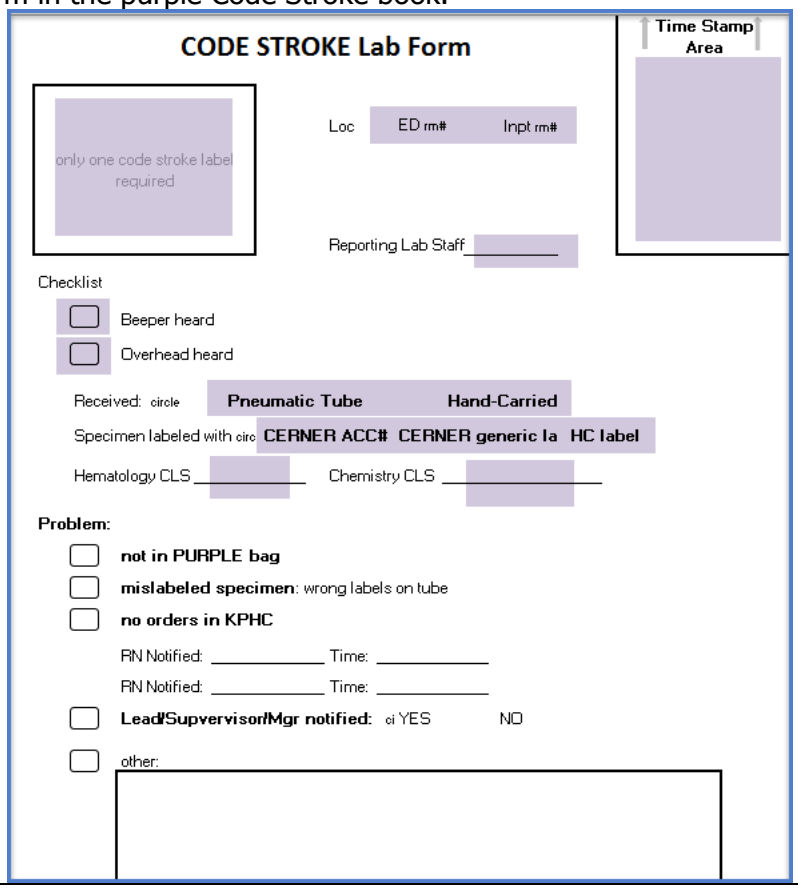
Technical Bulletin

SCPMG – SOUTH BAY LABORATORY

Code Stroke – February 2, 2016

Pre-Analytic Process

1. Complete a Code Stroke form (kept in the purple Code Stroke book) as soon as the overhead announcement has been made, as soon as the code stroke beeper has beeped, or as soon as the specimen is received, whichever is first.
   - Document the room number of the code stroke.
   - Write your name on the form as the reporting lab staff.
   - Place check mark if the code stroke beeper was heard.
   - Place check mark if overhead announcement was heard.
   - Time stamp the form when the specimen is received.
   - Circle if the Code Stroke specimens were received in pneumatic tube or hand carried.
   - Circle the label type received on the specimen.
2. Complete **Problem** section if applicable.
3. Process as required. Hand deliver specimens to the correct departments (warm handoff). **Document name of CLS.**
4. Notify supervisor/mgr if a problem is documented. On weekends and after hours notify the Lead CLS.
5. File the form in the purple Code Stroke book.



Department: **Medical Center Wide - 2000's**		Policy #: **MCW 2375**
Section: **Direct Patient Care/Emergency Procedures**	Effective Date: **5/11**	Page: Page **1** of **10**
Title: **Code Stroke Procedure**	Review/Revision Date: **4/14, 5/15/4/16, 6/17**	
Accountable Dept./Committee: Hospital Services Committee Approved by: Medical Executive Committee		

Workplace Safety Message: Work smarter not harder; use assistive devices available in your area.

