Transferring Acute Stroke Patients “What seems to be the holdup?”

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OBJECTIVES

- Determine actions when a stroke patient arrives at a Critical Access Hospital (CAH)
- Review the process of transfer from CAH to Stroke Center
- Determine transfer delays from a CAH to Stroke Center--
- Review the Rapid Improvement Event
- Discuss actions the Stroke Center takes to receive the patient

We have no disclosures

Case Study

- A 57 year old male arrives at the Critical Access Hospital accompanied by a friend.
- The friend reports that he was eating dinner at a local restaurant when suddenly he started talking to someone that was not there. She noticed that his face was drooping and he was repeating his words. He did not recognize his left hand and was unable to pick it up. She reports that he then attempted to drink and choked on it spitting it across the table.
- He was able to walk to his vehicle and get in, but was dragging his left foot slightly when walking.
- The last known well time was witnessed by the friend at 1935. They arrive at the hospital at 1945.

Arrival activities

- The patient is taken to the ED
- Blood glucose is completed and resulted at 120
- Neurological assessment: left sided weakness, left facial drooping & slurring of words
- EKG completed showing atrial fibrillation
- IV inserted
- Cardiac monitor placed showing atrial fibrillation, heart rate 100

Activation Actions

- Provider required to report to the Emergency Department within 30 minutes of notification
- Provider notified 13 minutes after patient arrived
- Provider arrives in 20 minute- 2018
- 33 minutes after patient arrived

Provider Actions

- Completes physical exam of patient
- Reviews EKG
- Order for head CT without contrast given at 2046
- Orders given for PT/PTT, CBC, BMP

Nurse Actions

- Nurse enters order and notifies Radiology/Laboratory staff on call via phone
- NIHHS scale completed - 7

Laboratory/Radiology Actions

- Both are required to report to the ED within 30 minutes of notification
- Unsure time notified to time of arrival
- CT scan turned on and warm up
- Takes approximately 7 minutes

Actions

- Lab tech is first to arrive
- Radiology tech arrives, but start of CT delayed until lab tech finishes blood draw
- Patient goes to CT at 2106
- Time of order to CT 20 minutes
- Time of patient arrival to CT 1 hour 21 minutes

Actions

- Radiology tech returns patient to room
- Uploads images to radiologist on call
  - Takes 250 images
  - Send images to PACs and then sends to radiologist
  - Average time to send 7-8 minutes
  - Upload order to PACs
  - Must also call the Radiologist and/or hospital and state STAT read necessary

Actions

- Provider awaits over read from on call Radiologist
- Radiologist calls with over read @ 2142, speaks with Provider
- Time from arrival to results 1 hours 57 min
- Report: patient is not having a hemorrhagic stroke
- Call placed to Neurologist regarding Alteplase
- Neurologist concurs re Alteplase
- Provider instructed to call Hospitalist for acceptance of patient admission
- Nurse receives order to infuse Alteplase

Actions

- Nurse enters order for Ateplase
- Reviews Ateplase contraindications
- Nurse calculates dosage and prepares medication
- Administers Alteplase bolus and starts infusion
- Provider calls Hospitalist for patient acceptance to transfer
- Delay occurs due to inability to contact receiving facility Hospitalist and return contact to provider

Actions

- Nurse receives order for transfer either by ground or air
- (Still awaiting bed acceptance)
- Ward Secretary or other available staff notifies ambulance driver on call and nurse on call of impending transfer

Actions

- Nurses awaiting bed acceptance by receiving hospital
- Delays occur due to receiving hospital awaiting open bed
- Provider to provider call available, but not passed to bed placement or house supervisor at receiving hospital
- Receiving hospital does not return call in a timely manner

Actions

- Ambulance driver arrives
- Completes necessary paper work
- Nurse arrives
- Obtains Zoll monitor and BP monitor
- Receives report

Actions

- Ambulance driver and nurse ready to transport
- Awaiting bed acceptance prior to loading patient
- Nurse calls for bed acceptance approval to transport patient
- Receives bed acceptance
- Patient loaded in ambulance
- Depending on drips and patient condition takes 10 min or longer to load, connect monitor, IV pumps, secure patient on cart
- Nurse takes vital signs prior to ambulance leaving

Admission to Time of Transfer

2 HOURS 27 MINUTES

Solving the problem

- Initiated Rapid Improvement Event (RIE)
  - Held after review of statistics
  - Reviewed the following:
    - Admission to provider seen
    - Admission to CT ordered
    - Admission to CT completed
    - Admission to CT called to provider
    - Admission to Transfer

