Location: Medical Center Wide – 2370's	Old Policy Number:	On-Line Number: MCW 2371.50
Section: Emergency Procedures	Effective Date: 5/11	Page: 1 of 8
Title: Code Stroke - Emergency Department	Review / Revision Date: 2/14, 4/14, 3/15, 1/16	
Accountable Department or Committee: Code Steering Committee	☑ Medical Center Wide ☐ Department Specific	☐ Non-Clinical ☑ Clinical
Approved by: Policy and Procedures Committee – 1/18/16 Medical Executive Committee – 1/25/16		

Workplace Safety Key Points (WSKP) are included in this document for your protection.

1. Always use Standard Precautions including Personal Protective Equipment (PPE) when handling any blood/body fluid, liquids, and chemicals (e.g. disinfectant) or when handling spills.
2. Handwashing is the single most effective means of controlling the spread of infection; remember to always WASH YOUR HANDS.
3. Use proper body mechanics and equipment during patient transfer and/or repositioning. When lifting, bend at the hips and/or knees and keep your back straight.
4. Dispose of sharps according to policy and procedure. NO NEEDLE RECAPPING.

PURPOSE:

To ensure timely assessment and treatment, as appropriate, for Emergency Department (ED) patients presenting with stroke signs/symptoms which may include, but are not be limited to:

1. Sudden numbness or weakness in the face, arm, or leg, especially on one side of the body
2. Sudden confusion or trouble speaking or understanding
3. Sudden trouble seeing in one or both eyes
4. Sudden trouble walking, loss of balance or coordination or dizziness

GOAL:

The goal is door/arrival time to needle time less than or equal to 60 minutes for ischemic stroke patients that are candidates for Alteplase (tPA) (see Table 1 for critical time frames).

Table 1

Time Targets for Evaluation of Acute Ischemic Stroke Patients	Time Interval
Door/Arrival Time to Physician at Bedside	≤10 min
Door/Arrival time to CT Resulted	≤25 min
CT Resulted to Physician Read/Documentation Time	≤20 min
Door/Arrival Time to Laboratory Tests, Chest X-Ray, EKG Resulted, if Ordered by Practitioner	≤45 min
Call for tPA to Bedside Delivery of tPA	≤15 min
Door/Arrival to Needle (thrombolytic therapy) Start Time	≤ 60 min
Tele Neurologist Paged to Response Time	≤ 5 min

CODE STROKE/TELE-STROKE ACTIVATION PROCESS:

1. In the ED setting, a CODE STROKE/TELE-STROKE alert may be activated in the following situations:
   a. Patient brought in by paramedics

Paramedic/Emergency Medical Technician unit determines that patient has symptoms of acute stroke and notifies ED of field "STROKE ALERT."

- Nurse/physician who answers Emergency Medical System call notifies charge nurse.
- ED physician is immediately notified (if not already notified), evaluates patient and initiates CODE STROKE/TELE-STROKE protocol if determines that stroke symptom onset within 4.5 hours.

b. ED notification from outpatient locations

ED physician accepts call from outpatient physician and determines stroke symptom onset or Last Known Well Time (LKWT) is less than or equal to 4.5 hours, initiates CODE STROKE/TELE-STROKE.

- ED physician notifies charge nurse of potential stroke patient.
- Charge nurse/assigned nurse prepares to accept patient.

c. Patient presents at ED Triage

Triage nurse determines that patient has symptoms of acute stroke and assigns patient an Emergency Severity Index (ESI) of 1 or 2.

- Charge nurse/triage nurse is notified and immediately places patient in room.
- Charge nurse/triage nurse simultaneously instructs ward clerk to immediately notify physician who will be assigned to the patient.
- ED physician is immediately notified, evaluates patient and initiates CODE STROKE/TELE-STROKE protocol if determines that stroke symptom onset within 4.5 hours.

d. Patient develops new stroke symptoms after arrival to the ED

Nurse or physician determines patient has new symptoms of acute stroke.