Attachments:

- Attachment A: Code Stroke Log
- Attachment B: Tele Neurologist Workflow
- Attachment C: B.E.F.A.S.T criteria

Related Policies:

- MCW P&P 2148 - Rapid Response Process
- MCW P&P 2824 - South Bay High Alert Medication

Purpose:

To ensure timely assessment and treatment of patients exhibiting any of the following physiologic changes which are consistent with acute stroke:

- Sudden numbness or weakness in the face, arm, or leg, especially on one side of the body.
- Sudden confusion or trouble speaking or understanding
- Sudden trouble seeing with one or both eyes
- Sudden trouble with walking, balance, or coordination

Sections:

A. Emergency Department
B. In-patient Units

A. Initiation of CODE STROKE in the Emergency Department (ED)

1. The patient is assessed in triage using ESI and B.E.F.A.S.T criteria.
    a. If B.E.F.A.S.T screening is positive.
        I. "Triage Neuro" is called.
            a. Triage RN/CN notifies MD to see the patient STAT in Triage.
            b. "Triage Neuro" is announced overhead in the ED.
            c. ED Physician immediately evaluates the patient (including time patient was last known to be well), and whether the patient is a potential candidate for thrombolytic. If the ED Physician determines that the patient is a potential candidate for thrombolytic therapy with t-PA, (s)he immediately initiates the CODE STROKE protocol.
            d. If the ED Physician determines that the patient is either not having a stroke or is not a candidate for thrombolytic, then the ED Physician decides on the appropriate interventions, treatments, and level of care for the patient, and the CODE STROKE protocol is NOT initiated.
    b. If B.E.F.A.S.T. screening is negative.
        I. Proceed with routine triage process.

c. Patients who exhibit signs of acute stroke AFTER arrival at the ED

I. Primary Nurse immediately notifies ED Physician and Charge Nurse that patient is suddenly exhibiting signs of acute stroke.

2. CODE STROKE in the ED Protocol

a. Upon being notified of the CODE STROKE, members of the ED CODE STROKE Response Team initiate their assigned duties as follows (Team members below are not listed in order of priority). All team members will simultaneously initiate their individual duties, provided there is a physician order, when required:

I. ED PHYSICIAN

a. Presents the case to Tele-neurology.
b. Initiates orders, including a non-contrast CT scan of the head.
c. Orders tPA if tele-neurologist is unavailable.
d. Reviews test results. The goal is to have EKG, chest x-ray, lab tests, and head CT reviewed within 45 minutes from time of arrival.
e. Notifies patient's family of change in condition, if applicable.
f. Transfers patient to indicated level of care and communicates with accepting physician(s).

II. ED CHARGE NURSE

a. Immediately dials x6500 and notifies Hospital Operator of "CODE STROKE Emergency Department".
b. Ensures that ED Physician has entered orders.
c. Contacts CT to notify them of patient's name and MRN.
d. Ensures House Supervisor has secured a critical care bed.
e. Notifies Pharmacist of pending CODE STROKE t-PA candidate in the ED.
f. Assists Primary Nurse and House Supervisor with their duties, as needed

III. HOSPITAL OPERATOR

a. Pages ED CODE STROKE Response Team members, as per CODE STROKE Emergency Panel Beepers Table (below) via long term beepers and announces three times via overhead intercom, "CODE STROKE, Emergency Department."

b. Paging tele-neurologist and Response Expectations:

i. Page the tele-neurologist at (323) 699-4444
ii. If the tele-neurologist does not call back in 5 minutes, page tele- neurologist again (323) 699-4444
iii. If no call back, check call schedule and call cell phone
iv. If still no call back in another 5 minutes. Page the Regional Stroke pager at (323) 279-1111 (this is specifically for the stroke neurologist)
v. If still no call back in another 5 minutes. Page the local neurologist on-call

CODE STROKE Emergency Panel Beepers

RESPONDER	***CODE STROKE IN EMERGENCY DEPT***	***CODE STROKE IN IN-PATIENT UNIT***
ISD or IOD*		X
ICU RN		X
TRANSPORTER		X
LAB TECH		X
CT TECH	X	X
PHARMACIST	X	X
HOUSE SUPERVISOR / DESIGNEE	X	X
TELENEUROLOGIST	X	
STROKE MEDICAL DIRECTOR	X	X
STROKE PROGRAM COORDINATOR	X	X

* In-Service Duty, Internist On duty

IV. TELENEUROLOGIST

a. Responds by phone to the ED Physician
b. Documents: Time of ED arrival
c. Symptom onset/LTKW
d. Time page received
e. Time called back to ED
f. Time patient evaluated via Telemedicine
g. Time CT read by teleneurologist
h. Completes required order sets, including order for t-PA (Alteplase), provided patient is a candidate for t-PA and does not meet any exclusion criteria.
i. Documents NIHSS

