REGIONALIZATION OF CARE IN MISSOURI’S EMERGENCY MEDICAL CARE SYSTEM: TRAUMA, STROKE, AND STEMI
Overview

- Missouri’s EMS structure
- Reasons for TCD: Epidemiology of Missouri
- TCD History
- TCD Core Components
- Cultural Changes and Pitfalls
- Challenges
MISSOURI’S EMS STRUCTURE
MO.'s EMS Regional Structure

- **6 EMS Regional Councils**
  - Subcommittees of State Advisory Council on EMS
  - Regional Chair
  - Advisory role

- **Regional EMS Medical Director**
  - Elected by local regional EMS medical directors
  - Advisory role
THE REASON FOR TCD: THE EPIDEMIOLOGY OF MISSOURI
TRAUMA

- Trauma is the first, fourth or fifth leading cause of death in Missouri depending on group.
- It is the most frequent cause of visits to the emergency department, causing more than half a million visits in 2006.
- Injuries account for the second highest total for inpatient hospital charges — $2 billion in 2006.
- Compared to the entire United States, Missouri has
  - lower rates of emergency department visits for all three major categories of injuries — accidental, assault and self-inflicted
  - death rates from injuries that exceed the national rates for accidental injuries, suicides, falls, and motor vehicle injuries.
- Missouri’s death rates for unintentional injuries have increased 25 percent between 1991 and 2006
- There are gaps, particularly in rural areas of Missouri, for timely access to a trauma center.
Heart disease, including STEMI, is the leading cause of death in this state.

In 2004, Missouri’s heart disease death rate was 13.5 percent higher than the national rate.

Missouri was in the bottom ten (45 out of 52) in coronary heart disease death rates.

The prevalence of heart disease was higher than the national average

- Missouri ranked 9th among the 50 states in heart disease prevalence in 2005.
Stroke is the third leading cause of death in the state. In 2004, Missouri’s stroke death rate was 11 percent higher than the national rate. Missouri ranked low (40 out of 52) in the comparison of stroke death rate between states. Missouri was ranked 7th in stroke prevalence. Only a small percent of ischemic stroke patients get definitive care within the 3 hour window recommended.
THE TIME CRITICAL DIAGNOSIS SYSTEM: HISTORY
TCD Project Goals

- By establishing the TCD System:
  - Reduce incidence and severity of injury, stroke, and STEMI
  - Improve access into the system
  - Improve outcomes of those injured or suffering stroke and STEMI
  - Improve system evaluation and QA/QI/PI Processes
TCD Key Guiding Principles

- Patient centered care
- Evidence-based system design
- Population-based approach
- Evaluation mechanism
The Trauma System as a Model

**Trauma System:**

- Improves Patient Outcomes and Saves Lives
  - 50% reduction in preventable death rate after implementation
  - Decrease in cases of sub-optimal care from 32% to 3%

- Improves Hospital Outcomes
  - Better outcomes compared to voluntary system
  - Cost Savings through more efficient use of resources

- Improves Regional Outcomes
  - Regional system accommodates regional and local variations
Implementation:  Progress and Goals

Legislative Synopsis:

2008: House Bill 1790 enabling reform passed unanimously by the Missouri Assembly and signed into law

RSMo 190-100 Definitions
RSMo 190.200 Public Information & Education
RSMo 190.241 Center Designation
RSMo 190.243 Transportation to Centers
Implementation: Progress and Goals

Developing the System:

August 2008: TCD Stroke/STEMI Task Force compiled formal recommendations

Sept.’08-Present: TCD Trauma Task Force convened and compiling recommendations

2008-Present: Stroke and STEMI Implementation groups meeting regularly and compiling standards for stroke and STEMI center designation and EMS
Key Component: Leadership

- Strong Departmental support for emergency medical care, including EMS Bureau and Heart Disease and Stroke Program
- Strong support from the Missouri Foundation for Health and the CDC
- Dedication and commitment of ad hoc Trauma, Stroke, and STEMI Task Forces, now roughly 700 people from across the state
REGIONAL ASPECTS OF SYSTEM DEVELOPMENT: THE COMMON THREAD
The Circle

360/365 EMERGENCY MEDICAL CARE SYSTEM

- Quality Improvement
- Rehabilitation
- Acute Medical Care
- Emergency Department
- Public Education
- Prevention
- Transport
- Pre-Hospital Response
- Response Coordination
- 911 Access
- First Aid

Incident Recognition
The Time Critical Diagnosis System Concept

- Emergency Medical Care in Missouri
  - Current System Development Focus
    - Pre-Hospital
    - Hospital
    - Quality Improvement
    - Public Education
    - Professional Education
  - To be addressed
    - 911
    - Payer
    - Disposition
The Common Thread

