

Systems for Stroke Patient Care: From Pre-Hospital Triage to ED Disposition

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Global Objectives

- Improve ischemic stroke patient outcome
- Know how to effectively Rx stroke patients
- Understand current systems
- Be aware of options
- Improve Emergency Medicine practice

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Session Objectives

- Present one scenario
- Discuss what are our obligations
- Figure out what is out there
- Decide what we need to do

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A Clinical Case

- A 54 year old executive has a stroke while in a meeting
- EMS brings the patient to you within 20 minutes, with a persistent NIHSS R 14
- You are in the ED
- Your hospital is not a stroke center
- Make him better.

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ED Stroke Pt: Duties

- Stabilization, initial exam (etiology)
- Neurological exam, calculate NIHSS
- Contact a consultant (or two)
- Promptly obtain neuroimaging
- Decide the merits of tPA therapy
- Administer IV tPA or plan another Rx
- ICU, interventional radiology, or transfer
- Keep the room moving.

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Critical Questions

- Are you able to provide medical care that meets a reasonable standard?
- Can you get your consultants to support your ED medical care?
- Is your system of care efficient enough to maximize stroke patient outcome?
- Do you know your management options?
- Will you be supported in retrospect?

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Key Concept

Primary Stroke Centers

- The primary stroke center system set up by the JCAHO and ASA is meant to be an all-inclusive system that allows as many hospitals as possible to be certified as primary stroke centers.

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Stroke Center Timeline

- 1995- NINDS- TPA therapy for ischemic stroke
- 1996- EM controversy over use of TPA in stroke
- 1997- Brain Attack Coalition (BAC) formed
- 2000- Primary Stroke Center criteria published
- 2005- Comprehensive Stroke Center criteria published
- 2006- About 200 JCAHO primary stroke centers

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Brain Attack Coalition

- Stroke scales
- Guidelines
- Pathways for stroke protocol development
 - North Carolina
 - Stanford
 - Thomas Jefferson
- www.stroke-site.org

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BAC Members

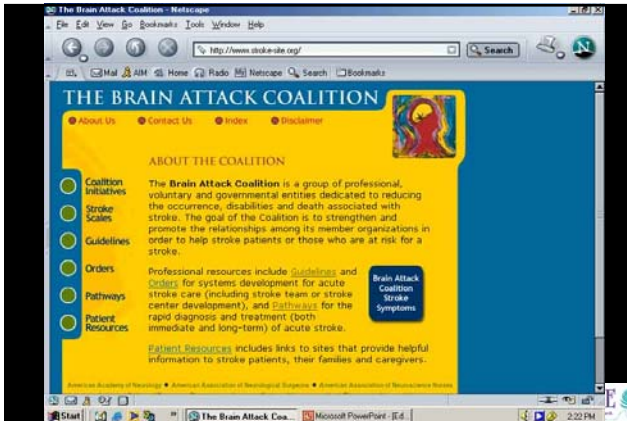
- NINDS
- American Academy of Neurology
- American College of Emergency Physicians
- American Assn of Neurological Surgeons
- American Stroke Association
- National Stroke Association
- Am Soc of Intervent and Therapy Neuroradiology
- American Society of Neuroradiology
- Congress of Neurological Surgeons
- Stroke Belt Consortium
- Veterans Administration
- National Association of EMS Physicians
- Centers for Disease Control and Prevention
- American Assn of Neuroscience Nurses

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Systems for Stroke Patient Care

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National Stroke Association

- Public Health Stroke Summit
 - CDC sponsored
 - Increase public awareness
 - Develop state programs to decrease the incidence and death rate
- National Tutorial on Stroke
- Guidelines in the planning stage

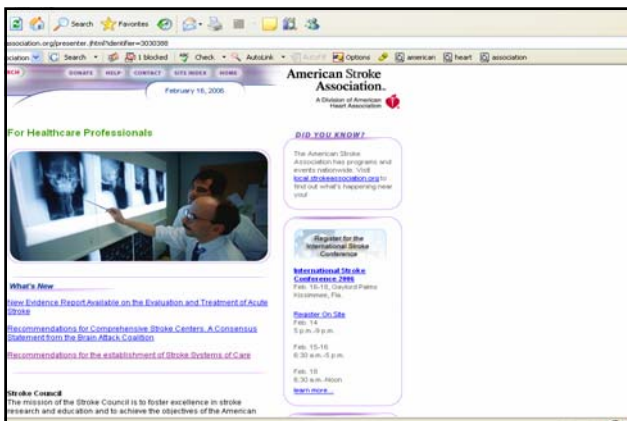
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American Stroke Association

