Acute Telestroke Scenario
RN Training, Cornwall

Scenario	Resource
At 1315, a 64 year old male (Mr. X) is brought by wheelchair into Resus by the triage nurse. The patient is accompanied by his wife who had driven him to the hospital and had requested assistance to get her husband out of the car. The triage nurse found the patient sitting in the passenger side of the car with no movement to the right side of his body and a right facial droop. When questioned, the patient had garbled speech with the occasional recognizable word. He was put into a wheelchair and brought directly to Trauma/Resus. According to the patient's wife, he had accompanied her when she had driven to Farm Boy to pick up a couple items. He was feeling tired and decided to wait in the car while she went in @ 1240. The wife returned to the car @ 1255 to find the patient slumped in the passenger seat with drool coming out of his mouth. When questioned by his wife, the patient could only respond with garbled speech. Mrs X. recognized the S&S of a stroke and drove the patient immediately to the hospital.	
Based on this history, what time would be considered for patient last seen normal (LSN)? o 1240 hrs	• Management of Acute Stroke presentation
If the patient had woken up with the above symptoms, what questions would you ask the patient's wife to establish LSN? o When was the patient last witnessed to be neurologically normal? o What time did the patient go to bed? o Did he awake during the night without any neurological deficit	• Management of Acute Stroke presentation
Where do you document this?	

○ ED nursing notes and then in the Acute Stroke Package on the "Emergency Nurse Checklist" or Physician's order sheet " Initial Evaluation of Stroke Patients for Possible Thrombolysis" (if you have grabbed your Acute Stroke Protocol package already) ○ Ensure you also document contact information for the person who last saw this person "normal", in the Emergency nurse Checklist in the Acute Stroke Package **How far into the 4.5 hour window are you?** ○ 35 minutes You notify the ED physician of this patient immediately as you know time is brain. You get the "Acute Stroke Code" package/binder in the event that this is an acute telestroke patient. **Where is your Acute Telestroke binder/package kept?** ○ Discuss location As the primary nurse you begin your assessment. You obtain further information from the patient's wife and learn that • The patient has no allergies. • He has a history of hypertension and • The only medication that he takes is Captopril. You attach the patient to oxygen and to the cardiac monitor and begin your	• Acute Stroke Package/Emergency Nurse Checklist or Physician Orders for "Initial Evaluation of Stroke Patients for Possible Thrombolysis" • Policy and Procedures

initial assessment, **How are you going to assess this patient?** o Airway o The patient is alert and is maintaining his airway. There are no sonorous respirations. He does, however, have a right facial droop and is drooling from the right corner of his mouth. o Breathing o Non-labored, regular respirations at a rate of 16. Lungs clear with good A/E throughout. O2 saturation of 99% on O2 @ 3 liters by NP. Patient in no respiratory distress. o Circulation o Pulse strong and regular. Monitor shows NSR at rate of 72. BP (R) - 150/96 and BP (L) – 148/96. Good cap refill. Skin – pale, warm and slightly diaphoretic. Temp – 37 ° C. o Disability o Glasgow Coma Scale and Pupils ▪ Patients eyes open spontaneously – 4 ▪ Speech garbled with occasional recognizable word – 3 ▪ Patient has no motor response to right side of body but moves limb to command on left side of body – 6 ▪ GCS – total 13. ▪ Mr. X's pupils are 2+, equal and reactive. o Motor Function ▪ Refer to NIHSS 6a, 6b (motor arm & leg) as reference. ▪ Note: lift arms 90° if sitting and 45° if supine (with palms down)	• Acute Stroke Package/Emergency Nurse Checklist • Fast FAQ for Nurses Book • Management of Acute Stroke presentation

▪ Note: leg strength should always be assessed while patient supine with leg lifted to 30° ▪ The patient has <u>severe weakness</u> to his right arm and leg. ▪ Use 1-1000, 2-1000, etc for counting Based on your assessment, you determine there is a high likelihood that Mr. X. is having a stroke. The physician agrees that an ACUTE STROKE code be initiated and continues on to complete the NIHSS. You call for nursing back up help as needed. **Who do you page?** o Call an acute stroke code internally using a soft page (review process) o Call CritiCall (they will call the neurologist on call and provide the referring hospital information to call back) o They will ask you to enter CPSO number which refers to Canadian Physician Surgeons of Ontario number. If known key it in, if not available stay on the line. o State "there is an Acute Stroke at Cornwall Community Hospital and we are requesting the neurologist on call for telestroke." and they will ask many questions including the following questions: ▪ ED Physician name ▪ Patient name, sex and age ▪ How long has the patient been at your facility? ▪ Time of onset of symptoms ▪ Identify a number for neurologist to call back? (Cornwall ED physician #4726)	• Acute Stroke Package/ NIHSS form • NIHSS online program • Acute Stroke Package/ Emergency Nurse Checklist

