
 - f. Smoking cessation
 - g. Reducing weight/increasing activity
 - h. Diet
 - i. Assessed for rehab services

D. Data collection process

1. All designated Stroke Centers will enter data into the *Get with the Guidelines* Stroke Registry. The Santa Clara County EMS Agency has global access and will obtain the relevant data entered by each facility.
2. Each facility is responsible for submitting data by agreed upon deadlines and is free of errors.
3. The Santa Clara County EMS Agency will aggregate quarterly data based on hospital discharge date.
4. The Santa Clara County EMS Agency is responsible for creating a quarterly system report which is presented at the Stroke Care System Quality Improvement Committee (SCSQIC). The report will include key performance indicators and benchmarks recommended by the *American Heart Association: Get with the Guidelines*.



E. Performance Indicators:

1. Total number of patients seen by stroke receiving centers per quarter.
2. Totals of type of strokes seen by the facility
3. Totals of patients' mode of arrival at facility
4. Total number of stroke patients transferred out for care
5. Total number of stroke patients transferred, including EMS Response Interval (to calculate door-in, door-out time).
6. Percent of suspected stroke patients that receive a prehospital stroke screening
7. Percent of suspected stroke patients that receive prehospital blood glucose check.
8. Percent of suspected stroke patients transported to appropriate stroke receiving center.
9. Totals of stroke patients receiving IV thrombolytics
10. Total of stroke patients receiving endovascular intervention
11. Median TLKW to thrombolytics
12. Median Time from ED arrival to thrombolytics in minutes for POV
13. Median time of arrival to thrombolytic for EMS
14. Median Door to skin puncture in minutes, EMS arrival
15. Median Door to skin puncture, POV arrival in minutes
16. Median Door to skin puncture, transfer in minutes

F. Stroke Benchmarks:

1. 90th percentile of TLKW to thrombolytic
2. 90th percentile of time of arrival to thrombolytic
3. Percentage of patients treated with thrombolytic within 60 minutes of arrival to facility
4. Percent of thrombolytic patient treated within 45 minutes
5. Percent of thrombolytic patients treated within 30 minutes
6. Percent of ischemic stroke patients meeting door-to device time within 90 minutes for direct arriving
7. Percent of ischemic stroke patients meeting door-to-device time within 60 minutes for transfer patients