Creating a Safer EMS Workplace

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Paul A. Bishop

- Paramedic since 1995
- EMS Education Manager at Monroe Community College
- Paramedic for Southeast Quadrant Mobile Critical Care
- Co-Chair of New York State EMS Council Safety Committee
Dedicated to NY EMS Providers LODD

Mark Davis, EMT
Cape Vincent Volunteer Fire Dept.
Killed in the line of duty, 1/30/2009

Matthew Lamb, EMT
Empire State Ambulance Services
Died in the line of duty, 11/8/2007
EMS Safety Pretest

• True or False – When a child is walking near a busy highway at dusk, they should wear dark clothing so people won’t notice them.

• True or False – It is safe behavior to sit on the roof of a car while driving down a road.
EMS Safety Pretest

Most parents would rather a child take what action when they spill a glass of milk on the carpet

a. Pour water on it to dilute it
b. Blame it on their sibling
c. Try to soak it up with napkins
d. Tell their parents so they can help fix the problem
When a child needs to be ready for a test at school the next day, most parents encourage their children to:

- a. Stay up all night to study
- b. Get a good night’s sleep
- c. Sleep a little and have extra caffeine to stay alert
• Your mind is like a parachute, it only works if it is open.

Anthony D’Angelo
Safety Experience, Behaviors and Attitudes Survey

1/23/08

NY SEMSCO Special Committee on Safety

Prepared by Paul Bishop, EMT-P and Terry Fairbanks, MD
Instrument Design

• Single Page Directed Response
• 26 Item Survey
• Demographic Information
• Experience Related to Injuries and “Accidents”
• Likert Scale Safety Attitude Survey

NEW YORK STATE EMS COUNCIL
Special Committee on EMS Safety
Safety Experience, Attitudes and Behaviors Survey
The data from this survey will aid the SEMSCO and BEMS to target our efforts to improve EMS Safety

<table>
<thead>
<tr>
<th>What is your age?</th>
<th>How many years have you been involved in EMS?</th>
<th>Gender: Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is current level of certification? None</td>
<td>CFR</td>
<td>EMT</td>
<td>AEMT-1</td>
</tr>
<tr>
<td>County of Residence:</td>
<td>What is your pay status? (circle all that apply):</td>
<td>Volunteer</td>
<td>Part-Time Paid</td>
</tr>
<tr>
<td>What is your involvement in EMS? (circle all that apply)</td>
<td>Fire Dept.</td>
<td>Independent</td>
<td>Commercial</td>
</tr>
<tr>
<td>1. Have you ever had a minor injury (no hospital admission) while performing EMS?</td>
<td>Hospital</td>
<td>College</td>
<td>Air Medical</td>
</tr>
<tr>
<td>1a. If yes, how did it (they) occur? (circle)</td>
<td>Clean Needle stick/Sharps</td>
<td>Contaminated Needle stick/Sharp</td>
<td></td>
</tr>
</tbody>
</table>

9/24/2011
Survey Methods

• Distributed at Vital Signs EMS Conference 2007
  • Passed out at Registration Desk, SEMSCO Booth and BEMS Booth on all days of the conference
• 2100 people attended the conference
• 468 Surveys were completed and returned
• Surveys entered into database by a student at Monroe Community College
Seatbelt Pledge

• “I pledge to wear my seat belt whenever I am riding in an ambulance or EMS vehicle, unless I am providing medically necessary treatments. I further pledge to insure that all my crewmates, the patient and equipment are properly restrained. I will not operate an ambulance or EMS vehicle if all on board are not restrained. I am making this pledge willingly; to honor those who have been injured or killed in the line of duty and because wearing seat belts is the right thing to do.”
Respond to Non-Life Threatening 911 Calls with Lights and Sirens

![Bar graph showing responses to 911 calls.](image)
Minor Injuries (Less than 24 hrs)

- Sharps: 77
- Lifting & Moving: 26
- MVC: 55
- Assaults: 117
- Animal Bites: 34
- Slips and Falls: 18
- Other: 6

NYSVARA Pulse Check

9/24/2011
Major Injuries (>24 Hr in Hospital)

