

Stroke Quality Initiative

...What's best for the patient

EMS Webinar
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Presentation Outline

- ▶ Stroke: Every Minute Counts
- ▶ 2005 Stroke Protocol
- ▶ Communication with EMS
- ▶ Outcomes of tPA Administration
- ▶ EMS Transportation Improves Patient Outcomes
- ▶ Quality Improvement Initiative

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Every Minute Counts

When a stroke occurs, 1.9 MILLION neurons are lost **per minute**

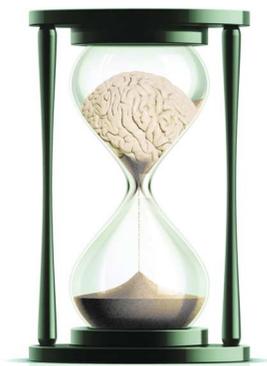
On average, one American **dies** from stroke **every 4 minutes***

15.13% of Nursing Home residents have an active diagnosis of stroke

*Center for Disease Control Website: www.cdc.gov/stroke/facts.htm

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Time is Brain



Early Action Is Important

Stroke should be treated critically,
as you would trauma and STEMI

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2005 EMS Protocol

- ▶ A result of the NYS Stroke designation program, established at the end of 2004
- ▶ The 2005 stroke protocol contains some critical changes that you should note:
 1. Appropriate stroke patients will now be diverted past a closer community hospital to a state designated stroke center.
 2. The appropriate stroke patient will be diverted only if the patient can arrive at the stroke center within **two hours of the onset of stroke symptoms** (based on the 3 hour tPA administration window).
 3. EMS personnel must contact the stroke center as soon as possible to notify them that they are transporting a stroke patient to their hospital. This will allow the stroke center time to assemble a stroke team.

<http://www.health.ny.gov/professionals/ems/pdf/strokeprotocol.pdf>

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Research Yields New Eligibility Requirements



In 2009, the American Stroke Association suggested that the **tPA eligible window should increase** from 3 hours to 4.5 hours

At certain centers, interventional procedures may be performed up to 6 hours after symptom onset

Expansion of the Time Window for Treatment of Acute Ischemic Stroke With Intravenous Tissue Plasminogen Activator. doi: 10.1161/STROKEAHA.109.192535

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Communication with EMS

As Part of Designation,

- ▶ Hospitals should provide **education for EMS** about the signs and symptoms of stroke twice a year

NYS DOH Hospital Regulations Require,

- ▶ Hospitals must **review their emergency service** at least four times a year, as part of their overall quality assurance program. Receiving hospitals shall report to Emergency Medical Services, as appropriate, all patients that die unexpectedly within 24 hours upon arrival at the receiving hospitals.

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Pre-notification varies nationally & in NYS

National Study*

- ▶ 1633 hospitals
- ▶ Apr 1, 2003 - March 31, 2011
- ▶ Acute ischemic stroke patients

Of the 371,988 National Cases with Documented Pre-Notification



NYS Preliminary Findings

Consistent with the National Study, Among the Coverdell Cohort we found a **wide range in documented pre-notification** and to require further study for the State as a whole

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*"Patterns, Predictors, Variations, and Temporal Trends in Emergency Medical Service Hospital Prenotification for Acute Ischemic Stroke." J Am Heart Assoc. 2012;1:e002345 doi: 10.1161/JAHA.112.002345

Outcomes of tPA Administration

- ▶ According to the American Academy of Neurology, successful administration of tPA has been proven to **improve long term outcomes** and **reduce costs** to the healthcare system**
- ▶ In a 2006 NINDS rt-PA Stroke Trial*, researchers found that for eligible patients who received tPA:
 - ▶ **Average Length of Stay was significantly reduced**
 - ▶ **More patients were discharged to home** than to inpatient rehabilitation or nursing homes
 - ▶ Per 1,000 eligible patients, 4 million **dollars were saved** over their lifetimes
 - ▶ The estimated long-term health outcomes was 564 quality adjusted life-years saved over 30 years of the model for 1,000 patients

**<http://www.cdc.gov/nchs/ppt/icd9/32008CDCICD9codtalkdok.ppt>

*<http://www.neurology.org/content/50/4/883.short>

EMS Transported Patients Experience Shorter Delay Times and More Rapid Assessment and Treatment

Stroke: Journal of the American Heart Association*

“A [primary stroke center] is one component of a large stroke system of care. Such systems include EMS, local/regional governments and agencies, PSCs, CSCs, and other healthcare facilities. **All resources should be integrated and communicate** at a citywide or regional level to ensure the most *efficient care* for patients with all types of stroke.”

