

American Public Health Association Meeting,
Washington, DC, November 7th, 2007
Politics, Policy and Public Health

Occupational transportation safety challenges:

Contrasting the transportation safety data for Emergency Medical Services with other commercial vehicles



Nadine Levick, MD MPH
Research Director, EMS Safety Foundation
CEO, Objective Safety
New York, NY

Background:

- ▶ Ground Emergency Medical Services (EMS) have been identified to have high risk of crash related injury and fatality, however comparative data with commercial vehicles is scant

Occupant protection... Transportation systems safety?? July 5, 2007

Medic Survivors

Medic Fatality



"...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 20th 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 Hedi McDougall and 25-year-old Kelly Sager. 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 USA NICELY

nicely@crequest-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.

Prosecutors 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.

2 killed, 3 injured.... September 23, 2007 - PA

Car, Ambulance Collide In Marshall Township: 2 Dead

POSTED: 8:08 am EDT September 23, 2007
UPDATED: 9:52 pm EDT September 23, 2007

MARSHALL TOWNSHIP, Pa. -- An ambulance and car collided along Route 19 at Brushcreek Road in Marshall Township Sunday, killing two people and injuring three others.

Police said Douglas Stitt, 38, of Mercer, and Phillip Bacon, 31, of Sharpville, were driving a car at about 2:30 a.m. when their vehicle and the ambulance collided.

The medical examiner said both Stitt and Bacon died of head injuries.

Three people riding in a Cranberry Township ambulance were also injured. Their conditions and names have not been released.

The three injured victims remain in the hospital.

2 counts of vehicular homicide... November 5, 2007 - PA

Drunken ambulance driver killed 2 in car crash - Pennsylvania

A 22-year-old ambulance driver drank before her shift and was impaired when she collided with a car in Marshall, killing two men instantly, Allegheny County District Attorney Stephen A. Zappala Jr. said today.

Shanea Leigh Climo, 22, of Evans City, is charged with two counts of homicide by vehicle and involuntary manslaughter, driving under the influence and several traffic offenses in the Sept. 23 collision at Perry Highway and Brush Creek Road. She was arrested this morning, arraigned and released on her own recognizance, authorities said.

Police said an on-board camera system in the ambulance helped them decide to file charges. The camera allegedly shows the face of the driver, Shanea Climo.

Zappala said Climo was traveling south on Route 19, transporting a patient with a do-not-resuscitate order to UPMC Passavant, when she ran a red light and hit a Chevrolet Cavalier driven by Douglas Stitt. Stitt and a passenger, Phillip Bacon, were killed.

The patient later died, but his death was not believed to be related to the crash, Zappala said.

Paramedic critically injured November 7, 2007 - yes... today...

Paramedic Critically Injured After Ambulance Crash

POSTED: 8:37 am EST November 7, 2007
UPDATED: 8:39 am EST November 7, 2007

GARRISON, N.Y. -- A paramedic for Empire State Ambulance Company was critically injured when the ambulance he was riding in went out of control along Route 9 in Garrison and crashed around five this morning. State Police at Cortlandt say the ambulance was patrolling the area when the driver apparently fell asleep, and crashed at Oak Hollow Road.

The injured man was in the back of the rig. Police say he was given CPR at the scene and rushed to the Hudson Valley Hospital Center - and then airlifted to the Westchester Medical Center.

Some recent adverse outcomes



UPS and Laundry trucks have very similar design and even more stringent safety requirements to EMS vehicles BUT very different cargo.....

People are passengers and NOT packages or parcels

Objective:

- ▶ To identify transportation safety data and data capture systems for EMS vehicle transport in contrast to commercial vehicle transport

Methodology:

- ▶ Search of online databases for EMS transportation safety and commercial vehicle transportation safety data, over 1996-2005
- ▶ Analysis of types of data captured nationally for these two different occupational environments

Results: Identified relevant databases

- ▶ FMSCA – MCMIS, Safetynet, SafetyStat
- ▶ NHTSA – FARS, GES, CDS/NASS
- ▶ NTSB -
- ▶ Non transportation Professional Association/Organization National Infrastructure -

FMCSA - Summary

- ▶ Established Jan 2000 as a separate administration within the U.S. DOT, pursuant to the Motor Carrier Safety Improvement Act of 1999
- ▶ Primary mission is to reduce crashes, injuries, and fatalities involving large trucks and buses.

