

American Public Health Association Meeting,  
Washington, DC, November 5<sup>th</sup>, 2007  
Politics, Policy and Public Health

## Evaluating Occupational Safety Regulations - What works?:

### Protecting those who care for us! Occupational Safety challenges for Emergency Medical Service transportation



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CEO, Objective Safety  
New York, NY

## 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 the 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 5<sup>th</sup> 2007.....

### NEWS CENTER

#### Paramedic Killed in Turner Ambulance Crash

Video Editor: [Maurice Clifton](#), Managing Editor  
Created: 7/6/2007 9:48:07 AM  
Updated: 7/6/2007 1:27:22 PM

TURNER (NEWS CENTER) — The Med-Care paramedic was killed when the ambulance collided with a pickup truck on Route 4 in Turner at about 3:00 A.M. Thursday.

The Androscoggin County Sheriff's Department says the Med-Care ambulance had its emergency lights on when the pickup truck crossed in front of it.

The ambulance driver, 60-year-old Arlene Ovesenleaf of Bethel, and the driver of the pickup, 29-year-old Christopher Boudet of Turner, were both injured and were taken to Central Maine Medical Center, as was the patient being carried in the ambulance.

The paramedic who died has been identified as 40-year-old Alan Parsons of Wilton.

A section of Route 4 was closed to traffic for about five hours.

Several passers-by stopped to help the injured. Sheriff's investigators would like to speak with them. If you were on the scene of the crash, you are asked to call Detective Sgt. William Dugane at 1-800-492-0737, or 784-7361, ext. 314.



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

Posted By:mad at July 5, 2007 4:38 PM (Suggest Removal)

to all the people worried about how fast the emt was going, would it be fast enough if it was your loved one in there.....

| Add your comments

Posted By:Concerned at July 5, 2007 4:49 PM (Suggest Removal)

To mad: It would be too fast if they ran over my family member on their way to another's family member...

| Add your comments

Posted By:Concerned at July 5, 2007 4:58 PM (Suggest Removal)

To X responder: Why can't I second guess this? A man is dead and I want to know if the actions and situation surrounding this were worth this sort loss. And I'd like to know what can be done so that this never happens again.

## Friday July 20<sup>th</sup> 2007... The worst ambulance crash in USA history

### Five Killed in Crash of Ambulance and Semi

July 21, 2007 08:20 AM EDT

VAN WERT, OHIO (AP) — The Ohio State Highway Patrol continues to investigate the crash of an ambulance that killed five people Friday night, including three emergency medical technicians. Troopers say the ambulance was broadsided by a semitrailer in Crane Township, about 65 miles southwest of Toledo.

The ambulance, with four Antwerp Emergency Medical Services workers aboard, was taking two victims from an earlier car crash to a hospital. Troopers say it was broadsided by a tractor-trailer at the intersection of County Road 176 and County Road 87. The ambulance then burst into flames.

The Highway Patrol says three EMS workers were killed. They were identified as 64-year-old Sammy Smith, 31-year-old Heidi McDougall and 25-year-old Kelly Rager. The two patients were also killed. They were identified as 64-year-old Robert Wells 60-year-old Armelda Wells of Hicksville.

Another emergency medical technician, Matt McDougall, and the truck driver, Gerald Chapman, Jr. of Indiana, were both taken to the hospital. It's not yet clear whether they suffered any injuries.

Authorities have not said who had the right of way at the rural intersection nor have they said if the ambulance's emergency siren and lights were turned on.

### Antwerp fire chief says, "They were doing what they loved..."

Lisa Nicely  
July 22, 2007

By LISA NICELY  
nicely@eastcast-news.com

ANTWERP -- They were heroes until the end



Emergency personnel throughout the region are also shocked and mourning their own.

"That's one of our worst scenarios when it's one of our own," said Con Shuherk of the Payne Fire Department.

"Everyone is a brotherhood," said Friend. "Everybody looks after everybody."

Randy Shaffer, director of Paulding County Emergency Management Agency, said the accident has had a deep impact.

"It has affected every emergency personnel in the county," he said. "We know it could happen at any time. We read about it in our newsletter. We just don't think it's going to happen to us."

Shaffer said when a call came in that an ambulance was involved in an accident Friday, "I think every squad in the county activated."

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

#### Sides differ on who ran red light in ambulance wreck that killed teen - Alabama

Assistant District Attorney Robert Becher told the jury today in his opening statement that Tennessee ambulance driver Charles Christopher Eakes was speeding and ran a red light when he collided with Dianna Bowden at U.S. 231/431 and West Limestone Road.

