Evaluating Occupational Safety Regulations - What works?:

Protecting those who care for us!

Occupational Safety challenges for Emergency Medical Service transportation

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Politics, Policy and Public Health

Overview

- EMS has been identified to be a dangerous profession
- Although the risks and hazards have been identified to be related primarily to the transportation/patient handling component of their occupation – there has been very little focus on this aspect in either training, policy or standards
- Major published texts, and educational curricula addressing Emergency Responder Safety - make only brief mention of these issues
- Existing occupational health and safety standards focus primarily instead on blood borne pathogens and biohazards.

Safety of transportation

- The transportation component of EMS practice:
  - from the scene to the ambulance
  - in the ambulance (to and from the scene)
  - transporting the patient from the ambulance into the hospital environment

- There is limited transportation or ergonomic data on risk and hazard in each of these components, even though they appear to represent the major issues in EMS safety

- Scant relevant safety standards and oversight, if present at all, for the transportation or ergonomic aspects of EMS

- Gaps in risk and hazard data and the gaps which exist in standards yet to be defined

Thursday July 5th 2007......

"...I’d like to know what can be done so this never happens again...."

Friday July 20th 2007...

The worst ambulance crash in USA history

Five Killed in Crash of Ambulance and Semi

July 21, 2007 06:20 AM EDT

The Highway Patrol says these EMS workers were killed. They were identified as 49-year-old Stanley Stamps, 29-year-old Dan McPeek, and 21-year-old Jerry Wagner. The two patients were also killed. They were identified as a 73-year-old woman and 60-year-old Amelia Wells of Mechanicsburg.

Another emergency medical technician, Matt McCullough, and the truck driver, Daniel Chaves, Jr., of Indiana, were both taken to the hospital. It is not yet clear whether they suffered any injuries.

Authorities have not said what caused the crash. They told the family of the victim that the semi was traveling over 100 miles per hour.
To quote Steve “Sid” Caesar – Director IHS ES

“We want everyone to get home safely each day”

EMS fatalities

EMS personnel fatalities*

- 74% transportation related
  - 1/5 of ground transport fatalities were struck by moving vehicles
- 11% were cardiovascular
- 9% were homicide
- 4% needle sticks, electrocution, drowning and other


To quote Steve “Sid” Caesar – Director IHS ES

“We want everyone to get home safely each day”

Background:

- Emergency Medical Services (EMS) transportation and patient handling have been identified to have high risk of occupational fatality and injury


d...as he had been trained to do...??

Assistant District Attorney Robert Bache told the jury today in his opening statement that Tennessee ambulance driver Charles Christopher Ekater was speeding and ran a red light when he collided with Darrin Bowden at U.S. 231 and West Limestone Road.

But Ekater’s lawyer, Robert Preuss, said in his opening argument that Bowden ran the red light and started into the path of the ambulance.

Bowden, 18, was killed in the wreck Oct. 13, 2002, about seven miles north of Huntsville in Haral Green.

Experts estimated that Ekater was traveling 45 mph in a 30 mph speed zone. But Preuss said Ekater had been told about 10 mph to 10 mph speed zone. He said, “We had been trained to do.”

When the witness testified, the ambulance was transporting a patient, Robert Cock, to Huntsville Hospital from Cotton Hill via an Emergency Back.

Comparative EMS Occupational transportation fatalities*

EMS provider injury events*

<table>
<thead>
<tr>
<th>Percentage of Cases</th>
<th>Cases</th>
<th>LWD Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifting</td>
<td>25%</td>
<td>20%</td>
</tr>
<tr>
<td>Transportation</td>
<td>20%</td>
<td>15%</td>
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<tr>
<td>Overexertion</td>
<td>15%</td>
<td>10%</td>
</tr>
<tr>
<td>Falls</td>
<td>10%</td>
<td>5%</td>
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<tr>
<td>Assault</td>
<td>5%</td>
<td>0%</td>
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* Maguire, Hunting, Guidotti, Smith Occupational Injuries among Emergency Medical Services Personnel Pre-hospital Emergency Care, Vol. 9-4 October 2005, pages 405 - 411

EMS Injuries*

- Higher than the injury rate for any private industry published by DOL
- 34.6 injuries/100 fulltime workers per year
- 1.5 x that of fire fighters
- 5.8 x that of health services personnel
- 7 x the national average

* Maguire, Hunting, Guidotti & Smith, Occupational Injuries among Emergency Medical Services Personnel, Pre-hospital and Emergency Care Oct/Dec 2005

Approach:

- Search of available federal, regional and association EMS transportation safety data, training and transportation (patient handling and vehicle) related safety standards.

Canadian EMS occupational safety leadership

September 11, 2007
Policy makes a difference...

