10 Things Every EMS Administrator and Medical Director Should Know About Their EMS System

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North Carolina EMS Medical Director
EMS Performance Improvement Center
What’s Important to Know?

1. Community
2. Purpose/Goal
3. The System
4. Diversion vs. EMTALA
5. Medical Community
6. Dispatch Center
7. Response Times
8. Investment in Care
9. Destination
10. Hospital Outcome
## Know your Community

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### Fatal Injury Rates

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<th>EMS System</th>
<th>Total 90% Fractal EMS Response Time (mm:ss)</th>
<th>Injury Fatality Rate (deaths/100,000 Pop)</th>
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<tr>
<td>Top 10 Average</td>
<td>14:00</td>
<td>62.4</td>
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<td>Bottom 10 Average</td>
<td>35:12</td>
<td>75.0</td>
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- There is a 21:12 (151%) difference between the top 10 and bottom 10
- There is a 20% increase in the injury fatality rate
- The average EMS System Total Response Time for North Carolina is 21:40 (mm:ss).
What is our Goal
Patient Care Outcomes

- Service Delivery
- Personnel
- Performance
- Patient Care

- Discomfort
- Disease
- Disability
- Death
- Dissatisfaction
- Destitution (Cost)
EMTALA

The Emergency Medical Treatment and Active Labor Act

- a statute which governs when and how a patient may be
  - (1) refused treatment or
  - (2) transferred from one hospital to another when he is in an unstable medical condition.
EMTALA Conditions

The Patient

- Any patient who "comes to the emergency department"
  - Including EMS Transports
  - Anyone on Hospital Property
- requesting "examination or treatment for a medical condition"

The Care

- must be provided with "an appropriate medical screening examination" to determine if he is suffering from an "emergency medical condition"
- If he is, then the hospital is obligated to either provide him with treatment until he is stable or to transfer him to another hospital
EMS Transfers

An "appropriate transfer" (a transfer before stabilization which is legal under EMTALA) is one in which all of the following occur:

- The patient has been treated at the transferring hospital, and stabilized as far as possible within the limits of its capabilities;
- The patient needs treatment at the receiving facility, and the medical risks of transferring him are outweighed by the medical benefits of the transfer;
EMS Transfers Continued

- the receiving hospital has been contacted and agrees to accept the transfer, and has the facilities to provide the necessary treatment to him;

- the transfer is effected with the use of qualified personnel and transportation equipment, as required by the circumstances, including the use of necessary and medically appropriate life support measures during the transfer.
Common EMTALA Questions

If a helicopter lands at a hospital to meet EMS with a patient. Does the patient have to be seen and evaluated by that hospital prior to lift off?

A patient is brought in on a stretcher and the hospital wishes to keep the patient on the EMS stretcher to decrease ED time for a transfer of a STEMI patient?
EMTALA Questions

A hospital is contacted by an EMS Agency to provide Online Medical Direction for a patient being transported to another hospital. The EMS Agency is owned by the hospital providing the Online Medical Direction. Does the patient now have to be transported to that hospital?

Is it an EMTALA violation for a facility to not accept a patient when on diversion?
Medical Community

- **Who are the players?**
  - Hospitals
  - MD Practices
  - Decision Makers

- **Do they know you?**
  - EMS Administration
  - EMS Medical Medical Director

- **Do they understand your patients needs?**

- **Do they understand your needs?**

- **Do you know how to communicate with them?**
The Dispatch Center

- Call Location
  - E911
  - Mobile Phone (Phase II)
- Emergency Medical Dispatch
- GIS/Navigation
EMS Response Time

- 911 Call Time
- EMS Dispatch Time
- EMS Notification Time
- EMS En Route Time
- EMS On Scene Time
- EMS At Patient Time
EMS Protocols

Maintained by NCCEP

2009 Version

Draft Rules

Adopted as is unless objective medical reason to change

Tightly tied to EMS System Plans

Trauma

STEMI

Stroke

Pediatrics

Chest Pain: Cardiac and STEMI

History
- Age
- Medications
- Viagra, Levitra, Cialis
- Past medical history (MI, Angina, Diabetes, post myocardial infarction)
- Allergies (Aspirin, Morphine, Lidocaine)
- Recent physical exertion
- Pulmonary edema
- Diaphoresis
- Shortness of breath
- Nausea, vomiting, dizziness
- Time of Onset