V. ED PRIMARY NURSE

a. Assesses patient immediately, including mNIHSS, or Complex Neuro Checks stroke scale and documents in Health Connect.
b. Begins Stroke Log.
c. Obtains patient's weight and notifies pharmacy immediately.
   i. The preferred weight is an actual weight taken in the ED.
   ii. If obtaining an actual weight will significantly delay door to needle time, then a stated weight is acceptable.
   iii. The actual or stated weight will be documented.
d. Draws blood for STAT CODE STROKE lab panels. This is consistent with the "rainbow" blood draws that take place on all urgent ER patients at the beginning of the ER visit:
   i. CBC w/ Platelets (1 lavender top tube)
   ii. Blood Chemistries (2 green top tubes)
   iii. PT/INR and APTT (1 blue top tube)
e. Places CODE STROKE blood tubes in purple CODE STROKE bag and sends to lab. A note must accompany the bag with the words "MEDICAL EMERGENCY - CODE STROKE." Blood tests available for review by MD within 45 minutes from time of arrival.
f. Initiates two normal saline IV infusions, via two insertion sites, each infusing at TKO. (CT scan and/or t-PA infusion should not be delayed while attempting second IV insertion. Second IV insertion may be delayed

until after CT scan has been performed and may be attempted by a second nurse while t-PA infusion is being initiated, if necessary).

g. Performs 12 lead EKG and hands to ED Physician for interpretation.
h. Accompanies patient to and from Radiology.
i. Completes bedside swallow screen (using Doc Flowsheet #973 in Health Connect), keeping patient NPO until swallow screen has been passed.
j. Follows up on all labs and tests that have been ordered, in an attempt to ensure that results are provided promptly to Teleneurologist and ED Physician.
k. Notifies pharmacist as soon as t-PA order has been written
l. Administers t-PA (Alteplase) and initiates post t-PA monitoring. (See High Alert Medication Safety Practices Policy, referenced at the beginning of this policy).
m. Completes Stroke Log
n. Documents all treatments and interventions, including the patient's response, in the medical record (Health Connect).
o. Provides warm handoff and report to critical care RN prior to transport, including details of post t-PA monitoring.
p. Accompanies patient to ICU, if patient is being admitted to this hospital or hands off to ambulance personnel, if patient is being transferred to another facility.

VI. CT TECHNICIAN

a. Prepares for STAT non-contrast CT scan of the head. Notifies ED as soon as ready for patient.
b. Notifies Radiologist (or Tele-Radiology after hours) of pending CODE STROKE patient.
c. Completes STAT non-contrast CT scan of the head.
d. Immediately transmits completed scan to Radiologist (or Tele-Radiologist) for STAT interpretation.

VII. RADIOLOGIST

a. Reviews CODE STROKE STAT non-contrast CT scan of the head and calls the ED Physician with the wet reading interpretation.
b. Documents in Health Connect Image Report the time that the results were discussed with the ED Physician. Results reported within 45 minutes from time of arrival.

VIII. HOUSE SUPERVISOR / DESIGNEE:

a. Reports to bedside of ED CODE STROKE patient.
b. Secures an appropriate critical care bed by one of the following means:
    i. Collaborates with the ICU Charge Nurse to secure a critical care bed at this facility.
    ii. Collaborates with ED Discharge Coordinators to secure a critical care bed at another facility.
c. Collaborates with ED Charge Nurse to ensure adequate nurse resources at bedside to assist the Primary Nurse.
d. Completes Code Stroke Evaluation Form and submits to Stroke Program Coordinator.

IX. PHARMACIST

a. Watches for STAT order in Health Connect for t-PA (Alteplase).
b. Prepares t-PA according to pharmacy policy. (See High Alert Medication Safety Practices Policy, referenced at the beginning of this policy).
c. Mixes t-PA and delivers to the bedside, as soon as Primary Nurse has

contacted pharmacy that patient is cleared to receive t-PA.

d. During a Health Connect downtime, ***verbal orders*** will not be accepted unless given by the tele-neurologist.

X. TRANSPORTATION AIDE

a. Reports to the bedside to assist as needed. (ED Transportation Aides are generally available from 9am to 2am. Hospital Transportation Aides or ED Techs may assist if an ED Transportation Aide is not available. House Supervisor and ED Charge Nurse will decide on who will be used in this role on a case by case basis).