Findings

- Number of nursing staff available
- Calling provider after the assessment is completed
- Calling ancillary staff after the provider sees the patient and places orders
- Provider has 30 minutes to respond
- Ancillary staff has 30 minutes to respond
- Length of time it takes to warm up the CT scanner
- Length of time it takes to send the images & Radiologist to complete overread
- Provider to provider calls not direct to Neurologist

Findings

- Providers instructed to call Hospitalist for patient acceptance
- Providers instructing nurses that bed acceptance has been obtained in reality it was not
- Nurses waiting to hear back from receiving hospital for transfer

Nursing Staff

- Number of available nurses
  - Patient Care, ED, OB
    - 2 – 3 RNs
    - 1 LPN
    - 1 Aide

Providers

- One provider on call who reports within 30 minutes after they are notified
- Can be delayed if more critical patient arrives

Ancillary Staff

- One Lab Tech on call
- One Radiology Tech on call
- Both report within 30 minutes of being called

CT scan

- CT scanner up and ready to have testing completed
- RN was not available to assist with transfer and did not have the patient ready for images
- Rad Tech would return the patient to the ED prior to sending the images

Reports

- Length of time to send radiology films
- Radiologist on call not notified of possible CVA patient
- Radiologist unable to contact provider on call back
- Unable to track call back times

Consults

- Direct number to Neurologist not available

Patient Acceptance

- Call within 15 minutes of receiving provider to provider acceptance

Plan for Improvement

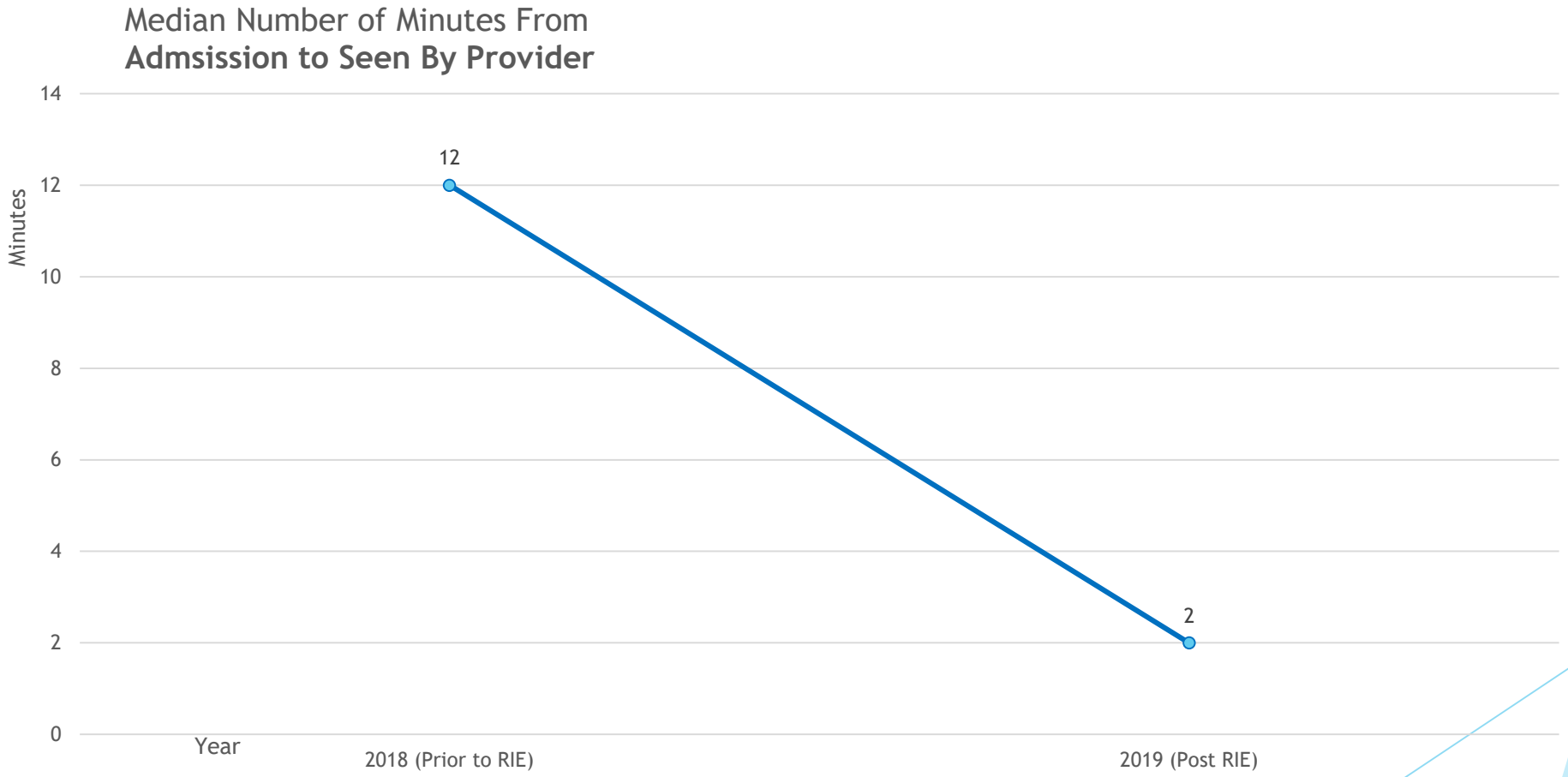
- Update CVA nurse order set to include CT & Lab orders when indicated
- Create nursing standard work for CVA patients
- Create ward secretary standard work for CVA patients
- Create radiology standard order for CVA patients
- Create standard work for calling provider for CVA patients
- Create EMS standard work for transferring to BCHCC