- Acute Stroke Treatment Program
- Operation Stroke
- Get with the Guidelines for Stroke
- Stroke Center Certification
- www.strokeassociation.org

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Joint Commission (JCAHO)

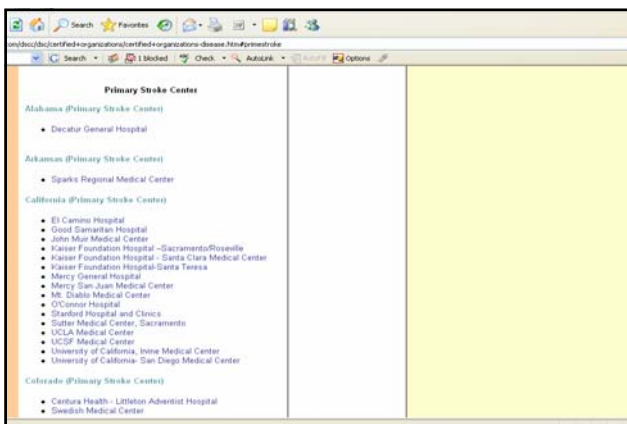
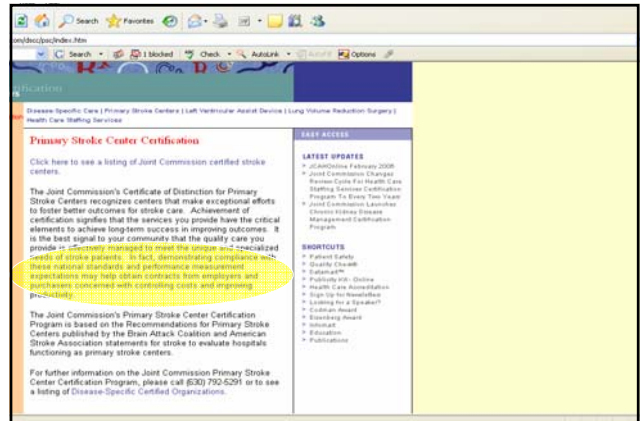
- Accredits healthcare organizations
- Provides stroke center certification
- Related to specific disease processes
- Voluntary process
- Must get recertified every two years
- Is stroke patient care coordinated, systematic, optimal?

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Systems for Stroke Patient Care

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Key Concept

Primary Stroke Center Purpose

- Stroke centers are designed to make stroke care more systematic through the use of teams, protocols and care units.
- These will allow for more tPA use, greater access to advanced technologies, mandatory CQI, and the best chance for good patient outcomes.


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EM & Primary Stroke Centers

- ED care supported by stroke team
- EM physician part of stroke team
- All EM physicians participate in stroke/CNS CME annually
- Centers support tPA use & protocols
- Facilitate neurological consultation
- Provide systems support for ED care

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Implications for the Emergency Physician

Primary Stroke Centers

- You are better off managing ED stroke patients if your hospital is a primary stroke center
- You must understand how this certification can be used to enhance your ED care of stroke patients
- You should be a part of the process

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Recommendations for the Emergency Physician

Primary Stroke Centers

- Encourage your hospital to become a primary stroke center
- Be actively involved, especially as the ED process is being developed
- Discuss this ED process with the JCAHO site surveyor
- Use this as an opportunity to move forward in support of your ED care

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Key Concept

Comprehensive Stroke Centers

- There are, as of yet, no certified comprehensive stroke centers.
- Comprehensive stroke centers will function as specialty referral centers much like level I trauma centers.
- Advanced techniques such as interventional radiology will be available 24/7, as will surgical intervention.

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Comprehensive Stroke Centers

- Tertiary centers
- Resident consultants
- Neurology, neurosurgery
- Interventional radiology
- Specialty units
- Stroke teams
- Research and education

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EM & Comp Stroke Centers

- Possible direct EMS triage
- Transfer from non-stroke centers
- Interventional radiology and neurosurgical interventions
- Specialty units after tPA, IR, OR
- Stroke teams that direct rehabilitation
- Research, education, collaboration

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Implications for the Emergency Physician

Comprehensive Stroke Centers

- You may need to transfer stroke patients to a tertiary center
- This center someday may be termed a comprehensive stroke center
- The benefits of this approach may result from the ability to provide Rx following the use of IV tPA or when the three hour window has elapsed

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Recommendations for the Emergency Physician

Comprehensive Stroke Centers

- Understand what interventions can be provided within your institution
- Know which stroke patients might benefit from transfer to another center
- Decide if this transfer should take place after all tPA administration
- Collaborate with consultants to develop a strategy for providing Rx

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Key Concept

Prehospital Stroke Pt Triage

- Prehospital triage to stroke centers occurs in some EMS systems, despite no proven benefit to such an approach.
- EMS triage by paramedics occurs through the use of prehospital stroke scales that focus on key elements of the neurological exam: mental status, speech, and motor or visual deficits.