Conclusion: “There is abundant evidence supporting the **key role of the emergency medical services** in providing timely identification, care, and transportation for patients with acute stroke.”

*Alberts, M. J. (2011). Revised and Updated Recommendations for the Establishment of Primary Stroke Centers. *Stroke: Journal of the American Heart Association*, 42(9), 2651-2665. doi:10.1161/01.STR0000158165.42884.4F
<http://stroke.ahajournals.org/content/42/9/2651.full>

Michael Tayler, RN, MPA, EMT

EMS Program Administrator at NYS Dept. of Health

Suspected Stroke (Stroke)

Note:
This protocol is for patients who have an acute episode of neurological deficit without any evidence of trauma.

Note:
Request Advanced Life Support if available.
Do not delay transport to the nearest appropriate hospital.

- I. Perform initial assessment.
- II. Assure that the patient's airway is open and that breathing and circulation are adequate.

Caution:
Consider other causes of altered mental status, i.e. hypoxia, hypoperfusion, hypoglycemia, trauma or overdose.

- III. Administer high concentration oxygen, suction as necessary, and be prepared to assist ventilations.
- IV. Position patient with head and chest elevated or position of comfort, unless doing so compromises the airway.

- V. Perform Cincinnati Pre-Hospital Stroke Scale:
 - A. Assess for facial droop: have the patient show teeth or smile,
 - B. Assess for arm drift: have the patient close eyes and hold both arms straight out for 10 seconds,
 - C. Assess for abnormal speech: have the patient say, "you can't teach an old dog new tricks".

- VI. If the findings of the Cincinnati prehospital stroke scale are positive, establish onset of signs and symptoms by asking the following:
 - A. To patient – "When was the last time you remember before you became weak, paralyzed, or unable to speak clearly?"
 - B. To family or bystander – "When was the last time you remember before the patient became weak, paralyzed, or unable to speak clearly?"

- VII. Transport of patient's with signs and symptoms of stroke to the appropriate hospital:
 - A. Transport the patient to the closest New York State Department of Health designated Stroke Center if the total prehospital time (time from when the patient's symptoms and/or signs first began to when the patient is expected to arrive at the Stroke Center) is less than two (2) hours.
 - B. Transport the patient to the closest appropriate hospital emergency department (ED) if:
 - 1. The patient is in cardiac arrest, *or*
 - 2. The patient has an unmanageable airway, *or*
 - 3. The patient has (an) other medical condition(s) that warrant(s) transport to the closest appropriate hospital emergency department (ED) as per protocol, *or*
 - 4. The total prehospital time (time from when the patient's symptoms and/or signs first began to when the patient is expected to arrive at the Stroke Center) is greater than two (2) hours, *or*
 - 5. An on-line medical control physician so directs.

- VIII. Maintain normal body temperature; do not overly warm the patient.

- IX. Protect any paralyzed or partially paralyzed extremities.

- X. Ongoing assessment. Obtain and record the patient's initial vital signs, repeat enroute as often as the situation indicates.

- XI. Notify the receiving hospital as soon as possible of your impending arrival with an acute stroke patient, Cincinnati Stroke Scale findings, and time signs and symptoms began.

- XII. Record all patient care information, including the patient's medical history and all treatment provided, on a Prehospital Care Report (PCR).

NYS Stroke Protocol

1. **Perform Cincinnati Pre-Hospital Stroke Scale**
 - A. Assess for facial droop: have the patient show teeth or smile,
 - B. Assess for arm drift: have the patient close eyes and hold both arms straight out for 10 seconds,
 - C. Assess for abnormal speech: have the patient say, "you can't teach an old dog new tricks."
2. **If the findings of the Cincinnati prehospital stroke scale are positive, establish onset of signs and symptoms by asking:**
 - A. To patient - "When was the last time you remember before you became weak, paralyzed or unable to speak clearly?"
 - B. To family or bystander - "When was the last time you remember before the patient became weak, paralyzed or unable to speak clearly?"
3. **Notify the receiving hospital** as soon as possible of your impending arrival with an acute stroke patient, Cincinnati Stroke Scale findings, and time signs and symptoms began.
4. **Record all patient care information, including the patient's medical history and all treatment provided, on a Prehospital Care Report (PCR)**