Plan for Improvement

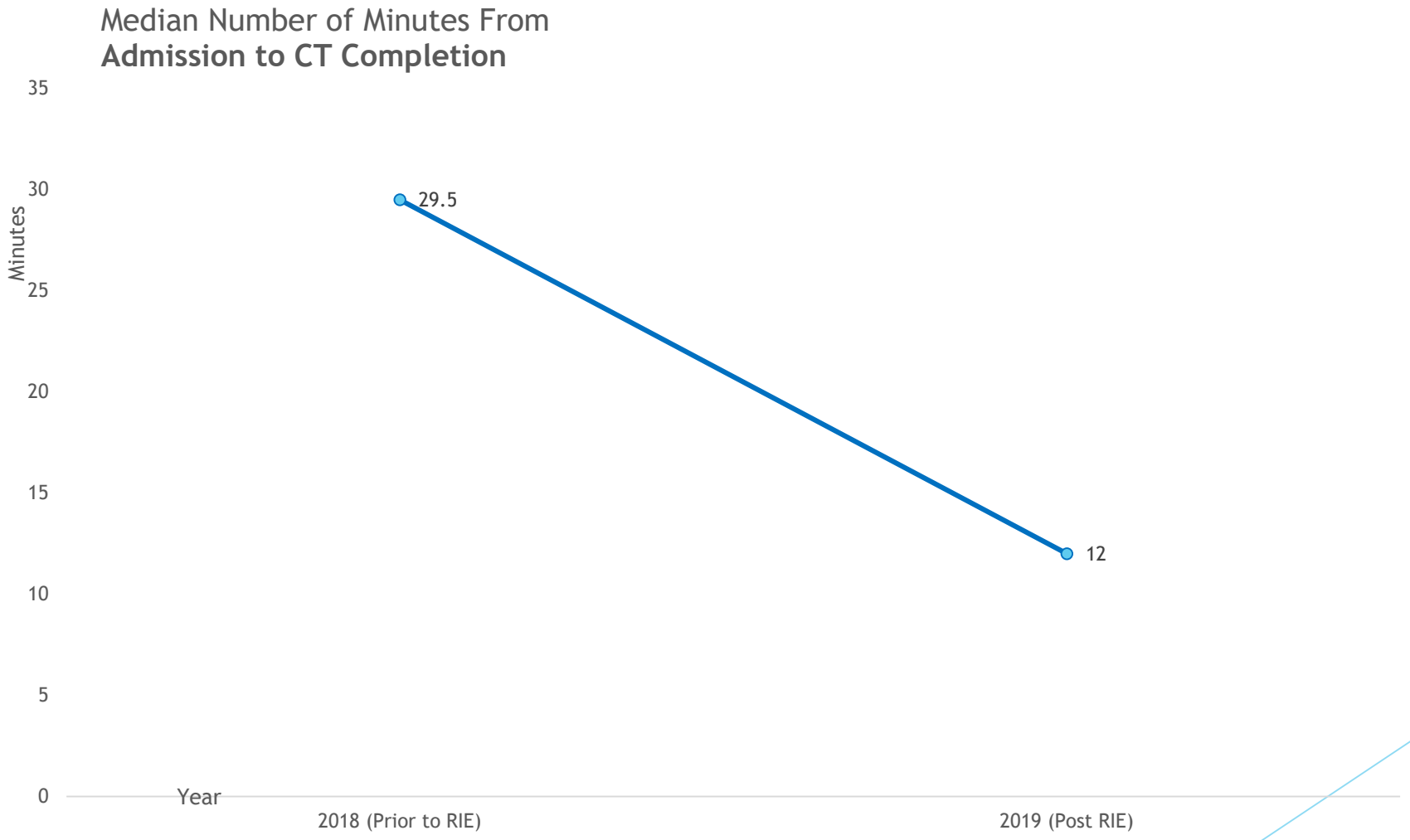
- Notify Radiologist on call of possible CVA
- Improve time to transmit radiology images to Radiologist
- RACE training for EMS
- Direct number to Neurologist on call provided to providers
- Nurses call receiving hospital within 15 minutes of provider to provider call for bed acceptance
- Ambulance driver and nurse notified immediately

Results of Rapid Improvement Event!