But Eakes' lawyer, Robert Presto, said in his opening argument that Bowden ran the red light and darted into the path of the ambulance.

Bowden, 18, was killed in the wreck Oct. 13, 2005, about seven miles north of Huntsville in Hazel Green.

Troopers estimated that Eakes was driving 81 mph in a 60 mph speed zone. But Presto said Eakes had slowed to about 50 mph to go through the intersection, as he had been trained to do.

When the wreck occurred, the ambulance was transporting a patient, Ernest Cook, to Huntsville Hospital from Fayetteville on a non-emergency basis.

- ▶ 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

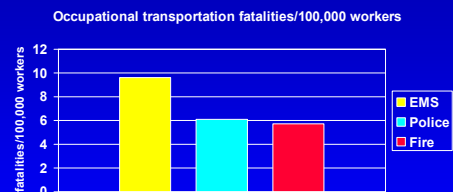
### EMS fatalities

#### 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

\* Maguire, Hunting, Smith & Levick, Occupational Fatalities in Emergency Medical Services: A Hidden Crisis, Annals of Emergency Medicine, Dec 2002

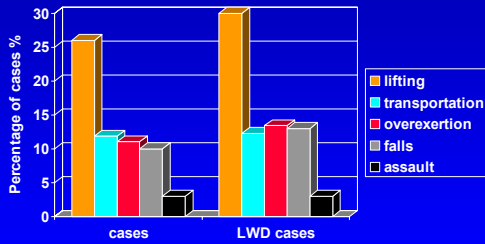
### Comparative EMS Occupational transportation fatalities\*



- ▶ WE HAVE A BIG PROBLEM HERE

\* Maguire, Hunting, Smith & Levick, Occupational Fatalities in Emergency Medical Services: A Hidden Crisis, Annals of Emergency Medicine, Dec 2002

## EMS provider injury events\*



\* 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

Section 21 Paramedic Health and Safety Committee

**The problem**

We, the undersigned, are requesting the Minister of Labour to form a Section 21 Paramedic Health and Safety Committee under the Occupational Health and Safety Act.

**Our vision to solve this issue**

This section serves as a platform and is intended to be the vehicle of labour in 2007.

**Information about the PHEMS-HSAC**

PHEMS-HSAC is responsible for the best of its kind in North America dealing specifically with EMS health and safety issues and research.

**Actual Issues**

1. Paramedic Health and Safety Committee (PHEMS-HSAC) is a non-partisan voluntary committee formed from a cross-section of Paramedic, health and safety professionals across Canada.

2. It is made up of the best of its kind in health services.

3. PHEMS-HSAC has participating members from: CPESU, IBEA, CUPE and the CMA.

4. It focuses on issues concerning:

- 1) road vehicle practices, and
- 2) ensuring the highest patient standard for Paramedics.

**How we will solve this**

1. Increased safety training

2. Improved patient care through experiential education

3. A number of other training programs, seminars, PHEMS-HSAC forums, networks and the protection of Canada.

## September 11, 2007

U.S. Department of Labor  
Occupational Safety & Health Administration  
www.osha.gov

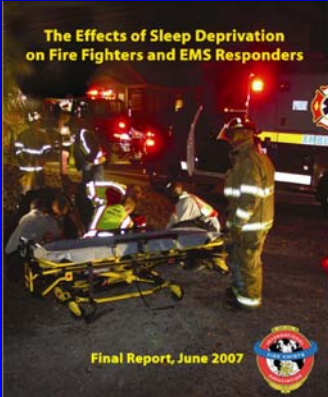
Unified Agenda  
Prerule Stage  
1218-AC17 - 1827. EMERGENCY RESPONSE AND PREPAREDNESS

1827. EMERGENCY RESPONSE AND PREPAREDNESS

Priority: Other Significant. Major status under 5 USC 801 is undetermined. Unfunded Mandates: Undetermined Legal Authority: 29 USC 655(b); 29 USC 657 CFR Citation: 29 CFR 1910 Legal Deadline: None Abstract: Emergency responder health and safety is currently regulated primarily under the following standards: the fire brigade standard (29 CFR 1910.156); hazardous waste operations and emergency response (29 CFR 1910.120); the respiratory protection standard (29 CFR 1910.134); the permit-required confined space standard (29 CFR 1910.146); and the bloodborne pathogens standard (29 CFR 1910.1030). Some of these standards were promulgated decades ago and none were designed as comprehensive emergency response standards. Consequently, they do not address the full range of hazards or concerns currently facing emergency responders. Many do not reflect major changes in performance specifications for protective clothing and equipment. Current OSHA standards also do not reflect all the major developments in safety and health practices that have already been accepted by the emergency response community and incorporated into National Fire Protection Association (NFPA) and American National Standards Institute consensus standards. OSHA will be collecting information to evaluate what action the agency should take.