B. <u>Initiation of CODE STROKE in an In-Patient Unit</u>

1. An in-patient Physician will activate CODE STROKE in an in-patient unit as follows:
   a. Patients who suddenly exhibit signs of an acute stroke <u>in the ICU</u>:
      I. Primary Nurse immediately notifies the Intensivist, if available.
      II. If the Intensivist is not available, the Primary Nurse activates the "Rapid Response" process, by dialing x6500.
   b. Patients who suddenly exhibit signs of an acute stroke <u>in a unit other then ICU</u>.
      I. Primary Nurse immediately activates the "Rapid Response" process, by dialing x6500.
      II. The ICU RN assesses the patient and contacts ISD or IOD.
   c. Responding physician (Intensivist, ISD, or IOD) immediately evaluates the patient (including time patient was last known to be well), may consult with the on-call Neurologist, and determines whether or not the patient is having a stroke and is a potential candidate for thrombolytic. If the responding physician determines that the patient is a potential candidate for thrombolytic therapy with t-PA, (s) he immediately initiates the CODE STROKE protocol. (If the responding physician determines that the patient is either not having a stroke or is not a candidate for thrombolytics, then the responding physician decides on the appropriate interventions, treatments, and level of care for the patient, and the CODE STROKE protocol is NOT initiated. The responding physician will document in Health Connect the reason(s) that the patient was excluded from the protocol).

2. <u>CODE STROKE in an In-patient Unit Protocol</u>

   a. Upon being notified of the CODE STROKE, members of the In-Patient CODE STROKE Response Team initiate their assigned duties as follows (Team members below are not listed in order of priority). All team members will simultaneously initiate their individual duties, provided there is a physician order, when required:

      I. RESPONDING PHYSICIAN
         a. Initiates Neurology consult, documenting consult time in Progress Note.
         b. Initiates orders, including a non-contrast CT scan of the head. (The responding physician's call-back number must be noted within the "order comments" field in Health Connect.)
         c. Reviews test results. The goal is to have EKG, chest x-ray, lab tests, and head CT reviewed within 45 minutes from time of order. Documents time of CT scan reading.
         d. Completes required Health Connect order sets, including order for t-PA (Alteplase), provided patient is a candidate for t-PA and does not meet any exclusion criteria.
         e. Transfers patient to indicated level of care, if necessary, and communicates with accepting physician(s).

f. Notifies patient's family of change in condition.

II. IN-PATIENT PRIMARY NURSE
   a. Immediately notifies Hospital Operator of "CODE STROKE.
   b. Contacts CT to notify them of patient's name and MRN.
   c. Assesses patient immediately, including neuro checks and documents in Health Connect.
   d. Begins Stroke Log.
   e. Ensures House Supervisor has secured a critical care bed.
   f. Obtains patient's weight and notifies pharmacy immediately.
      i. The preferred weight is an actual weight.
      ii. If obtaining an actual weight will significantly delay tPA administration time, then a stated weight is acceptable.
      iii. The actual or stated weight will be documented.
   g. Ensures that responding physician has entered orders.
   h. Ensures Lab Tech draws blood for STAT CODE STROKE lab panels.
   i. Ensures EKG Tech or another staff member performs 12 lead EKG and hands to responding physician for interpretation.
   j. Hands off patient to ICU Nurse, including Stroke Log.

III. HOSPITAL OPERATOR
   a. Pages In-Patient CODE STROKE Response Team members, as per CODE STROKE Emergency Panel Beepers Table (below) via long term beepers and announces three times via overhead intercom, "CODE STROKE."

CODE STROKE Emergency Panel Beepers

RESPONDER	***CODE STROKE IN EMERGENCY DEPT***	***CODE STROKE IN IN-PATIENT UNIT***
ISD or IOD*		X
ICU RN		X
TRANSPORTER		X
LAB TECH		X
CT TECH	X	X
PHARMACIST	X	X
HOUSE SUPERVISOR / DESIGNEE	X	X
TELENEUROLOGIST	X	
STROKE MEDICAL DIRECTOR	X	X
STROKE PROGRAM COORDINATOR	X	X

* In-Service Duty, Internist On duty

IV. NEUROLOGIST
   a. Responds either in person or by phone to the responding physician within 15 minutes of being paged.
   b. Provides neurological consultation.

