







UNC Code Stroke Pathway (ED)

	 EMS Pre-Notification	 0-10 Minutes	 10-25 Minutes	 25-45 Minutes	 45+ Minutes
Priorities: 	Activate Code Stroke, Register Patient & Enter Orders	Rapid Triage, Brief Exam, Transport to CT Scan	Labs Drawn & Sent, Full History & NIHSS	Determine treatment (IV/IA) eligibility, alteplase administered within 45-60 minutes if candidate	Post-alteplase monitoring if given & transfer to NIR or inpatient unit
ED MD	<ul style="list-style-type: none"> <input type="checkbox"/> Obtain name & DOB from EMS <input type="checkbox"/> If last known normal (LKN) is ≤24 hours, page (or delegate Charge RN to page) Code Stroke (123-7003). Include ETA, Age, Stroke s/sx and LKN¹ <input type="checkbox"/> Order STAT Labs: CBC, Chem-7, PT, PTT/INR, Cardiac Enzymes <input type="checkbox"/> Order STAT EKG Reason: CODE STROKE <input type="checkbox"/> Order STAT Head CT without Contrast Reason: CODE STROKE <input type="checkbox"/> Notify HUC of Code Stroke orders 	<ul style="list-style-type: none"> <input type="checkbox"/> Verify Blood Glucose result obtained from EMS (if <60mg/dL go directly to assigned room for treatment) <input type="checkbox"/> Brief Neuro Exam within 1st 10min <i>If no pre-notification received:</i> <input type="checkbox"/> Verify LKN: If ≤24 hours, page (or delegate Charge RN to page) Code Stroke (123-7003). Include ETA, age and LKN¹ <input type="checkbox"/> Order STAT Labs: CBC, Chem-7, PT, PTT/INR, Cardiac Enzymes <input type="checkbox"/> Order STAT EKG Reason: CODE STROKE <input type="checkbox"/> Order STAT Head CT without Contrast Reason: CODE STROKE 	<ul style="list-style-type: none"> <input type="checkbox"/> Maintain SBP ≤185 and DBP ≤110 if potential tPA candidate <input type="checkbox"/> Implement Hemorrhagic Stroke pathway as needed (based on CT results) <input type="checkbox"/> Manage Overall Care <input type="checkbox"/> Brief update to patient/caregiver <input type="checkbox"/> Transport to assigned room <input type="checkbox"/> Verify/initiate IV access <input type="checkbox"/> Draw Labs <input type="checkbox"/> If patient is on warfarin, notify RT to obtain POC INR <input type="checkbox"/> Send Labs with red 'Code Stroke Alert' paper to #888 	<ul style="list-style-type: none"> <input type="checkbox"/> tPA: Maintain SBP ≤185 and DBP ≤110 <input type="checkbox"/> Continue Cardiac Monitoring <input type="checkbox"/> Vital Signs: BP & HR <input type="checkbox"/> Neuro Assessment <input type="checkbox"/> Strict NPO <input type="checkbox"/> Facilitate EKG (should not delay alteplase) <input type="checkbox"/> Obtain 2nd PIV if treatment candidate <input type="checkbox"/> Prepare for transport to CTA (if not already done) and NIR 	<ul style="list-style-type: none"> <input type="checkbox"/> For Alteplase treated patients: Maintain SBP <180 and DBP <105³ or <160/90 if on nicardipine <input type="checkbox"/> Monitor for post-alteplase complications⁴ <input type="checkbox"/> Continue Cardiac Monitoring <input type="checkbox"/> If tPA Administered: <input type="checkbox"/> Continue post-alteplase Neuro assessment and VS protocol <input type="checkbox"/> Hang 50mL's NSS at same rate when alteplase vial empty to complete VTBI <input type="checkbox"/> Monitor for post-alteplase complications⁴ <input type="checkbox"/> Nursing Bedside Dysphagia Screen—if passed may administer meds and notify LIP to enter diet order; if failed STRICT NPO <input type="checkbox"/> Transfer to ICU when bed available (unless IA candidate) <input type="checkbox"/> If tPA not administered: <input type="checkbox"/> Nursing Bedside Dysphagia Screen—if passed may administer meds and notify LIP to enter diet order; if failed STRICT NPO <input type="checkbox"/> Transfer to bed when available <input type="checkbox"/> If IA Candidate: <input type="checkbox"/> Transport to NIR, handoff to anesthesia at bedside <input type="checkbox"/> If tPA given: <input type="checkbox"/> Enter post-alteplase and admission orders using orderset <input type="checkbox"/> Write consult note/ H&P using template (include time seen , time of image(s) review, NIHSS) <input type="checkbox"/> If tPA not given: <input type="checkbox"/> ASA 300mg PR (if nursing bedside screen failed) <input type="checkbox"/> ASA 325mg PO (if nursing bedside screen passed) <input type="checkbox"/> If IA Candidate: <input type="checkbox"/> Assist with transport to NIR