Signs and Symptoms
- CP (pain, pressure, ach, vice-like tightness)
- Location (substernal, epigastric, arm, jaw, neck, shoulder)
- Radiation of pain
- Pale, diaphoresis
- Shortness of breath
- Nausea, vomiting, dizziness
- Time of Onset

Differential
- Trauma vs. Medical
- Angina vs. Myocardial infarction
- Pericarditis
- Pulmonary embolism
- Asthma / COPD
- Pneumothorax
- Aortic dissection or aneurysm
- GE reflux or Hiatal hernia
- Esophageal spasm
- Chest wall injury or pain
- Pleural pain
- Overdose (Cocaine)

Universal Patient Care Protocol

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<tr>
<th>P</th>
<th>B</th>
<th>I</th>
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<tr>
<td>Rhythm Assessment</td>
<td>12 Lead ECG</td>
<td>IV Protocol</td>
</tr>
<tr>
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<td>Aspirin (Unless allergy)</td>
<td>Nitroglycerin SL</td>
</tr>
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<td>Consider Nitroglycerin Paste</td>
<td>Morphine</td>
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Positive Acute MI (STEMI = 1 mm ST Segment Elevation in 2 Contiguous Leads)

Transport based on EMS System STEMI Plan with Early Notification

Keep Scene Time to < 15 Minutes

If Transporting to a Non-PCI Center

Reperfusion Checklist

Consider NS Bolus for Inferior MIs

Consider 2nd IV en route

Pearls

Recommended Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro

Items in Red Text are the key performance indicators for the EMS Acute Cardiac (STEMI) Care Toolkit

Avoid Nitroglycerin in any patient who has used Viagra or Levitra in the past 24 hours or Cialis in the past 36 hours due to potential severe hypotension.

Patients with STEMI (ST-Elevation Myocardial Infarction) or positive Reparfusion Checklist should be transported to the appropriate destination based on the EMS System STEMI Plan.

If patient has taken nitroglycerin without relief, consider potency of the medication.

Monitor for hypotension after administration of nitroglycerin and narcotics (Morphine, Fentanyl, or Dilaudid).

Nitroglycerin and NARCOTICS (Morphine, Fentanyl, or Dilaudid) may be repeated per disaster guidelines in Drug List.

Diabetics and geriatric patients often have atypical pain, or only generalized complaints.

Document the time of the 12-Lead ECG in the PCR as a Procedure along with the interpretation (EMT-P)
Sample County EMS System

EMS Stroke Plan Template

Summary:

Every EMS patient requesting EMS services with a medical presentation of an Acute Stroke will be screened to rapidly identify an acute stroke and will be rapidly triaged and transported to the appropriate destination for an optimal patient outcome.

Purpose:

The purpose of this policy is to:

- Rapidly identify patients presenting with symptoms of an acute stroke
- Minimize the time from onset of stroke symptoms to the arrival of the patient at a community hospital or stroke center where specialized care can be provided.
- Quickly determine the best destination for each stroke patient (based on the onset of the patient’s symptoms and the distance from a community hospital or stroke center).
- Provide quality EMS service and patient care to the county’s citizens.
- Provide a means for continuous evaluation to assure this plan’s compliance.

Procedure:

The success of an EMS Stroke Plan is based on the completion of the following:

- Early recognition of Stroke symptoms and activation of the EMS System
- Rapid Identification of an Acute Stroke Patient through the use of the LA Stroke Screen
- Documentation of the Onset of Stroke Symptoms
- Completion of a Reperfusion Checklist to determine potential eligibility for thrombolytic therapy
- Providing quality EMS care to each Acute Stroke Patient
- Based on the elapsed time from the onset of symptoms and thrombolytic eligibility, determine the most appropriate destination for the Acute Stroke Patient
- Early activation/notification of the receiving Community Hospital or Stroke Center
- Early activation of EMS Specialty Care Transport Programs if the EMS System is unable to transport the Stroke Patient to the appropriate destination within the treatment time window
- Ongoing evaluation to assure the Stroke Plan is implemented and maintained within the EMS System

The following time parameters should be applied to determine the appropriate destination for each Acute Stroke Patient:

(Items bulleted in red font is the EMS System specific information that should be included when developing the EMS Stroke Plan.)