V. HOUSE SUPERVISOR/DESIGNEE:
   a. Reports to bedside of in-patient CODE STROKE patient.
   b. Secures an appropriate critical care bed by one of the following means:
      i. Collaborates with the ICU Charge Nurse to secure a critical care bed at this facility.
      ii. Prepares to secure a critical care bed at another facility, if needed.

   c. Collaborates with in-patient nursing staff to ensure adequate nurse resources at bedside to assist the Primary Nurse.

d. Assists Primary Nurse with care, as needed.
e. Completes Code Stroke Evaluation Form and submits to Stroke Program Coordinator.

VI. ICU NURSE

a. Assumes care of CODE STROKE patient.
b. Ensures that patient is on cardiac monitoring and continuously monitors vital signs.
c. Ensures two normal saline IV infusions, via two insertion sites, are in place, each infusing at TKO or as ordered. (CT scan and/or t-PA infusion should not be delayed while attempting second IV insertion. Second IV insertion may be delayed until after CT scan has been performed and may be attempted by a second nurse while t-PA infusion is being initiated, if necessary.
d. Ensures CODE STROKE labs and EKG have been done.
e. Accompanies patient to and from Radiology and remains with patient.
f. Completes bedside swallow screen (using Doc Flowsheet #973 in Health Connect), keeping patient NPO until swallow screen has been passed.
g. Follows up on all labs and tests that have been ordered, in an attempt to ensure that results are given promptly to the ordering physician.
h. Ensure12 lead EKG done and hands to Physician for interpretation.
i. Notifies pharmacist as soon as t-PA order has been written and responding physician has confirmed nurse should begin administration. Obtain t-PA from pharmacist.
j. Administers t-PA (Alteplase) and initiates post t-PA monitoring. (See High Alert Medication Safety Practices Policy, referenced at the beginning of this policy).
k. Completes Stroke Log
l. Documents all treatments and interventions, including the patient's response, in the medical record (Health Connect).

VII. LABORATORY TECHNICIAN

a. Reports to bedside of CODE STROKE patient.
b. Draws blood for STAT CODE STROKE lab panels.
    i. CBC w/ Platelets (1 lavender top tube)
    ii. Blood Chemistries (2 green top tubes)
    iii. PT/INR and APTT (1 blue top tube)
c. Places CODE STROKE blood tubes in purple CODE STROKE bag. (A note will accompany the bag with the words "MEDICAL EMERGENCY - CODE STROKE."). Blood tests available for review by MD within 45 minutes from time of order

VIII. CT TECHNICIAN

a. Prepares for STAT non-contrast CT scan of the head. Notifies nursing unit as soon as ready for patient.
b. Notifies Radiologist (or Tele-Radiology after hours) of pending CODE STROKE patient.
c. Completes STAT non-contrast CT scan of the head.
d. Immediately transmits completed scan to Radiologist (or Tele-Radiologist) for STAT interpretation.

IX. RADIOLOGIST

a. Reviews CODE STROKE STAT non-contrast CT scan of the head and calls the ordering physician with the wet reading interpretation.

b. Documents in Health Connect Image Report the time that the results were discussed with the ordering physician.

X. PHARMACIST

a. Watches for STAT order in Health Connect for t-PA (Alteplase).
b. Prepares t-PA according to pharmacy policy. (See High Alert Medication Safety Practices Policy, referenced at the beginning of this policy).
c. Mixes t-PA and delivers to the bedside, as soon as Primary Nurse has advised that patient is ready to receive t-PA.
d. During a Health Connect downtime, ***verbal orders*** will not be accepted unless given by the CODE STROKE Teleneurologist.

XI. TRANSPORTATION AIDE

a. Reports to the bedside to assist as needed.

Attachment A - Code Stroke Log

PATIENT LABEL

CODE STROKE LOG

Name: _____ MR#: _____
Date of Admission: _____ Patient Location: _____

Last time known well (date/time): _____
Onset of stroke symptoms (date/time): _____

Your Name (print): _____

ED Stroke	Comments	Response time
ED arrival time		
ED physician at bedside		
Stroke Team Activation		
Stroke Team Arrival		
a. (name)		
b. (name)		
c. (name)		
Orders(s)		
a. CT order/result		/
b. Lab order/result		/
c. EKG order/result		/
NIHSS time done/result		/
Swallow Screen: time done	☐ pass ☐ fail, NPO	
Antiplatelet given: time done		
Neurologist notified		

Alteplase ordered		
Alteplase baseline VS/neuro's		
Alteplase administered: start time		
Alteplase VS Q15" during infusion		