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You have the started oxygen, have the patient on a monitor, obtained baseline VS, and have completed an initial assessment, what else do you need to do? ○ Begin the Emergency Nurse Checklist ○ Draw blood (CBC, PTT, INR, fibrinogen, lytes, creatinine, glucose, type and screen) ○ Stat Glucometer ○ Contact lab to notify them that STAT blood work on its way ○ Contact CT to see when they are ready ○ Complete a 12 EKG ○ Insert 2 saline locks (18 gauge if possible) ○ Obtain a patient weight (estimate or actual) ○ Consider a foley as needed	• Acute Stroke Package/ "Emergency Nurse Checklist" or "Initial Evaluation Of Stroke Patients for Possible Thrombolysis"
You prepare to accompany the patient for a CT. What equipment should be brought to CT with patient? ○ Lifepak 12 or Philips cardiac monitor ○ Ambu Bag ○ O2 tank	
Who sets up the videoconferencing equipment in ED while you are away? ○ ERA	
What should be done if the patient's temperature was 38.0 ° C?	• Policy & Procedures • OTN telestroke quick

○ PO/PR Tylenol for fever > 37.5° C ○ "Temperature elevations during ischemia have been found to accelerate and extend pathology changes in the brain due to increase metabolic needs" (Ginsberg, et al, Thereapeutic modulation of brain temperature: Relevance to ischemic brain injury. *Cerebr Brain Metab Review,* 1992. It is 1330 and the patient is accompanied to CT scan for CT of head. The consulting neurologist calls in at 1340 in response to the telestroke call. He is filled in on the patient, presenting symptoms and status. He agrees to link into VC in order to see the patient upon return from CT. Mr. X returns from CT @ 1340 to the room in ED set up with VC equipment. The neurologist has joined by VC and begins his assessment of the patient. With the help of the ED physician he reviews the history of the patient, presenting complaint, completes the checklist for IV tPA including consideration of inclusion and exclusion criteria (**see IV tPA checklist**) and completes the NIHSS. The NIHSS score is 7. He views the CT scan and reviews the blood work. There is no sign of hemorrhage on the CT. Blood work is normal. He is still within the 4.5 hour window from "last seen normal" or "time of onset". There is no change in the patient's vital signs neurological assessment or cardiac rhythm (sinus) since he came to ED. The neurologist considers Mr. X a candidate for tPA and reviews thrombolytic therapy with Mr. and Mrs. X in order to get consent for tpA treatment. It is now 1530 hrs	reference sheet • Acute Stroke Package/ "Initial Evaluation Of Stroke Patients for Possible Thrombolysis" • Telestroke Communication Tool • Acute Stroke Package/ "NIHSS" form • NIHSS online program • Acute Stroke Package/ "Intravenous tPA for Acute Stroke Checklist"

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Where would he get this consent form? o In the "Acute Stroke Code" package	
How far into the 4.5 hour timeframe are you? o 70 minutes	• Acute Stroke Package/ Consent Form for tPA
What about door to needle time target of 60 minutes? o 35 minutes	• Acute Stroke Package/ "Target Times"
If the patient had a systolic BP > 185 mm Hg or diastolic BP > 105 mm Hg), what would be done? o Confirm BP with 2 or more readings taken 10 minutes apart o Notify Physician o Refer to "Managing Hypertension in Patients Receiving tPA in Acute Ischemic Stroke" for medication management	• Acute Stroke Package/ Physician Orders "Initial Evaluation Of Stroke Patients for Possible Thrombolysis"/ "Managing Hypertension in Patients Receiving tPA in Acute Ischemic Stroke"
It is 1407 hrs. You are preparing the tPA for Mr. X. **Explain where tPA is kept and how you would prepare the bottle?** o Resus fridge o Refer to "Preparation for tPA infusion"	• Acute Stroke Package/ tPA Infusion Chart
How do you calculate the dose to be given based on a weight of 80 kg?	

- Refer to order sheet and transfusion chart

tPA INFUSION CHART FOR STROKE (100 mg VIAL)

WEIGHT (kg)	TOTAL DOSE	BOLUS DOSE administer over **1 minute**	BOLUS INFUSION RATE x 1 minute	INFUSION DOSE administer over **1 hour**	CONTINUOUS INFUSION RATE x 1 hour	AMOUNT LEFT IN VIAL
79 – 80	71.5 mg	7.15 mg (7.2 mL)	432 mL/hr	64.3 mg (64 mL)	64 mL/hr	28.8 mL

DO NOT EXCEED MAXIMUM TOTAL DOSE OF 90 mg

- Have nurse demonstrate settings on pump.

