Target Stroke
Reducing DTN in the ED

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FINANCIAL DISCLOSURE:
None

UNLABELED/UNAPPROVED USES
DISCLOSURE: None
Objectives

• Explain the Target Stroke program and how to implement the tools within your program

• Define current workflow and streamline it to reduce door to needle time

• Describe current best practices
Surviving

What are you waiting for?
Surviving the Time is Now
Spreading the Word
Public Awareness

Is that a STROKE? Think...

F. A. S. T.

Face
Does the face look uneven?
Ask the person to smile.

Arms
Does one arm drift down?
Ask the person to raise both arms.

Speech
Does their speech sound strange?
Ask the person to repeat a simple phrase.

Time
Time to call 911 now!
Ask to be taken directly to the Emergency Department at St. Luke’s Episcopal Hospital.

Baylor St. Luke’s Medical Center
Stroke is a Brain Attack!
Door to Needle Time
Get With The Guidelines® Stroke

• Get With The Guidelines®—Stroke launched in 2003 is by the American Heart Association/American Stroke Association
• 1,656 hospitals enter patient records into the Get With The Guidelines-Stroke database
• With more than 3.4 million patient records entered into the Get With The Guidelines®-Stroke database, research shows that this quality improvement program is associated with a significant and sustained improvement in adherence to acute hospital performance measures as well as secondary prevention for inpatient care of patients with ischemic stroke and TIA
• Has led to significant and important evidence-based manuscripts
Target: Stroke

• Target: Stroke was launched as a program of Get With The Guidelines®-Stroke in 2009 to provide IV tPA to eligible patients with acute ischemic stroke in a timely fashion

• Specifically, the **Goal** of Target: Stroke is to increase the number of eligible ischemic stroke patients receiving IV tPA in 60 minutes or less

• Hospitals that participate in Target:
  • Receive the most up-to-date evidenced-based clinical information
  • Quality improvement support
  • The ability to be recognized for their efforts through the Target: Stroke Honor Roll

• There are 590 Target: Stroke Honor Roll hospitals
Target: Stroke Phase 2

• Primary Phase II Goal:
  • Achieve Door-to-Needle Times within 60 minutes in 75% or more of acute ischemic stroke patients treated with IV tPA

• Secondary Phase II Goal:
  • Achieve Door-to-Needle times within 45 minutes in 50% or more of acute ischemic stroke patients treated with IV tPA
Eligibility for Target: Stroke Honor Roll

• Hospital must currently hold Gold, Silver or Bronze performance achievement status in Get With The Guidelines-Stroke and have door-to-needle times meeting the criteria (minimum of six patients) for at least one calendar quarter for initial awards and four calendar quarters for renewal

• Additionally, the hospital must also complete the Target: Stroke Phase II survey
Target: Stroke Honor Roll Levels

• Target: Stroke Honor Roll
  – Time to thrombolytic therapy within 60 minutes in 50% or more of acute ischemic stroke patients treated with IV tPA (same as current Phase I recognition criteria with same volume thresholds)

• Target: Stroke Honor Roll-Elite (new)
  – Time to thrombolytic therapy within 60 minutes in 75% or more of acute ischemic stroke patients treated with IV tPA (same volume thresholds)

• Target: Stroke Honor Roll-Elite Plus (new)
  – Time to thrombolytic therapy within 60 minutes in 75% or more of acute ischemic stroke patients treated with IV tPA AND time to thrombolytic therapy within 45 minutes in 50% of acute ischemic stroke patients treated with IV tPA (same volume thresholds)
Where to Start?

• Discover what your practice really is from triage to tPA decision
  – Strengths
  – Weakness
  – Opportunity
  – Threats
Departments

- ED
- Radiology
  - CT
  - MRI
  - NIR
- Lab
- EKG
- Pharmacy

- Respiratory
- Admitting
- Nursing Supervisor
- Transportation
- Page Operator
- Security
- EMS Providers
Quality

• You will need a lot of data who can and will support this effort?

• Meaningful Use

• Core Measures

• tPA Committee
Target: Stroke
Best practice strategies: EMS

- Remember to include your EMS providers
  - Who brings patient’s to your ED
  - How is the ED notified if a stroke patient is arriving
  - What if any stroke protocols do they use
EMS Pre-Notification

• Emergency Medical Service (EMS) providers should provide early pre-notification to the receiving hospital when stroke is recognized in the field. EMS pre-notification of hospitals:
  — can significantly shorten time to brain imaging
  — reduce door-to-needle times with IV
  — enhance the number of eligible patients treated
The Southeast Texas Assessment and Transport Stroke tool (STATS)

Date: ___________________________  Time of Call: ___________________________

Patient Name: ___________________________

CC: ___________________________  Time Last Known Well: ___________________________

BP: ___________________________  Pulse: _________  Glucose: _________

STATS ASSESSMENT

Sudden Unilateral Facial drooping/weakness  Yes  No
Sudden Unilateral Arm weakness/drift  Yes  No
Sudden Unilateral Decreased Grip Strength  Yes  No
Sudden Difficult speech/aphasia  Yes  No
Blood glucose greater than 60 mg/dl  Yes  No  Treat B6 according to agency protocol then re-evaluate

If you answered "yes" to one or more of questions above, your patient might be having a stroke.