## IAFC June 2007

### The Effects of Sleep Deprivation on Fire Fighters and EMS Responders



Final Report, June 2007

## Policy makes a difference...



## NAEMT July 2006 Position statement

**NAEMT**  
 About NAEMT  
 Organization  
 Mission  
 Leadership  
 Liaisons  
 Bylaws  
 Public Platform  
 Strategic Plan  
 Position Papers  
 Legislative Agenda  
 Nominating Authority  
 Grants and Proceeds  
 EMT Club  
 EMT Code of Ethics  
 Newsroom  
 Linkage Board  
 Join NAEMT  
 Divisions & Committees  
 Educational Programs

**National Association of Emergency Medical Technicians  
 Statement on Safety Restraint Use in Emergency Medical Services**

**Statements**

The National Association of Emergency Medical Technicians (NAEMT) strongly advocates the use of available safety restraint systems to prevent injury to EMTs, Paramedics, patients, and all occupants of any emergency response vehicle.

The NAEMT strongly advocates the creation of a National EMS Injury Data Base which can be used to quantify all injuries to EMS providers including all EMS vehicle crashes.

The NAEMT strongly advocates the development of significant scientific studies to determine appropriate restraint and protection systems for the EMS provider, patient and passengers of all emergency response vehicles.

**Background**

Emergency Medical Services (EMS) throughout its history has been shown to be a dangerous profession. Although there is limited data to clearly define the inherent risk of performing the job functions within EMS, it is generally accepted that the most likely cause of death of a member of the EMS community is due to motor vehicle-related collisions (1). Each year there are in excess of 4000 reportable ambulance crashes resulting in an average of one death per week (2).

## 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 code:29-2041
  - Census of Fatal Occupational injury –Ambulance Services code:62191
- ♦ 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

**NATIONAL TRANSPORTATION SAFETY BOARD  
 WASHINGTON, D.C.**

ISSUED: May 17, 1979

The interior of the ambulance body was severely damaged. The flooring, oxygen bottles, litter, cabinets, and bench were either destroyed or ejected from the ambulance. Because the plywood flooring was not secured to the floor or chassis, everything attached to or resting on it came loose when the ambulance rolled over. All body structures were deformed downward and to the right.

A review of the Federal Motor Vehicle Safety Standards (FMVSS) revealed that there are no standards or specifications which assure that the total design and construction of ambulances as modified by the after-market installers are of sufficient structural strength and stability to withstand impact forces similar to requirements imposed on the original vehicle manufacturer. FMVSS 208, "Occupant Crash Protection in Passenger Cars, Multipurpose Passenger Vehicles, Trucks and Buses," applied to the 1974 Chevrolet Suburban Custom 10 Van as manufactured. However, this protection was not extended to the patient(s) or medical personnel occupying the body of the ambulance since it did not apply to the modifications made after the vehicle was sold by the manufacturer.

There are no performance requirements for the after-market modifications to vehicle structural integrity, crashworthiness, interior occupant protection, and the anchorage of items such as litters, benches, cabinets, oxygen bottles, or flooring. The only guidance concerning these safety

## Unacceptable, and ridiculous AMD/KKK-F 'safety testing' practices and standards !??

**AMBULANCE TEST RECORD BROKEN**

**36,000 lbs**



**55,000 lbs on ROOF**



**55,000 lbs on SIDE**



**THAT WAS THEN      THIS IS NOW...**

In 2000, shattered industry records 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 500% curb weight level! **»MORE INFO**

**INDUSTRY LEADING SAFETY INNOVATION**

No 'a'... then NO 'F' !!!!