- Please list the names of the Stroke Center and Community Hospitals with each item

1. Acute Stroke Patients who can be transported directly to a Stroke Center in less than 2 hours from the onset of Stroke Symptoms should be transported directly to a Stroke Center for care.

- Describe how this operationally will occur and list the Stroke Center that will be used.

2. If Item 1 above is not possible but the Acute Stroke Patient can be transported to a Community Hospital in less than 2 hours from the onset of Stroke Symptoms, transport to the Community Hospital.

- Please list the Community Hospitals which will be used and any criteria to determine which community hospital. Community Hospitals with 24 hour CT Scanner and Thrombolytic capability should be selected before hospitals without this capability.

3. If the Acute Stroke Patient’s onset of symptoms is beyond the time required for Items 1 or 2, but the patient could be delivered to a Stroke Center within 5 hours of symptom onset, transport to a Stroke Center either by EMS or through a Specialty Care Transport Program.

- If possible, the EMS System could directly transport the patient to the Stroke Center.

- If the EMS System is unable to leave their service area, the patient could be transported to the Community Hospital. With early notification, the Community Hospital could activate an Air or Ground Specialty Care Transport Program to deliver the patient to the Stroke Center within the 5 hour time window.

4. If the Acute Stroke Patient’s onset of symptoms is beyond the time required for Items 1, 2, or 3, the patient should be delivered to the Community Hospital.

- Please list the Community Hospitals which will be used and any criteria to determine which community hospital. Community Hospitals with 24 hour CT Scanner and Thrombolytic capability should be selected before hospitals without this capability.
EMS Equipment, Skills, and Medications

- What skills are used in your community?
- What medications are available to your patients?
- Is it consistent with the outpatient care provided in your community?
EMS Service Delivery

- Preparedness Based Design
  - Geography or Distance
  - Speed or Time
  - Care Potential or Level of Provider
  - Equipment and Technology
  - Medications and Skills
Destination Policies

- All to Community Hospital
- Triage based on condition
- Triage based on Distance
- Triage based on Specialty Center
Specialty Care Transport Services

- Who provides it?
- Do you need it?
- How timely is it?
- Choices
  - Local EMS
  - Private EMS
  - Receiving Hospital
  - Air Medical
Outcome

- Who Impacts Outcome
  - Community
  - Patient
  - EMS
    - Service Delivery
    - Personnel
    - Patient Care
  - Hospitals

- The key to obtaining outcomes are state EMS data systems.
1973 EMS Enactment vs. 1996 Agenda for the Future

- Manpower
- Training
- Communications
- Transportation
- Facilities
- Critical Care Units
- Public Safety agencies
- Consumer participation
- Access to care
- Patient transfer
- Coordinated patient record keeping
- Public information and education
- Review and evaluation
- Disaster plan
- Mutual aid

- Human Resources
- Education Systems
- Communication Systems

- Public Access
- Integration of Health Services
- Information Systems
- Public Education
- Evaluation

- EMS Research
- Legislation and Regulation
- System Finance
- Medical Direction
- Prevention
- Clinical Care
Key EMS Attributes

- EMS Professionals
- EMS Service Delivery
- Patient Care
Is it a Paramedic World?

- What is a reasonable workforce?
  - Level of Training
  - Numbers
  - Education
  - Salary
  - Hours
  - Skills
  - Decision Making Capacity
  - Autonomy
How about Us?

- Administration
- Educators
- Quality Management
- Medical Direction
Is it the care or the cab?

What care should be provided by EMS
- Skills
- Medications
- Decision Making

What do out Customers what?
- Service
- Quality Care
What is our Goal
Patient Care Outcomes

- Service Delivery
- Personnel Performance
- Patient Care

- Discomfort
- Disease
- Disability
- Death
- Dissatisfaction
- Destitution (Cost)
Destination can be important

- “We can’t win at home. We can’t win on the road. As general manager, I just can’t figure out where else to play.”