To determine closest, most appropriate facility, answer the questions below:

STATS TRANSPORT DECISION CRITERIA

1) GCS less than 9  Yes  No
2) Asymmetric pupils  Yes  No
3) Sudden severe headache (w/no known cause)  Yes  No
4) Severe one-sided weakness  Yes  No

A) Patient has one or more of the signs/symptoms listed in 1-4, AND

B) Diversion to Comprehensive (Level 1) Stroke Center will NOT extend transport by more than 15 minutes.

If "YES" to both criteria: Immediately transport patient to the closest Comprehensive (Level 1) Stroke Center

Enroute, call receiving hospital with "CODE STROKE" and follow your treatment protocol.
Stroke Tools:

• **Stroke Toolkit:**
  – Containing rapid triage protocol
  – Clinical decision support, stroke specific order sets
  – Guidelines, hospital specific algorithms
  – Critical pathways
  – NIH Stroke Scale, and other stroke tools should be available and utilized for each patient

• **Rapid Triage Protocol and Stroke Team Notification:**
  – Acute triage protocols facilitate the timely recognition of stroke and reduce time to treatment.
  – Acute stroke teams enhance stroke care and should be activated as soon as there is hospital pre-notification from EMS personnel of a stroke patient or the stroke patient is identified in the emergency department
  – Rapid neurologic evaluation should be performed as soon as possible in ED or on the CT/MRI table.
Single Call Activation System:

A single call should activate the entire stroke team

- Single-call activation system for the stroke team is defined here as a system in which the emergency department calls a central page operator, who then simultaneously pages the entire stroke team, including notification to ensure rapid availability of the scanner for stroke protocol brain imaging

- Pagers
- Portable phones
- Vocera
- Headsets
- Message boards
- Over head paging
Imaging

- Transfer directly to CT/MRI Scanner

- Rapid acquisition and interpretation of Brain Imaging
Radiology Staff

• CT staff
  – How do they process the order for CT brain
    • Can they differentiate CT stroke vs routine brain
  – How are stat scans handled
  – Availability of Radiology Doc to read
  – What is the after hours and weekend process
  – Are they tracking turn around times now
• Include MRI
Single Point MRI

**TOPIC / SUBJECT:** MRI Brain Emergent TPA Stroke

**AREA / DEPT. / DATE** 11/2012

**PREPARED BY:** June Garcia/Patrick Stewart

**APPROVED BY:** Dr. Timothy Seipel MD

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**Issue: Outline of procedure for performing Emergent TPA Stroke**

1. Neuro Critical Care Physician pre-screens patient for stroke imaging—assurance that MRI Safety form completed and faxed to MRI 832-355-7401

2. Neuro intensivist notifies Neuro Radiologist—MRI safety form must be obtained prior the exam to clear patient.

3. Neuro Radiologist notifies MRI Department

4. MRI department makes MRI room immediately available.

5. Stroke Team brings patient to MRI Department

6. Emergent TPA Stroke protocol is scanned within 2 hours of request

7. Study is charged Emergent TPA Brain

**MRI Emergent TPA Stroke Scans**

- 1. Sag T1 Brain
- 2. Diffusion
- 3. Ax T2 FFE
- **STOP and have Radiologist check exam**
- 4. Ax T2 Flair
- 5. Axial T2
- 6. Coronal T1
- 7. 3D COW
- 8. 2D Neck

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Neuro Radiologist 832-355-6563  7:00 am – 17:00 pm  
832-355-7117  7:00 am – 22:00 pm

Nighthawk 713-795-8500  10:00 pm—07:00 am

MRI Department 832-355-6250  (24/7)
Rapid Laboratory Testing
(Including point of Care Testing if indicated)

• Can EMS draw labs?
• Who draws ED stat labs?
• Where are the labs drawn?
• How are stat ED labs handled—do you have a stroke lab bag?
• Is there point of care testing in the ED?
• What is the technology in the lab
  – Old equipment
  – New instruments on the horizon
  – Are stroke stat labs handled differently
Rapid Access and Administration of Intravenous tPA

• The tPA should be readily available in the emergency department or CT scanner (if CT scanner is not located in the ED) and can be retrieved and dispensed directly by the ED and stroke neurology team

• The initial tPA bolus should be administered while the patient is on the CT table

• Dosing charts and standardized order sets can also facilitate timely administration and minimize dosing errors.
Pharmacy

• Is there a dedicated pharmacist in the ED
  – If so hours on duty
  – What is the process when pharmacist is not available in the ED

• What mixing process will they support
  – Pre-mixing tPA
  – t-PA stocked in all medication machines
  – Documentation of waste and by whom
Mix tPA Ahead of Time

• Mix drug and set up the bolus dose and one-hour infusion pump as soon as a patient is recognized as a possible tPA candidate, even before brain imaging

• Early preparation allows tPA infusion to begin as soon as the medical decision to treat is made

• It is the policy of the drug manufacturer to replace, free of charge, medication that are mixed but not used in time-critical emergency situations like this

• Check with your hospital pharmacy for the proper procedures that will allow you to use this strategy to shorten time to treatment without financial risk
Pharmacy

- Will they assist in collecting DTN times
- Who keeps the tPA logs
- Is there a current a tPA tracking system
- Who will apply for tPA grant for the unfunded patient
Champions

• Identify champions that you can include on your team
Team-Based Approach

• The team approach based on standardized stroke pathways and protocols has proven to be effective in enhancing the number of eligible patients treated and reducing time to treatment in stroke.