▶  $F = ma$

where  $F$  – force  
 $m$  – mass  
 $a$  – acceleration

## Policy and practice ignorant of existing technical safety data

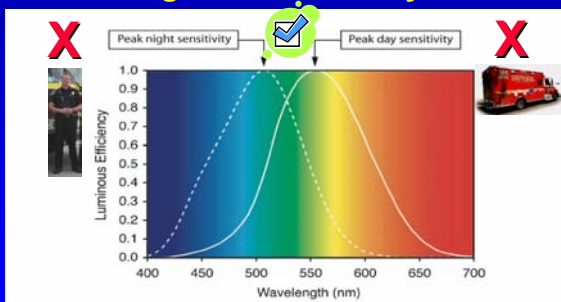


Figure 1. The scotopic (dashed line) and photopic (solid line) luminous efficiency functions, describing the spectral sensitivities of night and day vision, respectively.

## Worker visibility Act: Help is on the way !! November 24<sup>th</sup> 2008

**PART 634—WORKER VISIBILITY**

**4582.2 Rule**

All workers within the right-of-way of a Federal-aid highway who are exposed either to traffic (vehicular) using the highway for purposes of travel or its construction equipment within the work area shall wear high-visibility safety apparel.

Workers means people on foot whose duties place them within the right-of-way of a Federal-aid highway, such as highway construction and maintenance forces, survey crews, utility crews, responders to incidents within the

## 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

\*Emergency Medical Technician—Basic: National Standard Curriculum. US Department of Transportation, National Highway Traffic Safety Administration

\*\*Emergency Vehicle Operator Course, EVOC

## 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

TRANSPORTATION RESEARCH BOARD  
OF THE NATIONAL ACADEMIES

87th Annual Meeting  
January 13-17, 2008  
Washington, DC

TRANSPORTATION RESEARCH BOARD  
OF THE NATIONAL ACADEMIES

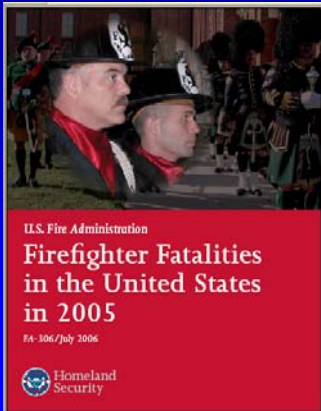
87th Annual Meeting - January 13-17, 2008

TRB Annual Meeting | Interactive Program Search

ADD TO MY PROGRAM | OPEN MY PROGRAM | PRINTABLE VIEW

Emergency Medical Services Safety Subcommittee, ANB105)  
Wednesday, January 16, 2008, 8:00 AM - 12:00 PM, Marriott  
Nadine Lewick, EMS Safety Foundation, presiding

Sponsored by:  
Transportation Safety Management Committee (ANB10)



Department of Justice  
Federal Bureau of Investigation

Law Enforcement  
**OFFICERS Killed & Assaulted 2004**

Report Summary

The FBI publishes Law Enforcement Officers Killed and Assaulted (LEOKA) each year to provide information about the officers who were killed, seriously injured or assaulted, and those officers who were assaulted while performing their duties. Before reviewing the tables, charts, and narrative summaries presented in this publication, readers should be aware of certain features of the LEOKA data collection process that could affect their interpretation of the information. First, the data in the tables and charts reflect the number of victim officers, not the number of incidents or weapons used. Second, the Uniform Crime Reporting (UCR) Program considers any part of the body that can be used as weapons (such as hands, feet, or fists) to be personal weapons and designates them as such in its data. Readers should also be aware that law enforcement agencies use different methodologies for collecting and reporting data about officers who were killed and those who were assaulted. As a result, the two databases, and therefore the tables derived from them, are not comparable. Finally, because the information in the tables of this book are updated each year, the FBI cautions readers against making comparisons between the data in this publication and those in prior editions of the publication.

History  
Beginning in 1937, the FBI's UCR Program collected and published statistics on law enforcement officers killed in the line of duty in its annual publication, Crime in the United States. Statistics regarding assaults on officers were added in 1960. In June 1971, the law enforcement conference, "Prevention of Police Killings," resulted in a Presidential directive to increase the FBI's involvement in preventing and

Section I  
This Section provides a summary of data concerning Law Enforcement Officers Killed and Assaulted (LEOKA) and 45 tables that provide specific details about location and time of incident, weapon information, profiles of officers and their assignments, and other topics. In addition, narrative summaries of individual incidents are provided for each victim officer seriously killed in 2004. Also in Section I are a summary and 17 additional tables that analyze Law Enforcement Officers' Accountability (LEOA).

Section II  
Section II contains data pertaining to assaults on seven local, state, and tribal law enforcement officers. The UCR Program collects this information monthly from the agencies that collect and submit