- ED physician is immediately notified (if not already notified), evaluates patient and initiates CODE STROKE/TELE-STROKE protocol if determines that stroke symptom onset within 4.5 hours.

2. Members of ED CODE STROKE/TELE-STROKE response team are notified via pager and expected to respond. The team may include, but is not limited to:
   a. ED Physician
   b. Tele-neurologist
   c. CT Technologist - notifies Radiology and Radiology Technologist
   d. Lab Runner/Phlebotomist
   e. Pharmacist
   f. Stroke Coordinator (responds only when available)

PROCEDURE:

After ED physician evaluates patient and determines that patient is a possible candidate for thrombolytics, CODE STROKE/TELE-STROKE protocol is initiated.

1. Primary ED Nurse: After ED physician assesses patient and determines patient is having an acute stroke and is a possible candidate for receiving tPA, ED nurse to follow TELE-STROKE protocol:
   a. Obtains patient's weight
   b. Begins Code Stroke Log (see Attachment A)
   c. Completes bedside swallow screen. Patient will be kept NPO (nothing by mouth) until swallow screen is passed.

d. Initiates two normal saline intravenous (IV) infusions (initiation of tPA or CT scan should not be delayed because of second IV start)
e. Draws blood for laboratory specimens (including STAT CODE STROKE laboratory panels) and provides to laboratory runner or phlebotomist
f. Performs glucose point of care test
g. Performs 12–lead EKG, runs strip and immediately shows result to ED physician
h. Accompanies patient to and from Radiology
i. Follows up with study results and notifies physician. Goal is to have electrocardiogram (EKG), chest x-ray, lab tests, and head CT reviewed within 45 minutes of arrival/door.
j. Immediately notifies Pharmacy when tPA is ordered
k. Administers tPA if ordered, following MCW P&P 2837 High Risk/High Alert Medications, ensures that the green tPA armband is on patient's same arm as identification band and initiates post tPA monitoring. Goal is from door to needle time within 60 minutes.
l. From the start of tPA administration, monitors hourly temperature and performs vital signs, basic neuro-assessment, pupil checks, Glasgow Coma Score, and mNIHSS:
    1) Every 15 minutes for 2 hours, then
    2) Every 30 minutes for 6 hours, then
    3) Every 60 minutes for 16 hours.
m. Initiates request for Critical Care Unit (CCU) bed
n. Provides hand off/report to CCU registered nurse (RN) prior to transport, including post tPA monitoring
o. Accompanies patient to CCU per Advanced Cardiovascular Life Support (ACLS) protocol
p. Documents actions above in HealthConnect and endorses completed Code Stroke Log to receiving RN

2. ED Physician: Evaluates patient within 10 minutes of presentation, determines that patient is having a new stroke AND has not been ruled out as a potential candidate for thrombolytics:
    a. Instructs RN or ward clerk to initiate CODE STROKE/TELE-STROKE protocol
    b. Initiates Stroke Order Set
    c. Reviews appropriate study results until Tele-neurologist assumes care. Goal is to have EKG, chest x-ray, lab tests, and head CT reviewed within 45 minutes from arrival/door. Documents time of CT scan result viewed/discussed with tele-radiologist and/or tele-neurologist will be by ED physician or tele-neurologist.
    d. Documentation of time tele-neurologist paged and responded will be by ED physician or tele-neurologist
    e. If a bedside neurological consult is ordered, the neurologist evaluates the patient within 24 hours, unless otherwise agreed upon between the attending physician and consulting neurologist.
    f. If the ED physician or tele-neurologist rules out a possible stroke OR determines the patient is not a candidate for tPA, he/she documents explicit exclusion criteria for not giving tPA in the HealthConnect progress note and CODE STROKE/TELE-STROKE is NOT initiated or canceled if in progress
    g. Tele-neurologist, ED physician, and/or admitting physician collaboratively determines the appropriate level of care and interventions for admission or transfer.
3. ED Assistant Clinical Director/Charge Nurse and/or ED Staff:
    a. Arrives at bedside of CODE STROKE/TELE-STROKE patient
    b. Secures a critical care bed, as needed, in collaboration with critical care charge nurse
    c. Prepares for possible transfer of patient to CCU

d. Provides assistance to primary nurse caring for patient as needed

e. Concurrently maintains CODE STROKE Log to ensure elements of stroke care met in HealthConect.