• An interdisciplinary collaborative team is also essential for successful stroke performance improvement efforts.

• The team should frequently meet to review your hospital’s processes, care quality, patient safety parameters, and clinical outcomes, as well as make recommendations for improvement.
IT

• Computer documentation
  – Brings it’s own challenges along with opportunities
  – Know your system
  – Downtime procedures
Charting

• Adoption of Electronic Medical Record

• Does the ED staff use the same charting system

• Charting of 2 RN signature verification of tPA

• Charting vital and neuro vital signs post tPA

• Wastage of medication
Prompt Data Feedback

• Accurately measuring and tracking your hospital’s door-to-needle times, IV tPA treatment rates in eligible patients, other time intervals, and performance on other stroke performance/quality measures

• Data monitoring and feedback system includes the use of the Get With The Guidelines-Stroke Patient Management Tool (PMT) and creating a process for providing timely feedback and recommendations for improvement on a case-by-case basis and in hospital aggregate.
Stroke Case Review #1

60 year-old male blind from a traumatic left eye injury when he was a child involving a bow and arrow, woke up this morning at 10:00 with left sided weakness and slurred speech. He was last seen normal when he went to bed last night at 21:00. He stumbled out of bed this morning and hit his head. He took two reliever for his arthritis. His symptoms progressively worsened and at 1600 his girlfriend called EMS.

On arrival to the ED, EMS took patient to radiology for CT of head. CT revealed right MCA infarct, initial NIHSS of 15 w/ left visual field defect, facial droop, LUE plegia, LLE weakness, partial hemineglect, and severe dysarthria. Not candidate for tPA given unknown time of onset. MRI and MRA confirming inferior MCA distribution infarct with no filling of R inferior MCA branch and multifocal intracranial stenosis. No evidence of significant extracranial vascular disease. Diffuse chronic ischemic changes affecting bilateral hemispheres. Minimal improvement of neurological exam. 24hr NIHSS 13 with improvements in dysarthria and left sensation. Stroke etiology arterial or cardioembolic vs. large vessel occlusive disease.

Mental Status: Alert, fully oriented, follows commands, fluent speech with mild dysarthria, incomplete left hemineglect.

Cranial Nerves:
Pupils (II, III): R eye PERRL
Visual fields (II): poor visual acuity in right eye, blind left eye.
EOMs (III, IV, VI): EOMI
Facial motor (VII): left facial droop
Vest/ hearing (VIII): intact
Gloss/vagus (IX, X): palate uvula elevate midline
Accessory n. (IX): SCM 5/5, trapezius 5/5
Hypoglossal (XII): tongue midline
Motor:
RUE: 5/5 LUE: 0/5
RLE: 5/5 LLE: 3/5
Reflexes: 2+
Sensory: decreased sensation to touch on left face/arm/leg
Coordination: unable to assess
Gait: UTA

NIHSS: 15 on admission
NIHSS: 13 day 2 with improvement in left sensory and dysarthria
NIHSS: 13 on discharge to rehab
CT head without contrast
CLINICAL HISTORY: CVA.
TECHNIQUE: Axial noncontrast CT images through the head were obtained.
COMPARISON: None available.
FINDINGS:
There is a large volume acute right middle and anterior cerebral artery distribution infarct in the right frontal and parietal lobes, with questionable foci of petechial hemorrhage but no malignant hematoma. Mass effect results in negligible effacement of the right lateral ventricle, without midline shift or cisternal effacement. There is a moderate volume chronic infarct involving the adjacent right occipital and posterior temporal lobes.

IMPRESSION:
1. Large volume acute right MCA/ACA distribution infarct with questionable petechial hemorrhage but no concerning mass effect.
2. Chronic changes.
Key Time Intervals

• The time interval goals are:
  • Door to physician ≤10 minutes
  • Door to stroke team ≤15 minutes
  • Door to CT/MRI initiation ≤25 minutes
  • Door to CT/MRI interpretation ≤45 minutes
  • Door to needle time ≤60 minutes
• For those hospitals targeting the 45 minute goal:
  – targeting door to CT/MRI initiation of 20 minutes
  – door to CT/MRI interpretation of 35 minutes
  – door to needle times within 45 minutes may be considered
To-Dos

• tPA mixing competency
  – Pharmacist review
  – Yearly Testing
  – Mock Stroke Codes
• Consider tPA time out
• Celebrate Success
What is on the Horizon?
Mobile Stroke Unit
Mobile Stroke Unit
Mobile Stroke Unit
Mobile Stroke Unit
You are not Alone
Questions?
Thank You

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