- 17 respondents reported
  - 4 Lifting and Moving Injuries
  - 6 Motor Vehicle Crashes
  - 2 Assaults
  - 4 Slips and Falls
  - 5 Others
    - Hit by Vehicle
    - 2 Cardiac
    - 2 Unreported
Driver Training And MVC

• 418 (89 %) Reported Operating Ambulances
• 366 of 418 (88 %) Reported CEVO or EVOC
• 99 (21%) Reported being involved in an MVC
Other Studies of EMS Workplace

- EMS Workers are much more likely to injured at work than most other professions
- Most likely EMS injury is from lifting and moving
- Most severe injuries are from ambulance MVCs
- Most frequent harm to patient is during lifting and moving
- Assaults are uncommon, but also causes of severe injury
Steps to Create A Safer Work Environment

1. Deciding that safety IS a priority
2. Preparing for Calls
3. Responding to Calls
4. Working on Calls
5. Caring for Patients
Deciding that Safety IS a Priority

- Create a safety committee
- Perform a safety audit
- Include safety on all training
- Train and engineer to specific risks
- Set AND follow safety related policies
- Contact your insurance carrier
- Design and Buy a safer ambulance
Preparing for calls

• Fitness Level
  • A healthier workforce is less likely to be injured

• Resilience
  • the process of adapting well in the face of adversity, trauma, tragedy, threats, or even significant sources of stress
    • http://www.apa.org/helpcenter/road-resilience.aspx#

• Fatigue
  • Lack of sleep causes health problems and poor performance
    • http://www.iafc.org/displaycommon.cfm?an=1&subarticlenbr=559
What can we do at the start of shift?

• Stretch our muscles
• Proper oral intake
• Good footwear
• Appropriate Attire
• Check our gear
• Clean our space
Responding to Calls

• Where are we going?
• Are the right resources going?
• Are we going the right response mode?
  • EMD can help us pick the right response mode
Responding to Calls

• Ambulances aren’t just big cars
• Seatbelts !!!!
  http://www.trainingdivision.com/seatbeltpledge.asp
• Vehicle Operator Training is ESSENTIAL.
• Stay aware:EMS Network News
  http://www.emsnetwork.org/
• Driver Monitoring is a tool to assist an agency
  • CarChip:  http://www.carchip.com/
  • DriveCam: http://www.drivecam.com
Drive Cam – Near Miss

FG -0.1   SG +0.0   Time -10.00
Front View
Working on Calls

• Apparel
  • Visibility
  • Other Hazard Protection
• Blood and OPIM Protection
• Safety Sharps
• Proper Personnel
  • Law Enforcement
  • Fire Service
  • Animal Control
Scene Visibility

- ANSI 107-2004 and 207-2006

http://www.chiefsupply.com/resources/ansi207.asp
Working on Calls: Patient Movement

• Can’t avoid it
• Training
  • Skills Based
  • www.operationsafeems.com
• Fitness
• Technology
  • Tracked Chairs
  • Auto-Lift Stretchers
  • HoverMatt.com

[Image of a stretcher]

POWERful
Ferno’s POWERflexx™ Powered Cot lifts & lowers patients up to 700 lb. with the push of a button.

Plus
Eliminate battery management with the Break-Away Charging System (BACS)

http://www.ferno.com/powerflexx/
Working on Calls: Transporting the patient

- Use appropriate straps
- Strap down all equipment
- Strap down all providers
- Transport without lights and sirens
- Don’t unbuckle to care for patient
NIOSH Ambulance Crash Tests
Working on Calls: Crew Resource Management

- Leadership
- Teamwork
- Feedback
- Checklists
- Plain Language
- Empowerment
- Situational Awareness
Pt. Care: Situational Awareness

- Situational awareness is the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning and a projection of their status in the near future (Endsley, 1988).
- Translation: Situational awareness is knowing what is going on and what might go on.
- Constant assessment of hazards and risks at a given event.
Caring for Patients

• Patient Safety is part of our job
• Medical Errors are leading cause of death in the U.S.
• Where do we make mistakes?
• We learn from each other
Sync Cardioversion Case