4. CT Technologist:
   a. Upon receipt of CODE STROKE/TELE-STROKE page, immediately prepares CT table to receive patient for a STAT non-contrast head CT. ED will call to provide patient's name and medical record.
   b. Receives order in RIS imported through HealthConnect and performs CT scan when patient arrives.
   c. Notifies Baldwin Park radiologist when CODE STROKE/TELE-STROKE patient is on CT table between hours of 7:00 am to 7:00 pm. During hours of 7:00 pm to 7:00 am, CODE STROKE/TELE-STROKE CT scan to be read by tele-radiologist.
   d. Completes STAT non-contrast head CT scan.
   e. Immediately transmits CODE STROKE/TELE-STROKE non-contrast head CT scan to radiologist/tele-radiologist for interpretation.

      Goal: Arrival/door to CT scan within 25 minutes, CT results to physician read/documentation within 20 minutes
   f. Upon completion of head CT, alerts general radiology technologist with patient's name and medical record to perform STAT portable chest x-ray in ED
5. Laboratory Runner/Phlebotomist:
   a. Upon receipt of CODE STROKE/TELE-STROKE page, immediately arrives at bedside of CODE STROKE patient
   b. Obtains warm handoff from ED nurse of laboratory specimens:
      1) CBC with platelets (lavender top tube)
      2) Blood chemistries: electrolytes, BUN, creatinine, glucose (green top tube)
      3) PT/INR and APTT (blue top tube)
   c. Hand-transports specimens to laboratory with warm hand off for immediate processing. (DO NOT place CODE STROKE/TELE-STROKE specimens in buckets and/or tube system.) Goal is to have STAT CODE STROKE/TELE-STROKE laboratory panel resulted within 45 minutes of arrival/door time.
6. Local Medical Center Neurologist:
   a. Responds either in person or by phone within 15 minutes of being paged by treating physician
   b. Provides neurological consultation within 24 hours of verbal request or per arrangement.
7. Pharmacist:
   a. Anticipates possible tPA candidate upon receipt of CODE STROKE/TELE-STROKE page
   b. Receives, reviews, and verifies HealthConnect orders for tPA
   c. Receives notification from ED to prepare tPA
   d. Prepares tPA according to pharmacy protocol and policy. (See MCW P&P 2837 High Risk/High Medication.) Saves original tPA container in the event that medication is not used and must be sent to Genentech for reimbursement.
   e. Delivers the tPA bolus syringe and infusion bag that contains patient's dose (calculated based on patient's weight) to patient location with green tPA color coded arm band
   f. Places green tPA armband on patient (on the same arm as the patient identification band) after performing patient identification verification
8. Radiologist/Tele-radiologist:

a. Between hours of 7:00 am and 7:00 pm, Baldwin Park radiologist responds:
   1) Receives CODE STROKE/TELE-STROKE alert from CT technologist
   2) Prioritizes and interprets CODE STROKE /TELE-STROKE STAT non-contrast head CT scan
   3) When the system is down, radiologist calls the ordering physician when CT scan is interpreted as part of downtime procedures

b. Between hours of 7:00 pm and 7:00 am, SCAL Regional tele-radiologist responds:
   1) Tele-radiologist receives CODE STROKE/TELE-STROKE alert from ordering physician who flags CT exam order via tele-radiology website as CODE STROKE/TELE-STROKE.
   2) Tele-radiologist prioritizes and reviews CODE STROKE/TELE-STROKE STAT non-contrast head CT scan and documents reading
   3) Tele-radiology analyst communicates with ordering physician that the preliminary result is available for viewing