What would have been different if the patient had weighed 55 kg?

- A 50 mg vial could have been used instead of the 100 mg vial.
- Explain how to prepare with buretrol

It is 1412 and you are initiating the infusion of tPA on Mr. X.
How far into the 4.5 hour time frame are you?

- 92 minutes

How long since the patient arrived to the department?

- 57 minutes

What is the target timeframe for the patient to receive tPA after arriving to the ER?

- Acute Stroke Package/ Physician Orders "IV tPA-DURING"/ "tPA Infusion Chart for Stroke 100 mg vial"/ "Preparation of tPA-100 mg vial" sheet

- Acute Stroke Package/ "tPA Infusion Chart for Stroke 50 mg vial"

○ Within 60 minutes or less. **How often should the vitals and modified NIHSS be completed during administration of the medication?** ○ Every 15 minutes **Name a reason that tPA may have to be stopped before the dose is complete.** ○ A sudden deterioration in the patient's neurological status could be indicating intracranial bleeding. ○ 6% of patients treated with tPA develop intracranial bleeding ○ **Refer to "Bleeding Complications of Thrombolysis and Management of Complications".** **Does infusion have to be stopped if extracranial bleeding?** ○ Only if bleeding cannot be controlled. **What is it important to remember to avoid, following tPA infusion, due to Mr. X's increased risk for bleeding?** ○ Avoid venipuncture x 12 hours post tPA unless absolutely necessary. ○ Do not use non compressible sites such as the subclavian and internal jugular for 24 hours post tPA ○ Avoid NG tubes, bladder catheterizations, and IM injections for 24 hours post tPA ○ Refer to order sheet.	• Acute Stroke Package/ "Time Targets" • Acute Stroke Package/ Physician Orders "IV tPA-DURING" • Acute Stroke Package/ Physician Orders "IV tPA-DURING" • Acute Stroke Package/ Physician Orders "Management of Bleeding Complications of Thrombolysis" • Acute Stroke Package/ Physician Orders "Management of Bleeding Complications of Thrombolysis"

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What is another risk that patients can develop with IV tPA therapy for acute stroke when patients are taking ACE inhibitor therapy such as Mr. X? ○ Angioedema reported in 1.3% of patients (reaction occurs @45-90 minutes after tPA started) ○ Swelling of tongue starts ipsilateral to side of hemiplegia and may progress to entire tongue and oropharynx ○ Observe for facial, tongue and/or pharyngeal angioedema @ 30 minutes, 45 minutes, 60 minutes and 75 minutes after initiation of IV tPA infusion and periodically for 24 hours after. ○ **Stop tPA if symptoms develop and notify ED Physician STAT** ○ **Refer to "Management of Angioedema with Use of tPA for Ischemic Stroke"**	• Acute Stroke Package/ Information Sheet "Management of Angioedema with use of t-PA for Ischemic Stroke"
It is 1513 and Mr. X's dose of tPA is complete. His vital signs are stable. He is alert and no longer has any difficulty with his speech. He is oriented x 3. He now only has mild weakness to his right side. **How often are his vital signs and neurological assessment going to be checked now?** ○ Refer to "Post Intravenous tPA" order sheet ○ Q15min x1, q30min x 2hour, q1h x 4 hours, z2h x 8 hours, q4x 24 hours, then TID **What changes in the patient status post tPA should instigate a call to the physician?**	• Acute Stroke Package/ Physician Orders "Post IV tPA- POST"

○ Declining neurological status (identify NIHSS score and changes you see) ○ Bleeding ○ VS changes as outlined on the post tPA order form Mr. X. was transferred to critical care 2 hours after tPA administration was complete. **How often would his VS and neurological status need to be completed post tPA?** ○ Continue with the post tPA VS started in ED ○ Q15min x1, q30min x 2hour, q1h x 4 hours, z2h x 8 hours, q4x 24 hours, then TID Mr X. had a CT scan repeated the next day as per protocol and was discharged 5 days later with no deficits. He wrote a wonderful note to the department thanking everyone for the wonderful care that he received!	• Acute Stroke Package/ Physician Orders "Post IV tPA- POST" • Acute Stroke Package/ Physician Orders "Post IV tPA- POST" • Acute Stroke Package/ " Post IV tPA Pathway Acute stroke admission orders"