Physician Scene Response as an Integrated Component of an EMS System

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Disclosures

› The authors report no disclosures

Overview

› The On-Scene Physician
  Brian Clemency, DO, MBA

› Setting up a Physician Vehicle Program
  Jay Macneal, DO, MPH, NREMT-P

› Creating a response program that works for you and your EMS system
  Christian Martin-Gill, MD, MPH, NREMT-P
The On-Scene Physician

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Case Study: Specialized Medical Response Team (SMART)

EMS system:
- Buffalo NY – Fire BLS First Response/Commercial ALS/BLS Transport
- Erie County NY – 107 agencies
- 8 Counties of WNY – approx. 200 agencies

Physician vehicle program
- Established: 1998 (by the county hospital)
- Current number of vehicles: 4
- Owner: Erie County Emergency Services/Dept. of Health

Dispatch Procedures
- Automatic Dispatch for: Airport Alerts and 2 + Alarm Fires
- Or at the request of incident Commander
- Self Dispatch

Case Study: Specialized Medical Response Team (SMART)

Vehicles: Standardized Chevy Tahoes (2009–2012)

Staffing:
- SMART 1: EMS Attending/EM Resident (on EMS elective)
- SMART 2: EMS Fellow
- SMART 3: EMS Attending (Typically Medical Director)
- SMART 4: EMS Resident (on EM2 Tox/EMS rotation)
On-Scene Functions of the Physician

- Additional expertise
- Teaching/learning
- Enhanced patient care
- Improved safety
- Higher level triage/assessment
- Specialized procedures
- Improved system design and functioning
- Protocol development and refinement

Physician assessment in the field can protect the hospitals from a flood of low acuity patients.

Considerations for Calling a Doc

- Capabilities on Scene
- Distance from Hospital
- Response Time
- Extrication
- On Going Event
- Patient Condition
- Number of Patients
Examples

Single Critical Patient
- Usually not appropriate for on scene requests in large coverage area
- May work with simultaneous dispatch

Entrapped Patient
- Patient isn’t going anywhere
- Physician may be just as helpful in preventing the amputation

School Bus MVA with many patients
- Sorting through the hurt but uninjured

Response Models

- Private Vehicle
- Physician Staffed Units
  - Helicopter
  - Ambulance
  - Fire Truck
- Planned System to Pick up Physician
  - (from home, hospital, etc)
- Impromptu System to Pick up Physician
- Dedicated Physician Response Vehicle

New “Unpublished” Data

1,000 service medical director surveyed...
Conflicting Roles of the Scene Physician

› An (un)invited guest on scene
› The highest medical authority
› Our program uses “handlers”
  • Senior EMS providers from Erie County Emergency Services

Interactions With On–Scene Providers

› The on–scene physician is the ultimate Hawthorne effect.

  “That’s within the standard of care, but it’s not what I would have done”

Interactions With On–Scene Providers

› Please don’t steal my intubations…
"The Toys" – Specialized Equipment
- Other Airway Management Methods
- Point of Care Blood Testing
- Chest Tubes
- Procedural Sedation
- Field Amputation
- Ultrasound
- Expertise

Physician Credentialing
- Most EMS physician polices are designed to protect patients from on scene podiatrists
- Standard online medical direction credentialing
- Specialized credentialing (varies by state)

Medical Liability
- Included in your contract and group malpractice?
- Try to find deeper pockets
- Options for separate malpractice?
- Optimal is to include as scope of your practice
Setting up a Physician Vehicle Program

Jay Macneal, DO, MPH, NREMT-P
EMS Medical Director
Mercy Health System
Janesville, WI

EMS system
- Two county system with similar protocols
- ~20,000 EMS responses per year
- Primarily volunteer FD with private or municipal ALS intercept.

Physician vehicle program
- Established: 2012
- Current number of vehicles: Chevy Tahoe MD-1
- Owner: Mercy Health System

Dispatch Procedures
- As needed for specific incidents for both counties
- Self dispatch to physician determined events
- Hospital switchboard takes call/notifies on call EMS Physician

Case Study: Mercy and Walworth Counties Wisconsin

Vehicle Acquisition
- Define type of vehicle needed
- Snow prone areas should consider 4WD
- Consider equipment to be carried when determining vehicle size
- Cost and budget will likely determine end product
Vehicle Ownership
- County or local government provided
- Hospital or group owned
  - Lease vs Buy
- Personal vehicle not recommended, but might be only option for some

Vehicle Type
- Size
- 4wd vs 2wd
- Electrical
  - Heavy duty alternator/battery system
  - Electrical Master Switch or shoreline (radios, MDTs will drain batteries)
  - ChargeGuard
  - Jump Starter
  - Jumper Cable Certification
- Heavy duty suspension
- Tires