9. General Radiology Technologist:
   a. Receives notification from CT technologist that head CT scan has been completed and receives information of patient's name and medical record number
   b. General Radiology technologist performs STAT portable chest x-ray
   c. Immediately processes chest x-ray for viewing by ordering physician. Chest x-ray is completed and in patient's medical record within 45 minutes of arrival/door
10. Stroke Coordinator:
   a. Arrives at bedside of CODE STROKE/TELE-STROKE patient, when available
   b. Assists in coordination of CODE STROKE/TELE-STROKE team response, when available

ATTACHMENT:
Attachment A - Code Stroke Log

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CODE STROKE LOG

DATE: _____ **UNIT/ROOM:** _____

	TIME	COMMENTS			TIME TARGETS
Arrival to ED (N/A if inpatient)					
Last Known Well (LKWT)*					
MD Notified					
Evaluation by MD					Within 10 minutes of arrival
CODE STROKE called		Dial x3333 to notify operator			
Stroke Order Set initiated					
Initial NIHSS by MD		MD:	Score:		
Baseline mNIHSS, GCS, pupil check, basic neuro by RN		RN:	Score:		
Blood Glucose POCT					
EKG Complete					Resulted within 45 min of arrival
Labs picked up by phlebotomist					
Labs resulted		☐CBC	☐Chemistries	☐Coags/INR	Resulted within 45 min of arrival
CT completed					Complete within 25 min of arrival
CT results documented by physician					Within 20 min of CT completion
Wt. documented, Pharmacy notified		Pharmacist:			
CXR complete					Resulted within 45 min of arrival
Neurologist paged/notified					
Neurologist responded/called back					Within 15 min of call/page
Neurosurgery responded/call back					Within 10 minutes of call/page
Swallow Screen		☐Pass ☐Fail, keep NPO & refer to OT/Speech			Complete before anything PO
Tele-Stroke Consent obtained		**Required by CA State Law**			Prior to paging Tele-Neurologist
tPA					
tPA Order Set Initiated		If not given, medical and/or social/cultural reason:			
tPA bolus administered		If not given within the time targets, medical and/or social/cultural reason: ie Delay outside 60 min. window due to family decision making process…			**Within arrival: 60 minutes & within 3hrs and within 3-4.5hrs of LKWT**
tPA drip started					
Monitor: V/S, basic neuro, temperature, &mNIHSS		See reference for frequency intervals			
Report to receiving RN					
		*Time TPA started *Last time v/s taken	*Placement of green arm band *Next v/s time		*Last mNIHSS result *Swallow screen result
Pt. admitted/transferred		Disposition			

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CODE STROKE LOG **DATE:_____** **UNIT/ROOM:_____**

Time Guide for Frequent Monitoring of tPA Patient

From the **start of tPA administration**, monitor:

Vital signs (including temperature every hour if afebrile) and Neuro Check (basic neuro, GCS, pupil check & mNIHSS)

- ☐ **Every 15 minutes for 2 hours (tip: use even times 00:00, 00:15, 00:30, 00:45)**
- ☐ **Every 30 minutes for 6 hours (tip: use even times 00:00, 00:30, 01:00, 01:30)**
- ☐ **Every hour for 16 hours & Per unit protocol**

Arrival to ED:	Time of tPA initiation:				Arrival to ICU:			Completion of critical monitoring:			Swallow screen done: Pass / fail: pass					
q 15 min x 2 Hrs	Q15	Q15	Q15	Q15	Q15	Q15	Q15	Q15								
Time done																
Vital Signs																
Temperature (q hour)																
mNIHSS																
Glasgow Coma Scale																
Pupil Assessment																
Basic Neuro																
RN																
q 30 min x 6 Hrs	Q30	Q30	Q30	Q30	Q30	Q30	Q30	Q30	Q30	Q30	Q30	Q30				
Time Done																
Vital Signs																
Temperature (q hour)																
mNIHSS																
Glasgow Coma Scale																
Pupil Assessment																
Basic Neuro																
RN																
q 60 min x 16 Hrs	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q1	Q1
Time Done																
Vital Signs																
Temperature																
mNIHSS																
Glasgow Coma Scale																
Pupil Assessment																
Basic Neuro																
RN																

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RN initial	Name	Signature	Time

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