- **System Requirements**
  - Include all the stakeholders for system design and structure.
  - Accommodate regional and local variables
  - Viable and supports patient care
  - Means to sustain itself
  - Improves care over time-able to refine itself
    - Consistent data collection and use to support QA/QI/PI processes
The Common Thread

- Three diagnoses; acute trauma, stroke, STEMI
- Right patient, right care, right place, right time
- Importance of early recognition and appropriate transport and triage
- “Circle concept” of system of care
- We have clear evidence that timely and appropriate treatment of these three diagnoses can improve patient outcomes.
The Common Thread

- Need to set standards that are agreed upon by all
- Need to verify compliance with those standards by some objective means
- Concepts of “parallel processing” and “moving care forward”.
- Need for common time saving
The Common Thread

- Data collection and data collection platform
  - Coordinated QI process
  - State, regional, and local level
- Coordinated public education/prevention
- Legislative requirements
- Advocacy mechanism
The Common Thread

- Need for well-designed inter-facility transfer mechanisms
- In-hospital programs and out-of-hospital advances that can contribute to the overall effort
- Patient outcome improvements require a total system perspective
TCD SYSTEM CORE COMPONENTS
Missouri Regulations
Both Stroke & STEMI

Four Levels of Center Designation

Level I  Functions as resource center within region
Level II Provide care to high volumes of stroke and STEMI patients
Level III Access into system in non-metropolitan areas, more limited resources and generally refer to higher level center
Level IV Access in rural areas, stabilize and prepare for rapid transfer to higher level of care

Research: early data runs on EMS region referral patterns and hospital coverage based on proposed criteria for designation
Missouri Regulations
Both Stroke & STEMI

- Built off of trauma regulations
- Voluntary process
- Stroke/STEMI Program-24/7 (all levels)
  - Medical Director
  - Program Manager/Coordinator
- Staff meet and maintain core requirements to provide care
- One-call activation protocol
- One-call Transfer — network agreements
Missouri Regulations
Both Stroke & STEMI

- Data submission for statewide registry
  - State level PI
  - Local/Regional level PI
- Performance improvement and patient safety requirements
- Public education to promote prevention and signs and symptoms awareness
- Bi-directional feedback between EMS and Hospitals
Missouri Regulations

Trauma

- Same core components as Stroke/STEMI regulation
- Level IV Trauma Center regulations under development
- Update old trauma regulations
- Update pediatric trauma regulations
- Transport Protocol
Missouri Regulations
Patient Transport

- STEMI patient classification
- STEMI patient transport
- Stroke patient classification
- Stroke patient transport
- Trauma patient classification
- Trauma patient transport
Regional or community based plans for transporting trauma, STEMI or stroke patients may be submitted to DHSS. 190.200 RSMo but not required.
Other Components

- Public Education
- Professional Education
- Quality Assurance/PI
  - Peer review protection
  - State Registry development
  - PSO
CULTURAL CHANGE AND PITFALLS
Cultural Change

- Prior to HB1790, department had no authority to develop transport/destination protocols
- Statute requires trauma, stroke, STEMI patient to go to trauma, STEMI or stroke center; provision to stop if transport to be prolonged; provision for local or regional plans
- Currently no authority for any other protocol development
- Most elements locally run
- Data reporting incomplete
Cultural Change

- Local control/Autonomy
- Shift from “me” to “us” to “we” on local level
- Shift from “local” to “statewide” perspective
- Shift to from ground level to 30,000 feet level and back to ground level
- Shift to recognizing common threads regardless of where located in state with common patient goals
- Understanding and accommodating need for different processes to meet common goals
- Review Regional EMS Council functions
Pitfalls

- Need collaboration and respect between EMS and Hospital providers
- Need to understand rural-urban difference, different requirements and needs to meet common patient goals, and sources of potential tension
- Need to recognize role of rural and CAH in system; friction between small and larger hospitals
- Fear of EMTALA violations
- Payer question
Pitfalls

- Discussion of local autonomy and control
  - Transport protocols
  - COT and NHTSA reviews
- Process cast as centralization and desire for control over EMS
- Some systems might not wish for aspects of operation to be visible
- Hospital competition
- When the rubber hits the road
CHALLENGES
On the Horizon

- Include
  - Linking with 9-1-1 System, PAI and EMD
  - Linking with Rehab centers
  - Funding the system
  - Linking EMS and hospital data to practice
  - Linking EMS and hospital data to prevention
  - Expanding the current data system
The End Goal:

360/365 Emergency Medical Care System

Time Critical Diagnosis-
Right care. Right Place. Right Time

Trauma
Stroke
STEMI

Better outcomes for Missourians