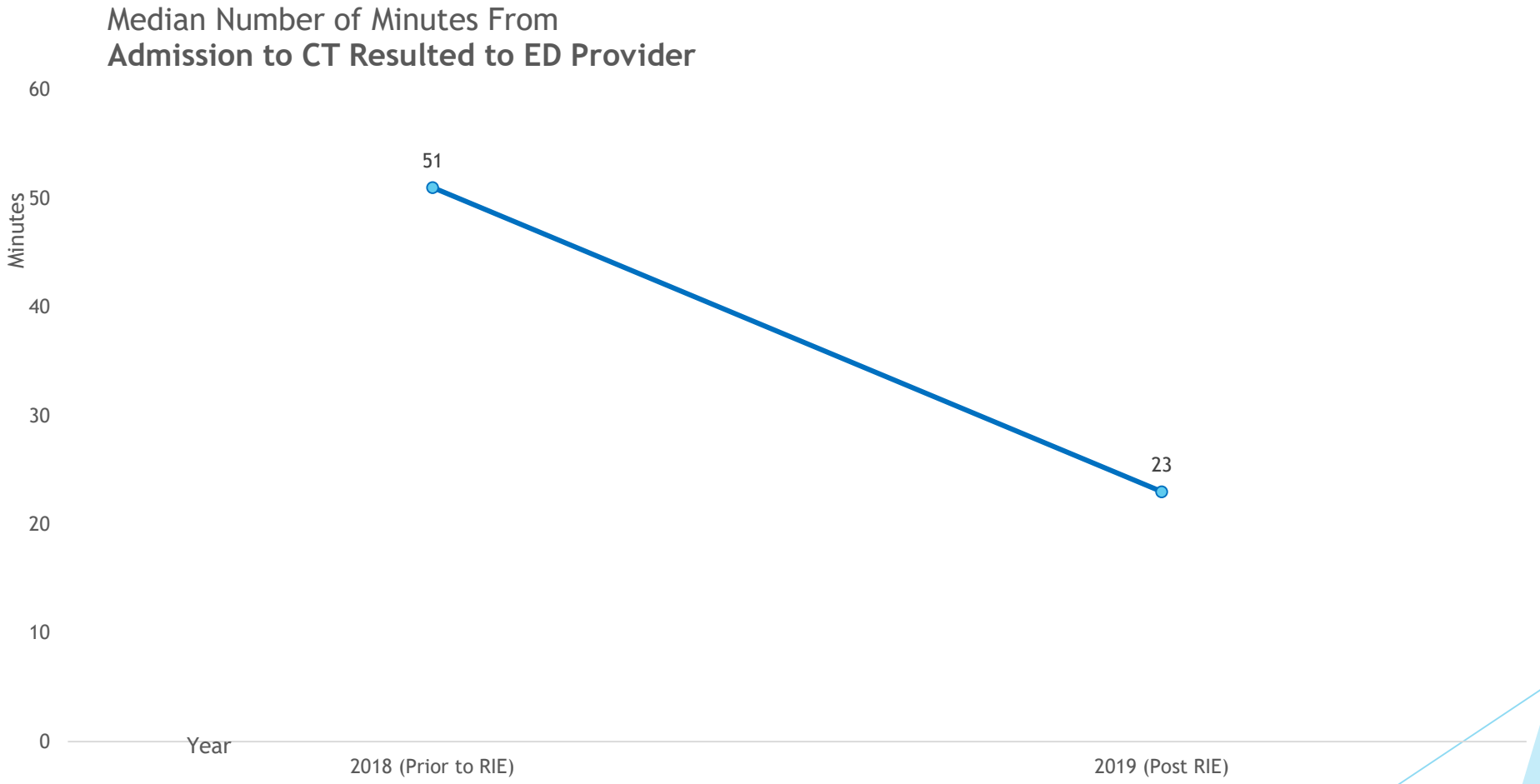
Median Number of Minutes From Admission to Seen by Provider



Admission to CT Completion



Admission to CT Resulted to Provider



Admission to Time of Transfer

Lessons Learned from RIE

- Issue is identified
- Statistics collected and reviewed
- All departments involved, including EMS
- Problems are identified
- Plan for improvement put forth
- Plan to meet within a month for follow through
- Improved the time of provider arrival
- Improved time of lab & radiology arrival
- Improved CT result times
- Utilized all personal available for the care of Stroke patients
- Improved patient care

Meanwhile, on the other side of this event…..