Inpatient Stroke	Comments	Response time
Stroke team Activation		
Stroke Team Arrival		
a. (name)		
b. (name)		
c. (name)		
Order(s)		
a. CT order / result		/
b. Lab order / result		/
c. EKG order/ result		/
d. Other		/
NIHSS time done/result		/
Swallow Screen: time done	☐ pass ☐ fail, NPO	
Antiplatelet given: time done		
Alteplase ordered		
Alteplase baseline VS/neuro's		
Alteplase administered: start time		
Alteplase VS Q15" during infusion		

Tele-Neurologist Workflow

Answer the tele-stroke page within 5 minutes of being paged and state the following: "This is Dr. XX from the stroke team"

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Talk with ED physician to obtain name, MRN and a short relevant history

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Ensure connection to the internet via the wireless device before clicking other icons if using a wireless air card e.g. Verizon Wireless Device or otherwise the system may freeze

↓

Ensure you are connected to the VPN if outside a KP facility. e.g. at home, in a car…

↓

Log onto KP Health Connect, IMIS and MOVI

↓

Enter all zeroes in IMIS including the MRN leading zeroes e.g. MRN is 000012345678.

↓

Review the neuro-imaging (usually Head CT initially unless otherwise requested)

↓

Rapidly review the chart

↓

Speak to family and obtain more history via the tele-stroke system if the patient is not back from CT, waiting for CT to be completed, or rapid chart review already completed

↓

Examine the patient when the patient returns to the room with the assistance of the patient's nurse

↓

Assess for IV tPA candidacy

- Order tPA prior to completing NIHSS if per clinical judgment the patient's symptoms are c/w a stroke during the first few components of the NIHSS. **Consider pre-ordering tPA for specific cases.**
- **Inform the nurse to call pharmacy prior to ordering tPA to save time once the decision has been made to give IVtPA**
- Complete NIHSS while waiting approximately 10 minutes for IVtPA delivery to decrease the door to needle time

Is the patient an IVtPA candidate?

- Review Contraindications after opening up the Alteplase order set preferably with patient and/or patient's family.
- If there is a contraindication, but per clinical judgment the patient may still benefit from tPA (e.g.. 3-4.5 hours & age > 80 or combination of DM and previous stroke) then click NO to contraindication and document in your note that:

"IN YOUR CLINICAL JUDGMENT THE BENEFIT WAS GREATER THAN THE RISK."

Can call regional stroke pager for okay as well.

Is the patient a THROMBECTOMY candidate?

If signs and symptoms concerning for large vessel occlusion, has as NIHSS ≥ 6, has an ASPECTS score ≥ 6, and the ability to have thrombectomy started within 6 hours, consider transfer for thrombectomy.

Call ETAP to assist with transfer, or use local policy if thrombectomy procedure available at that center.

NO

If sub-acute stroke or acute stroke and no IVtPA, use acute tele-stroke template. Delete post tPA orders and replace w/ sub-acute template recs. If not a stroke delete templated recs and place your own disease specific recs.

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If per clinical judgment, the patient does not have a stroke, assess for other emergent neuro issues (e.g.. ICH/SDH/EDH or seizures).

↓

Start appropriate initial management (e.g. seizure meds or IV BP meds and reversal agents for hemorrhage.) **If anticoag associated bleed, use reversal order set. Open order sets. Type in reversal. Follow prompts. Leave a note.**

↓

Call back ED doc or speak to them over robot regarding recs.

YES

Order IVtPA using the Alteplase for Stroke ED SCAL order set. Order both tPA and click one of the PNL BP orders in the tPA order set toward the end of the order set. Preferred BP meds are: PNL Labetalol + Nicardipine/Clevidipine

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Stay on robot until IV tPA bolus and infusion have been started. **CALL TIME OUT prior to IVtPA being given,** to ensure no discrepancies in documenting time of bolus and infusion

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Verbally assess comfort level of nurse, patient and patient's family and sign off after appropriate comfort level established.

↓

Leave a note using the Acute tele-stroke template.

ATTACHMENT C

B.E.F.A.S.T CRITERIA

(B)ALANCE: Sudden changes in balance or coordination.
(E)YES: Vision changes: Does the patient have sudden vision loss or double vision.

(F)ACE: Facial droop: Does the face look uneven.
(A)RMS: Arm weakness: Sudden arm numbness or weakness.
(S)PEECH: Speech slurred: Sudden difficulty speaking or unable to speak clearly.
(T)IME: Make note of the time symptoms started.