- 1992 Pat Williams, Orlando Magic
The Future

- Community Centered but Patient Focused
- It is more than the ambulance ride
- Destination matters
- We are ALL accountable to Outcomes and Performance
- Our workforce is our future
- Its all about relationships and all relationships are complicated
It's Not the What but the How
8 Step Plan for Success

- Listen with your heart
- Don’t confuse Management with Leadership
- Treat People as YOU want to be Treated
- See if anyone else has the same problem- (network)
- You can manage what you can measure
- Take a Field Trip (see if the Grass is Greener)
- SEE Failure not as Defeat - LEARN FROM IT
- Know who the real customer is!
The Science of Life

You can only have 2
What does an EMS Medical Director Know About Budgets?

- Often very little
  - I personally can’t balance my checkbook
- We work in a hospital where costs and reimbursement strategies are much different
- A patient care perspective is often blinded from the reality of service delivery and personnel costs
Patient Care Outcomes

- Service Delivery
- Personnel Performance
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EMS vs. Hospital Reimbursement

**EMS**
- Fixed, Bundled
- Transport Only
- Preparedness Based
- EMS goes to the Patient

**Hospitals**
- Fixed, Unbundled
- Patient Care
- Individual Patient Based
- Patient Comes to the Hospital
EMS Service Delivery

- Preparedness Based Design
  - Geography or Distance
  - Speed or Time
  - Care Potential or Level of Provider
  - Equipment and Technology
  - Medications and Skills
How Big is the Pot?

EMS Funding Sources
- Reimbursement for Services
- Tax Base Subsidy
- Volunteerism and Donations
- Subscription Services
- Grants and Contracts
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**Timing**

- Budgets begin in the summer or fall
- Budgets determined 4 to 6 months prior
  - For a July Budget, February Request
  - For an October Budget, June Request
- Purchasing Process (6 to 12 months)
  - Specifications
  - Bids
  - Selection
  - Procurement
  - Implementation
We have to have it !!!
We Need it?

Why do you need it?

- Proven Value
- Perceived Value
- Outcomes Impacted
  - Service Delivery
  - Personnel Performance or Safety
  - Patient Care or Safety
Who will be help?

- How many patients will be impacted
- How many personnel will have to be trained to use it
- How much will outcomes be impacted
Is it Cost Effective?

North Carolina

Approximately $475 per ALS Transport

How Many Do We Need?

- Based on Service Area
  - One per Ambulance
  - Supervisors
  - Backup Units
  - First Responders
Example

- Hospital
  - 1

- EMS 911 Transport
  - 10

- First Responder
  - 20
Public Health vs. Individuals

Public Health
- Immunizations
- Disaster Triage
- Focus on BLS

Individualized Care
- Targeted Complaints
- Maximize Care to the Individual
- Focus on ALS
Example: Cardiac Arrest

Public Health
- Public Education
- CPR
- Public Access Defibrillation
- First Responder Programs

Individual
- Rapid ALS Response
- Defibrillation
- ACLS
  - Drugs
  - IV Access
  - Intubation
Amiodarone vs. AED Example

**Amiodarone**
- Reimbursement = $475 per patient
- Amiodarone = $200-$300 per patient
- 50 Cardiac Arrests per year
- $12,500 per year
- Outcome Improvement = ?

**AED**
- Reimbursement = $475 per patient
- AED = 5 at $2,500 per device
- 50 Cardiac Arrests per year
- $12,500 per year
- Outcome in First Responders Hands = ++
What is of value?

- First Responder Programs
  - AED
- Objective Patient Monitoring Devices
  - Capnography
  - Cardiac and VS Monitors
- CPAP
- Life Saving, Comfort Providing Medications
- Hemostatic Agents
- Cyanocobalamin (Cyanide)
- CO Detection
- IO Devices
Evaluate

- Why it may be needed?
- Proof of its value
  - Patient
  - Personnel
  - Service Delivery
- Number of Patients Impacted
- Cost to implement
- Recurring Cost based on Use
- Projected Change in Outcome
Thank You