Defining the "Hub" of a Hub/Spoke System: CSC Community Practice & Research Leadership

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Disclosures

- Financial: None
- Consulted with James Grotta, Teddy Wu, Andrew Barreto, Sean Savitz, Wrenne West
- Included slides from our own CSC review

Objectives

1. Discuss what constitutes an optimal hub and spoke relationship in terms of systems, processes, and patient/hospital/provider outcomes.
2. Identify barriers to optimal hub and spoke relationships.
3. Describe ways for hub and spoke sites to collaborate on community stroke education/awareness, EMS educational programming, and clinical research subject enrollment.

'Spoke' Components

- Stabilize and treat acute stroke patients, providing initial acute care.
- Able to appropriately use t-PA and other acute therapies such as stabilization of vital functions, provision of neuroimaging procedures, and management of intracranial and blood pressures.
- They either admit patients or transfer them to a comprehensive stroke center.

Alberts MJ, et al; *JAMA.* 2000;283:3102-3109

'Hub' Components

- Advanced diagnostic capability
- Additional treatment options
  - IV tpa
  - Clinical Research
  - Surgical and Endovascular Options
- Personnel
  - various disciplines
- Plan
  - Protocols and guidelines
- Partnership
  - Direct consultation
  - Telemedicine
  - EMS
- Presence/Availability
- Education

Hub + Spoke

Systems

- Hub and spoke need to define individual goals
  - Partnership should address those goals.
  - Goals will be different for each partnership

Hub + local and distant Spokes

★ 12 sites live, with 15 expected by FY14

★From July 2012 to January 2013:
- 490 Consults
- 98 patient received TPA
- 116 Transfers to MH-TMC

System

- Clear goals and benchmarks from each member of the partnership
- Improve overall neurological care in the region
- Solidify relationships with existing referral hospitals, increase access to stroke center for other facilities
- Avoid unnecessary transfers and encourage hospitals to keep patients who do not need a higher level of care in their own community
- Educate surrounding hospitals and facilitate the transfer of patients who need a higher level of care (i.e. Neurosurgery, endovascular, or participation in research protocols otherwise not available to patients in the community)
- Benefits patient, family, and community hospitals

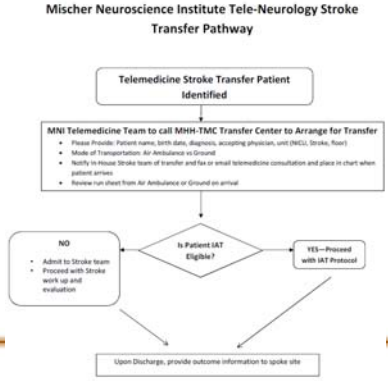
Processes

- Stroke care should be consistent
- Transfer procedures should be clear
- Benchmarks should be set and reviewed
- Continual reassessment

Program Design: Evidence Based Clinical Practice Guidelines (CPG's)

- Multisociety Consensus QI Guideline for IA Catheter-directed treatment of Acute Ischemic Stroke (Multiple Societies, 2013)
- Guidelines for the Early Management of Acute Ischemic Stroke (ASA, 2013)
- Guidelines for the Management of Aneurysmal SAH (ASA, 2012)
- Guidelines for the Management of Spontaneous ICH (ASA, 2010)
- Expansion of the Time Window for Treatment of AIS with IV tPA (ASA, 2009)

Transfer Coordination



Transfer Coordination

Mischer Neuroscience Institute Tele-Neurology Spoke Site Transfer Protocol

Objective: To ensure adherence to best practices at all MNI Telemedicine spoke sites for acute neurological patients consulted via telemedicine and transferred to Memorial Hermann Hospital-Texas Medical Center.

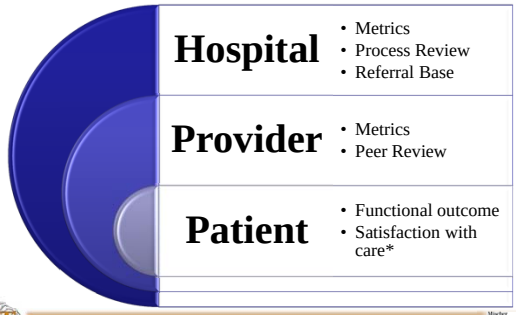
Responsibilities

Spoke sites: Perform checklist below on all neurological transfer patients to MHH-TMC

- ☐ Provide copies of emergency room or inpatient records to be transported with the patient
- ☐ Provide copies of radiological studies on CD to be transported with the patient
- ☐ Upon hand-off of patient to EMS providing transfer transportation, discuss and provide MHH-TMC transfer transportation monitoring/management guidelines.

EMS providing transportation: Follow recommended guidelines for management and monitoring of acute stroke patients. Upon arrival to MHH-TMC, provide verbal hand-off to accepting team and discuss en route complications if any. Provide written run-sheets to MHH-TMC accepting team.

Outcomes

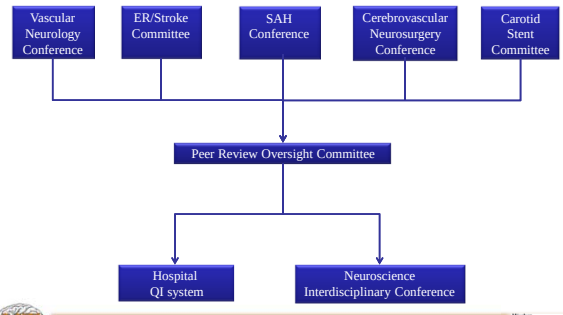


Outcomes

Outcomes-Quality Monitoring

- Dedication to rapid cycle quality improvement
- Peer review process

Outcomes-Peer Review Process



Outcomes-Patient

Rehabilitative Services

- Inpatient Rehabilitation Unit
- PT/OT/SLP collaborate daily with the interdisciplinary team for the best patient outcomes.
- Facilities

Outpatient Follow-Up

- Post-discharge phone calls
  - Nursing
  - Transitional Care Coordinator
- UT Neurology clinic
  - Follow up by MD providing inpatient care, clinic coordinator and NP
- UT Neurosurgery clinic

Collaboration

- Be Present
  - Educational meetings, staff meetings, section meetings, health-fairs
- Education
  - Staff, EMS, community
- Research

EMS Collaboration

- Stroke legislation passed in Texas in 2007
- Southeast Texas Regional Advisory Council (SETRAC) vehicle for coordination
- City-wide protocols for hospital bypass according to stroke center certification
- MH administration and physician representation
- Collaborative review of bypass protocol, education of the community and of EMS agencies
- Quarterly interdisciplinary stroke committee meetings, monthly stroke coordinator meetings
- Annual review with HFD EMS on regional plan and our hospital protocols

Research Collaboration

- Currently have 2 TM sites enlisted to enroll patients into acute clinical research protocols
- IRB, central or local?
- On-site staff availability dictates what types of studies you are able to introduce
- Continuous feedback and education critically important to avoid protocol deviations

Challenges

- Which patients should be transferred to the Hub?
- Data Collection

Challenges

Major barriers for the hub

- Resources to support personnel and equipment
- Lack of knowledge of practice patterns and needs of individual community hospitals.

Major barriers for the spoke

- Reluctance to invest in something unproven;
- Change is not embraced
- Lack of infrastructure to conduct research or dedicate to the network.