Vehicle Maintenance
- Addressing repairs
  - Accidents—Vehicle insurance
  - Additional repairs of add on equipment may not be covered by insurance
- Self-repair versus maintenance plan
Operating Costs

- Anticipated costs of maintenance & repairs
  - Annual fuel budget ~$2500 for a 12,000 mile per year SUV.
  - Wipers, Tires, Brakes, wear items ~$1200
  - Insurance will vary based on vehicle, geography, discounts ~$1500

Safety Considerations

- NIMS
- HazMat
- EVOC
- Extrication

Safety Considerations

- Highly specialized training
  - High Angle Rescue
  - Recovery Diving
  - Swift Water
- “If you don’t know, don’t go!” (OK, go, but stay out of danger zone and with chaperone.)
Equipment
- Radios
- Lights/siren if authorized
- Fire extinguisher
- Tools
- Surgical equip.
- Drugs
- Blood optional

Personal Protective Equipment
- Helmet
- Extrication Gloves
- Extrication jumpsuit
- Turnout gear
- Bloodborne
Vehicle Liability

- Depends on vehicle ownership
- Hospital, group, or individual
- Don’t assume you’re covered
- Get it in writing and put in your files

Startup Cost for Mercy MD-1

- $115,000 Startup
  - Tahoe $46,000
  - Medical Equipment $50,000
  - Lucas, 12 Lead, Video Laryngoscope
  - Lights, Sirens, Mobile/Portable Radios $13,000
  - Drugs $4,000
  - Personal Protective Equipment & Tools $2,000

Creating a response program that works for you and your EMS system

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Associate Medical Director
STAT MedEvac &
UPMC Prehospital Care
Assistant Medical Director
City of Pittsburgh Bureau of EMS
Case Study: City of Pittsburgh EMS

- EMS system
  - 60,000 EMS responses per year
  - 14 ALS ambulances (all-paramedic staff)
  - 2 rescue vehicles, river rescue, technical rescue, etc.
  - 24/7 prehospital physician in response vehicle
- Physician vehicle program
  - Established: 1982
  - Current number of vehicles: 2
  - Owner: Univ Pitt Department of Emergency Medicine
- Dispatch
  - Requested dispatch for specific determinants
  - Self-dispatch by physicians as needed

Integration Into 911 Dispatch

- Dispatch for specific determinants
- Requested for specific determinants
- Requested by responding / on-scene providers
- Self-dispatch
- Individual calls versus high-profile events
Responding to a Scene

- Finding your way
- Lights and siren use
- Parking

Alternate Methods of Scene Response

- Physician staffing of ambulances
  - On-call for hospital-based ambulance
  - Mobile ICUs (e.g. European models)
- Supervisor vehicle
- Personal vehicle
- Specialized team response
  - Tactical EMS
  - Disaster Medical Assistance Teams

Partnering with EMS

- Obtain buy-in from EMS
- Identify the role of the EMS physician
- Goal is not to replace EMS providers, but to enhance the EMS system
Dedicated Online Medical Command

- Routing online medical command to prehospital physician on duty
  - Decreased workload for Emergency Department
  - Cost-sharing with Emergency Department
- Specialist available for EMS consultations if possible

An Educational Tool

  - ACGME Requirements: EMS education including in-field care
  - Residency programs complete by:
    - Observation only 63%
    - In-field providers 20%
    - Combination 17%

- Example residency field response programs
  - University of Pittsburgh
    - Martin-Gill et al. Prehosp Emerg Care 2010
  - SUNY at Buffalo
  - Others
- Safety considerations
- Additional training
- Must balance with other activities
  - Patient volume
  - Down time
An Educational Tool

- EMS Fellowships
  - New EMS subspecialty based on the clinical practice of EMS
  - Structured clinical requirements for fellows
  - Physician response program provides integration into EMS system
  - Facilitates response to major (and minor) events

Facilitates Prehospital Research and QI

- Use of medications outside of paramedic scope of practice
  - Vasopressin (Guyette et al. Resuscitation 2004)

- Trial or incorporation of new procedures
  - Therapeutic hypothermia in Pittsburgh:
    - 2004 – Prehospital Physician
    - 2007 – City of Pittsburgh EMS
    - 2008 – Surrounding EMS agencies

Facilitates Prehospital Research and QI

- New medical equipment
  - EZ-IO device
  - Mechanical CPR devices
  - Ultrasound
  - STO2 monitoring in out-of-hospital cardiac arrest
  - Peri-ischemic conditioning in STEMI
    - Botker et al. Lancet 2010
Key Points

1. EMS physicians can take an active role in in-field prehospital care through a field response program
2. Must consider cost, ownership, liability, equipment, and maintenance of physician vehicles
3. Must aim to integrate with existing EMS system through dispatch and active collaboration with EMS agency(ies)
4. Consider supplemental benefits including dedicated online medical direction, education, and research