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EMS Stroke Patient Triage

- EMS triage of “likely” stroke patients
- Paramedics likely can triage correctly
- sNIHSS: Shortened to 5 elements
- Leg weakness, gaze/visual field deficit, language, level of consciousness
- Direct triage in NYC, Birmingham, AL
- Other EMS systems: pt, family approval

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EM & EMS Stroke Pt Triage

- Triage to primary stroke centers is here
- Comprehensive ED hospitals could receive these patients someday
- Extent of patient diversion is unclear
- No proven benefit of direct triage
- Is it related to enhanced tPA use & IR?
- Is stroke patient outcome improved?

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Implications for the Emergency Physician

EMS Stroke Patient Triage

- Once triage occurs, there is no going back
- This approach could greatly influence your Emergency Medicine practice over time
- You must understand how EM triage of stroke patients could impact your overall ability to provide quality care to stroke patients and other critically ill patients

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Recommendations for the Emergency Physician

EMS Stroke Patient Triage

- Know what your EMS medical directors are contemplating
- Quickly understand what your government officials are planning
- Ask that an advisory panel investigate the possible effects of stroke pt triage
- Be a part of the process, advocate for optimal ED stroke patient care

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Key Concept

Stroke Center Resources

- The resources that can be utilized in either primary and tertiary centers for the care of stroke patients include comprehensive ED care, tPA use, stroke teams and protocols, specialty care units, advanced diagnostic testing, including MRI, MRA, CTA and angiography, and advanced techniques for thrombolysis, including intra-arterial tPA, other thrombolytics, clot retrieval devices, and cerebrovascular stents.

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Stroke Center Resources

- These resources may exist independent of stroke center designation
- Development of a clear process for the Rx of ED stroke pts is the key issue
- Can it be done here? Will it be done here or should it be done elsewhere?
- Institutional support is a key component

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EM & Stroke Center Resources

- Clinically relevant stroke protocols
- Neuroimaging within 25 minutes
- Image evaluation within 20 minutes
- Directed neurology consultation
- Neurosurgeon and OR within two hours of determining the need for surgery
- Ongoing education two times yearly

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Implications for the Emergency Physician Stroke Center Resources

- All health care providers are aware of the ongoing stroke center process
- There is an opportunity to augment your available resources
- Even enhancements to internal consultation, diagnostics, and treatment protocols is of benefit
- You may need to assess transfer need

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Recommendations for the Emergency Physician Stroke Center Resources

- Use the current environment to get your institution up to speed
- Examine and utilize best clinical practices
- Decide exactly how resources will be utilized both within and outside of your institution

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Key Concept Stroke Pt Hospital Transfer

- Stroke patients might be considered for transfer following tPA use for ongoing care, when the three hour window precludes IV tPA use, when there is the need for advanced diagnostic and therapeutic tests, or when there are insufficient resources in the initial hospital for the overall care of the stroke patient.

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Key Concept Pre-transfer Stabilization

- Prior to transfer, patients should be stabilized hemodynamically, with a controlled airway, as needed. Patients who are eligible for IV tPA should receive it prior to transfer.

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Stroke Patient Transfer

- There is a push to not simply leave the stroke patient sitting in the ED while a bed opens up upstairs
- This may be especially true with stroke in children and younger adult patients
- Few protocols exist in this area
- There is little literature to support any one approach

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EM & Stroke Pt Transfer

- Transfer arrangements may allow for more timely and aggressive consultation
- Teleradiology, telemedicine may make the process more seamless
- tPA use may then be more acceptable
- Could this improve stroke pt outcome?
- Might it be better than direct triage?

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Implications for the Emergency Physician Stroke Patient Transfer

- This discussion is relevant today, regardless of stroke center plans
- Transfer discussions invariably promote enhanced internal support for ED pt care
- A transfer agreement is also relevant because of the possible need for operative intervention in SAH and hemorrhagic stroke patients

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Recommendations for the Emergency Physician Stroke Patient Transfer

- Meet internally to establish a clear protocol for stroke patient transfer
- Optimally try to figure out how to provide services from within
- Address the important issue of neurosurgical coverage
- Propose clear initial ED therapies and role of consultants prior to transfer

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Systems for Stroke Patient Care Key Learning Points

- Amidst urgent situation, solutions exist
- Become a stroke center or act like one
- Identify necessary resources that support the care of ED stroke patients
- Know when and how to transfer
- Establish protocol for ED pt care & transfer
- This is an opportunity to enhance pt care

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Questions??

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