• 32 year old healthy male
• chest pain, low BP, rapid heartbeat
• Cardioversion @50j → refractory
• Repeat @ 100j → VF arrest
• 45 minute resuscitation → patient dies
• Code summary revealed that EMT-P failed to put device in SYNC mode for second shock
Defibrillator Case: Contributing Factors

• Design issues
  • Lack of user feedback
    • Device silently leaves sync mode
  • Lack of forcing function
    • Allows unsynchronized shock for SVT

• Culture of blame
  • Prior near misses unknown
Usability Study

- Fourteen paramedic participants
- Four tasks: 2 routine, 2 emergent
- Two defibrillator models
- SimMan™ patient simulator
- 50% of participants inadvertently delivered an unsynchronized countershock for SVT
  - 71% of participants never aware

[See also associated editorial: Karsh and Scanlon, Oct 2007; 50(4): 433-435]
Normal Error

- Human Error - inadvertent action; inadvertently doing other that what should have been done; slip, lapse, mistake.

From: David Marx, *Just Culture*. Outcome Engineering 2008
At-Risk Behavior

• At-Risk Behavior – behavioral choice that increases risk where risk is not recognized or is mistakenly believed to be justified.

From: David Marx, Just Culture. Outcome Engineering 2008
Reckless Behavior

- Reckless Behavior - behavioral choice to consciously disregard a substantial and unjustifiable risk.

From: David Marx, *Just Culture*. Outcome Engineering 2008
Reckless Behavior
Conscious disregard of unreasonable risk
Manage through:
• Remedial action
• Punitive action

At-Risk Behavior
A choice: risk not recognized or believed justified
Manage through:
• Removing incentives for At-Risk Behaviors
• Creating incentives for healthy behaviors
• Increasing situational awareness

Normal Error (Human Error)
Inadvertent action: slip, lapse, mistake
Manage through changes in:
• Processes
• Procedures
• Training
• Design
• Environment

Console
Coach
Punish

From: David Marx, *Just Culture*. Outcome Engineering 2008
1. Told EP & DO immediately
2. Had missed new defibrillator briefing
3. Previously told partner “I never use sync because I can time it correctly”
4. Lies to Incident Review Team

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 Normal Error ---- Console/Educate
 At Risk ---- Coach
 Reckless ---- Punitive
Returning to Service

• Clean our hands …
• Clean our rigs …
  • How often do you do it?
  • What is done to do it?
• Sterilize?
Steps to Create A Safer Work Environment

1. Deciding that safety IS a priority
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3. Responding to Calls
4. Working on Calls
5. Caring for Patients
What will you do to change
Create a safer workplace?
NYS EMS Safety Policies

- 88-22 Barrier Precautions and Reprocessing Recommendations
- 89-04 Sample SOP for Backing and Parking Ambulances
- 92-02 Tuberculosis
- 98-11 EMS Service Incident Reporting Requirements
- 98-16 Equipment Update
- 00-09 Functional Job Description CFR
- 00-10 Functional Job Description EMT/AEMT
- 00-13 Operation of Emergency Medical Services Vehicles
- 01-07 Guidelines to Follow in Case of an EMS Vehicle Collision
- 02-09 Needlestick and Sharps Injuries
- 02-11 Preventive Maintenance of EMS Vehicles and Equipment
- 03-02 EMS Response Planning to a Suspected Biological/ Infectious Disease Incident
- 03-11 Respiratory Disease Precautions
- 04-01 SARS Advisory
- 08-04 Passenger Restraint Devices in Emergency Response Vehicles
- 08-06 Federal Worker Visibility Act
- 09-07 Security and Safety of EMS Response Vehicles
- 09-08 Reporting Incidents, Injuries and Crashes
Resources

• Other Resources
  • www.ems.gov
  • www.naemt.org – EMS Safety Course
• Trade Journal
  • www.jems.com
  • www.emsworld.com
  • www.EMS1.com
• The Secret List
  • http://firefighterclosecalls.com/secret.php
• Just Culture www.JustCulture.org
• www.MedicalHumanFactors.com
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