ED RN	<ul style="list-style-type: none"> <input type="checkbox"/> Contact ED Registration for STAT registration (Note: If no name/DOB available, patient should be registered as a Disaster Patient) <input type="checkbox"/> Notify CT scan to receive room assignment <input type="checkbox"/> Verify weigh stretcher available in assigned room availability. Place outside assigned CT room <input type="checkbox"/> Obtain Stroke Resource Binder <input type="checkbox"/> Receive 'Code Stroke' Page <input type="checkbox"/> Respond to ED Triage Desk to meet patient <input type="checkbox"/> Order CTA if needed if pt is a possible Code IA Stroke* If LKN 6-24 hours, consider CTP (perform at same time as CTA) 	<ul style="list-style-type: none"> <input type="checkbox"/> Rapid Triage <input type="checkbox"/> Obtain Vital Signs from EMS monitor <input type="checkbox"/> Notify ED MD for BP ≥185/105 <input type="checkbox"/> ID band placed on patient** <input type="checkbox"/> Obtain Blood Glucose (if not done by EMS) & notify ED MD of results <input type="checkbox"/> Transport to CT Scan on EMS stretcher <i>In addition, if no pre-notification received:</i> <input type="checkbox"/> Contact ED Registration for STAT registration (see notes) 	<ul style="list-style-type: none"> <input type="checkbox"/> Obtain POC Glucose <input type="checkbox"/> Full set of Vitals <input type="checkbox"/> Neuro Assessment <input type="checkbox"/> Cardiac Monitoring <input type="checkbox"/> Strict NPO <input type="checkbox"/> Obtain patient weight <input type="checkbox"/> Begin Stroke Narrator Documentation <input type="checkbox"/> Complete NIHSS <input type="checkbox"/> Obtain History from patient/caregiver <input type="checkbox"/> Consult with Radiologist for final interpretation of CT Scan if needed <input type="checkbox"/> Initiate UNC Acute Ischemic Stroke Treatment Guidelines (based on CT results and exam) 	<ul style="list-style-type: none"> <input type="checkbox"/> Review Lab Results Note: BG is only test necessary to review before alteplase if not on anticoagulation and no history of blood dyscrasias <input type="checkbox"/> Review alteplase/IA therapy eligibility <input type="checkbox"/> If Alteplase Candidate: <input type="checkbox"/> Notify ED RN to remove alteplase and begin mixing² <input type="checkbox"/> Review risks/benefits/ alternatives with pt/caregiver & provide education sheet <input type="checkbox"/> Communicate POC to ED MD/RN <input type="checkbox"/> Use ED PROV STROKE orderset to order alteplase <input type="checkbox"/> Notify RN when order is placed & verify dose with RN <input type="checkbox"/> Consult NSICU & enter place patient in bed order <input type="checkbox"/> If IA Candidate: <input type="checkbox"/> Activate Code IA Stroke (if not already done) <input type="checkbox"/> Obtain CTA* (if not already done). If LKN 6-24 hours, obtain CTP (perform at same time as CTA) <input type="checkbox"/> Communicate CTA results and POC to ED RN and MD 	<ul style="list-style-type: none"> <input type="checkbox"/> Manage overall care <input type="checkbox"/> If Alteplase Candidate: <input type="checkbox"/> Begin mixing alteplase when advised by NEU MD – DO NOT administer until order is placed² <input type="checkbox"/> When alteplase ordered, complete independent double AND waste excess <input type="checkbox"/> Remove bolus into syringe <input type="checkbox"/> Administer bolus and infusion per order & protocol <input type="checkbox"/> Implement post-alteplase Neuro assessment and VS protocol: <ul style="list-style-type: none"> o Q 15min x 2 hrs o Q 30min x 6hrs o Q 1 hr x 16 hrs <input type="checkbox"/> If NOT Alteplase Candidate: <input type="checkbox"/> Enter place patient in bed order if applicable <input type="checkbox"/> Write consult note/ H&P using template (include time seen , time of image(s) review, NIHSS) <input type="checkbox"/> Consider Stroke Trials <input type="checkbox"/> Communicate POC to patient/family and ED Staff <input type="checkbox"/> If IA Candidate: <input type="checkbox"/> Activate Code IA Stroke, obtain CTA* (if not previously done)
NEU Resident	<ul style="list-style-type: none"> <input type="checkbox"/> Obtain history from EMS en route to CT <input type="checkbox"/> Obtain family/witness contact info from EMS <input type="checkbox"/> Initial CT Scan Read. If hemorrhage on CT, implement Hemorrhagic Stroke Pathway <i>In addition, if no pre-notification received:</i> <input type="checkbox"/> Receive 'Code Stroke' Page and respond directly to ED/CT Scan, determine need for CTA/CTP* <input type="checkbox"/> If patient is on warfarin, notify RN to page Respiratory Therapy to obtain POC INR <input type="checkbox"/> Notify CT Tech if POC Creat is needed 	<p>**Note: If no name/DOB available, patient should be registered as a DISASTER PATIENT **Note: Registration SHOULD NOT delay CT Scan, patient may be registered after CT scan in emergencies</p>			