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Prenotification Not Destination

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Prehospital Care Reports

- ▶ In 2012, the Bureau of EMS implemented policy regarding the Pre-Hospital Care Reports
 - ▶ Policy 12-02: Prehospital Care Reports
 - ▶ Required the documentation and delivery of patient care information
 - ▶ Policy 12-03: Electronic PCR Data Submission
 - ▶ Set standard protocol for the movement from the paper PCR to an ePCR

- ▶ The movement toward electronic Prehospital Care Reports supports quality improvement over time

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2014 Quality Improvement Initiative

- ▶ A Quality Improvement Initiative to improve time to treatment in the Emergency Department
- ▶ The NYS DOH has actively implemented improvement plans in the past
- ▶ Hospitals will be reporting:
 1. If the pre-hospital stroke screen was performed
 2. If the time of patient last known well (Time of Symptom Onset) was documented by EMS
 3. If pre-notification included: Cincinnati Stroke Scale findings and Time of Last Known Well (Time of Symptom Onset)
 4. If the hospital received advanced notification by EMS, was the stroke team activated prior to the patient's arrival

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Excerpt From the September 2014 Letter from Lee Burns

“In 2004, the Department began building a statewide system for the effective treatment of stroke patients. Those efforts partnered the Department’s Cardiac Services and Stroke Program, the Bureau of EMS and Trauma Systems, and the State Emergency Medical Advisory Committee (SEMAC) to establish a uniform protocol so that EMS providers can make early identification of stroke patients, and to designate Stroke Center hospitals to which EMS would transport those patients. *This system has made a tremendous difference in the timely treatment and outcome for stroke patients. For continued success, however, any system must be continually evaluated through quality improvement efforts to assure the system that was built continues to work as expected.*”

“The key to successful treatment of stroke patients is always time. The earlier a stroke is identified and communicated, the earlier treatment can be initiated. To that end, the Stroke Program is again partnering with the Bureau of EMS to *evaluate* (1) is the identification of a stroke patient being effectively communicated (does the EMS provider report and does the hospital staff receive the information), and (2) does the information reported by EMS cause the hospital to activate its Stroke Team/Protocols.”

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What Can EMS Do to Help?

1. Highlight the Key Information when calling in to the Hospital
2. Highlight the Key Points in the PreHospital Care Report

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NYS DOH Stroke Center EMS Focused Data Elements in GWTG-Stroke PMT

Current GWTG-Stroke Element

Advanced notification by EMS? (of stroke patient)

Standard EMS Form Group

Date/Time patient last known to be well as documented by EMS

Pre-hospital stroke screen performed?

Custom NYS DOH Elements

Did EMS pre-notification contain the following:

- Pre-hospital stroke screen findings
- Last Known Well

If advanced notification by EMS, was the stroke team activated prior to patient arrival?

Harmony of Elements

EMS Stroke Protocol Elements

1. Perform the Cincinnati Stroke Scale
2. Establish the Time of Symptom Onset
3. Prenotify the Hospital of a stroke patient's impending arrival, findings of the CSS, and time of symptom onset
4. Documentation in PCR

Hospital Reporting Elements

1. Was the pre-hospital stroke screen performed?
2. Was time of patient last known well documented by EMS?
3. Did EMS Prenotification contain the following:
 - ▶ Cincinnati Stroke Scale findings
 - ▶ Time of Symptom Onset (Last known well)
4. If advanced notification by EMS, was the stroke team activated prior to patient arrival?

The Importance of EMS Documenting Time

- ▶ Time when symptoms began may not be the same as when symptoms were discovered
- ▶ Key Questions to Ask:
 - ▶ Was the patient alone or were symptoms witnessed?
 - ▶ Did the patient go to sleep well and wake up with symptoms?
- ▶ Give an exact time rather than a reference (11:53 AM, not 2 hours ago)

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Hospital Procedure

1. Hospitals will be documenting the pre-notification information at the time of contact
2. It has been suggested that the hospital employee receiving the pre-notification phone call ask for and document the key information

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