Receiving a transferred patient

- Sending hospital calls receiving hospital
  - is transferred by Switchboard to the Physician Line
  - ***Or*** sending hospital staff can call the Physician Line directly
- March 2018: the Physician line is answered by BOTH a Hospitalist and the Administrative Manager (House Supervisor)
- This allows provider-provider contact/report
- Admin Manager will be able to give an ***immediate*** acceptance
  - Only the Admin Manager can accept a patient
  - Stroke patients are a priority admission whenever possible

Patient Acceptance

- We won't give you a bed assignment- just a campus (East or West)
- Sending facility will need to communicate Campus assigned to the EMS crew
- We will be assigning a bed on our end
  - This might take awhile as dismissals occur and patients are moved around
- Once Acceptance is agreed upon (we don't decline patients- may ask you to hold off on transfer)
  - Put the patient on the bus!
  - Per our policy- we can't tell you to turn around
  - Stroke patients are a priority admission

Phone Report

- Provider to provider, Nurse to nurse
- Report: elements seem to be inconsistent
- Need to know:
  - Did provider speak with Neurology?
  - Last known well
  - Medications including Alteplase
  - VS
  - Pertinent health history
  - ***What does the patient look like?***
    - Most important!

Hospitalist Actions

- Hospitalist will call Neurologist on call
  - What does neurologist know & what are their recommendations?
  - What further testing is needed: CT-Angio or CT-Perfusion
  - Severity of symptoms (NIHSS > 6, RACE 4 or >)
  - Is Mechanical Thrombectomy (MT) an option?
  - Indicated for CT-perfusion with a mismatch:
    - Core infarct is SMALLER than salvageable tissue around it (Penumbra)
    - Wake up stroke when IV Alteplase not available (indetermined LKW)
  - Enters orders (imaging, admission)

Actions of Administrative Manager

- Calls sending hospital back with what unit/phone number/campus who will be receiving the patient
- Requests sending hospital to call receiving nurse to give nurse-nurse report
- Sending nurse should give an ETA
- Calls Hospitalist to ensure they know ETA and find out patient status: ICU, GC, PCU
- Calls receiving unit, Registrar, Radiology, ED: heads up call w/ETA- be ready to direct EMS & notify RNs on receiving unit

Receiving unit

- ICU status:
- Assumption is bad stroke or Alteplase given or coming for evaluation for MT
  - Patient will get a stat CTA or CTP upon arrival
  - ICU RN will meet patient in ED/Radiology
  - RN must assess the patient: EMS cannot hand off patient to a Radiology tech
- PCU/GC status:
- If imaging planned- still will try to do upon arrival
  - Patient could go to the floor then go to CT
  - Assumption is patient is mostly stable

Challenges on Stroke Center side

- Sending Provider does not reach Neurologist on call with single call to the Hospital
- Hospitalist will generally ask sending Provider “have you spoken with Neurologist yet” then directs them to call the Neurologist
  - This is sometimes off-putting to sending provider
- Neurologist confers with sending provider but won’t know if the provider is sending the patient or not
- Elements of report can be sketchy at times
- Adm Manager has to make several calls to various units
- Receiving unit RN/Charge nurse have to make plans to free an RN to go to Radiology to do quick assessment

Patient arrival

- EMS brings them to ED (hopefully to the right campus)
- ED Registrar does “Quick Reg” and applies an armband
- ICU RN meets patient in ED and escorts to CT
- If imaging not stat- patient can go to receiving unit
- Provider orders are “released” by Receiving RN so they will go to the correct departments
  - Lab, Radiology, Pharmacy
- Receiving RN notifies Hospitalist of patient arrival

Improvements to process

- March 2018: single phone number (Physician direct line) reaches Hospitalist and Admin Manager to give report and request acceptance
- March 2018 (& on-going!)
  - Refining process of patient arrival
  - Admin Manager notifying all the players: ED, Radiology, Registrar and Receiving Unit
  - ICU nurses going to ED to meet/assess patient is going VERY well
- Next step
  - Introducing this to the PCU, GC areas

Questions?

Thanks for listening!