PATIENT ARRIVES

Updated 4.2018 ¹ See Failsafe Pager Process on Reverse ² See Code Stroke Communication Flow for Alteplase Administration on Reverse ³ See BP Management for Alteplase Patients on Reverse ^{4,5} See IV Infiltration & Serious Complications on reverse

¹Code Stroke Failsafe (for Pager/Directory Downtime)

- If no response to bedside within 10 minutes, use failsafe pager 123-7003
- If no response, use overhead page

²Code Stroke Communication Flow for Alteplase (tPA) Administration in the ED:

- 1) NEU Resident makes decision for Alteplase Administration
- 2) NEU Resident holds risk/benefits/alternatives discussion with patient/family.
- 3) NEU Resident verbally communicates to ED RN: "please remove Alteplase from Pyxis via Override and to begin mixing the medication" (*see note)
- 4) NEU Resident places order in EPIC to administer Alteplase bolus and infusion
- 5) ED RN x 2 completes independent double check. ED RN links medication in EPIC and begins bolus, followed by infusion

* **Note: If Alteplase is not started to be mixed within 10 minutes, NEU Resident should escalate and notify ED Charge Nurse who should provide immediate assistance. If no results, NEU resident will escalate to ED attending for assistance with resources.**

³Post-Alteplase BP Management Guidelines:

Patient Who DOES Require Antihypertensive Medication(s) Pre-Alteplase:

*If patient is treated pre-alteplase with an anti-hypertensive, a Nicardipine drip will be ordered by NEU MD when the alteplase order is placed

*Goal BP for Nicardipine titration will be <160/90 mmHg. Titrate q 5-15 minutes until goal BP is reached.

*Order for notify LIP if BP is >180/105 should still remain and this should be treated as an emergency

Patient Who DOES NOT Require Antihypertensive Medication Pre-Alteplase:

*NEU MD will order PRN antihypertensives for BP >180/105 mmHg when Alteplase order is placed.

*RN to notify LIP after 1st PRN dose of antihypertensive is administered.

*LIP will order a Nicardipine drip after 1st PRN antihypertensive dose

⁴Guidelines For IV Infiltration During Alteplase Infusion:

- Change infusion to alternate IV site for continuation of drug
- It is not necessary to re-dose drug
- Treat infiltrated site locally with elevation and warm compress
- Document in EMR

⁵Post-Alteplase (tPA) Serious Complication Management Guidelines:

Decline in Neuro Exam, Suspicion of Intracranial Hemorrhage :

- STOP Alteplase (tPA) if infusing, Notify Neurology STAT, STAT Non-Contrast Head CT

Angioedema :

- STOP Alteplase (tPA) if infusing, Notify Neurology STAT, follow UNC ED Allergic Reaction Protocol

Other Serious Hemorrhage :

- STOP Alteplase (tPA) if infusing, Notify Neurology STAT, prepare for diagnostic tests to evaluate (dependent on location)

Resources

Nursing Neuro Checks: Refer to Comprehensive Neurologic Assessment for the Adult Patient (NURS 0145)

Acute ICH Treatment Algorithm: Under Clinical Documents on EM Website
(<http://www.med.unc.edu/emergmed/resources-links/clinical-documents>)

Anticoagulation Reversal in the ED: Under Clinical Documents on EM Website
(<http://www.med.unc.edu/emergmed/resources-links/clinical-documents>)

UNC Stroke Program Sharepoint (Additional Resources):
<https://collab.unchealthcare.org/sites/surgeryservice/strokeprogram/SitePages/Home.aspx>