Organizational policy and other factors associated with emergency medical technician seat belt use

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Abstract: The purpose of this study was to determine whether seat belt use among emergency medical technicians (EMTs) in the United States is associated with the presence or absence of an organizational policy encouraging seat belt use. A cross-sectional design was used to survey EMTs in 2009. The outcome of interest was seat belt use. Explanatory variables included presence of an organizational policy encouraging seat belt use, EMT work experience, and whether the EMT was employed in a county with a seat belt enforcement program. Multivariate logistic regression was used to estimate the effects of relevant factors on seat belt use. EMTs employed in counties with a seat belt enforcement program were more likely to use seat belts (OR 1.67, 95% CI 1.16-2.40). EMTs working in departments with an organizational policy were also more likely to use seat belts (OR 1.51, 95% CI 1.04-2.19). These results suggest that organizational policies strongly encourage seat belt use for EMTs and are associated with seat belt use.

Findings:

- Data sources –
  - No specific database to identify occupational fatality or injury pre – 2003
  - NEISS-Work – narrative on business type
  - BLS
    - Survey of Occupational Injury & Illness – EMT’s, Paramedics
    - Census of Fatal Occupational Injury –Ambulance Services
  - No reliable exposure or denominator data
  - NHTSA (FARS/NASS/CDS) transport safety data fields captured for EMS were minimal with incomplete numerator data for both morbidity and mortality and virtually non-existent denominator data

Findings:

- OSHA only addresses biohazards – not mechanical injury or shift duration
- NAEMT Association seat belt position statement - 2006
- Exempt from Federal Motor Vehicle Safety Standards (FMVSS)
- Exempt from Federal Motor Carrier Safety Administration (FMCSA)
- Ambulance Manufacturing Division/KKK-F GSA, at best embarrassing
- Not investigated by NTSB since 1979
- Fundamental peer reviewed accepted technical data not applied to transportation/occupational health and safety in this field

30 years later, ~1,600 fatalities and still the same problem

The interior of the ambulance body was severely damaged. The flooring, paper towel, sewer, cabinets, and heat vent under the seat were not immediately identified as the cause of death. However, the entangled tubing was still found in the above-mentioned vehicle and on the seat. All 3 occupants were found dead. The body of the ambulance is not fitted with a right.
Unacceptable, and ridiculous AMD/KKK-F ‘safety testing’ practices and standards!!??

ARMED TEST RECORD BROKEN

36,000 lbs
55,000 lbs on RTF
55,000 lbs on SKT

THAT WAS THEN

In 2000, shatter industry record by testing and certifying the modular body to more than double the 150% curb weight Federal Standard. In addition, they performed a body side test that had never been seen before. Now has broken that record with a 55,000 body test on the top and side of the module.

THE AMBULANCE BODY IS NOW CERTIFIED TO A 150% CURB WEIGHT LEVEL - MORE INFO

INDUSTRY LEADING SAFETY INNOVATION

No ‘a’... then NO ‘F’ !!!!!

▶ F = ma

where F – force
m – mass
a – acceleration

F = ma

Worker visibility Act:
Help is on the way!! November 24th 2008

Policy and practice ignorant of existing technical safety data

Summary:

▶ Transport and ergonomics safety hazards are the biggest issues in EMS injury and fatality
▶ Both are devoid of acceptable safety standards, and minimally addressed by any meaningful let alone validated training*
▶ Lack of a national oversight of EMS safety data and safety standards, as exists for fire and police
▶ Only certified driver training program is EVOC/CEVO, neither validated nor had efficacy demonstrated – and is NOT mandatory**
▶ Data driven best practices scarce

Discussion:

▶ The mix of volunteer and career providers is raised as an explanation for this situation - however such lack of safety data and standards does not occur for the fire dept which has a similar challenges
▶ Federal Motor Vehicle Carrier Safety Administration (FMCSA) data capture system provides extensive data on both numerator and denominator aspects of truck safety – EMS is exempt along with other emergency services, however police and fire have comprehensive alternate data bases to capture this data
▶ Standards for occupant protection and for securing equipment in a moving vehicle, and standards for patient and equipment handling loads do not exist in EMS
▶ There are more stringent safety standards for moving cattle than there are for moving patients
Conclusion:

- There is a serious deficiency in the occupational health and safety focus on the transportation related safety, training and standards for EMS.
- Transportation safety training and oversight in the vehicles or at the scene, has not shared the focus that is present in other aspects of EMS safety (biohazards) or as for transport safety for other first responders.
- There are exemptions from potentially protective standards.
- Standards exist which are ignorant of fundamental technical information.
- It is unacceptable that in the setting of transportation and patient handling being the primary causes of morbidity and mortality in EMS, that these areas are devoid of oversight and safety standards.

Breaking News!!
National Academies
TRB EMS/Medical Transport Safety Subcommittee – Jan 16, 2008