FMCSA - safety mandate

- ▶ Develops and enforces data-driven regulations that balance motor carrier (truck and bus companies) safety with industry efficiency
- ▶ Harnesses safety information systems to focus on higher risk carriers in enforcing the safety regulations
- ▶ Targets educational messages to carriers, commercial drivers, and the public
- ▶ Partners with stakeholders including Federal, State, and local enforcement agencies, the motor carrier industry, safety groups, and organized labor on efforts to reduce bus and truck-related crashes.

FMCSA - Exceptions

- ▶ Unless otherwise specifically provided, the rules do not apply to —
 - (f)(1) All school bus operations as defined in §390.5;
 - (f)(2) Transportation performed by the Federal government, a State, or any political subdivision of a State, or an agency established under a compact between States
 - (f)(3) The occasional transportation of personal property by individuals not for compensation nor in the furtherance of a commercial enterprise;
 - (f)(4) The transportation of **human corpses or sick and injured persons**;
 - (f)(5) The operation of **fire trucks and rescue vehicles while involved in emergency and related operations**;

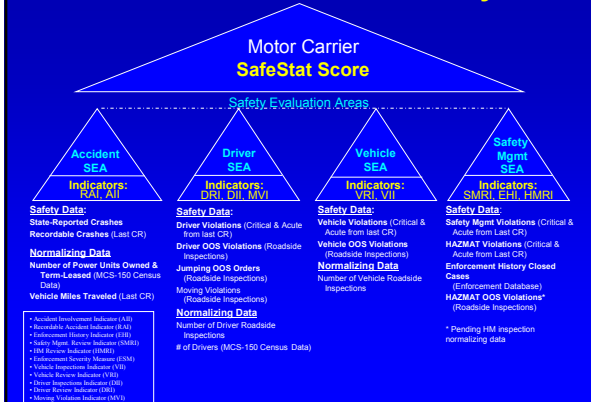
Motor Carrier Management Information System (MCMIS)

- ▶ FMCSA operates and maintains the MCMIS
- ▶ MCMIS contains information on the safety fitness of commercial motor carriers
- ▶ MCMIS is a collection of safety information including state-reported crashes, compliance review and roadside inspections results, enforcement data, and motor carrier census data
- ▶ The Crash Profiles use the National Governors' Association (NGA) recommended data elements reported to FMCSA by states through the SAFETYNET computer reporting system

MCMIS - NGA reportable crash

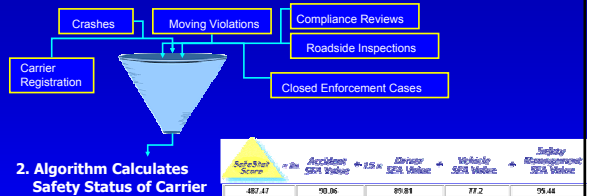
- ▶ Must involve:
 - ♦ a truck (a vehicle designed, used, or maintained primarily for carrying property, with a gross vehicle weight rating or gross combination weight rating of more than 10,000 lbs.) or
 - ♦ bus (a vehicle with seats for at least nine people, including the driver)
- ▶ The crash must result in:
 - ♦ at least one fatality
 - ♦ one injury where the person injured is taken to a medical facility for immediate medical attention; or
 - ♦ one vehicle having been towed from the scene as a result of disabling damage suffered in the crash.

SafeStat Detailed Summary



How are SafeStat scores calculated?

1. Motor Carrier Safety Data



2. Algorithm Calculates Safety Status of Carrier



3. Access SafeStat results for individual carriers via A&I Online.



FMCSA - Hours of Service Regulations

Summary of the New Hours-of-Service Regulations Effective October 1, 2005

HOURS-OF-SERVICE RULES	
2003 Rule	2005 Rule
Property-Carrying CMV Drivers Compliance Through 05/00/05	Property-Carrying CMV Drivers Compliance On 6/1/05
May drive a maximum of 11 hours after 10 consecutive hours off duty.	NO CHANGE
May not drive beyond the 14th hour after coming on duty, following 10 consecutive hours off duty.	NO CHANGE
May not drive after 60/70 hours on duty in 78 consecutive days. * A driver may reset a 78 consecutive day period after taking 34 or more consecutive hours off duty.	NO CHANGE
Commercial Motor Vehicle (CMV) drivers using a sleeper berth must take 10 hours off duty, but may split sleeper-berth time into two periods provided neither is less than 2 hours.	CMV drivers using the sleeper berth provision must take at least 8 consecutive hours in the sleeper berth, plus 2 consecutive hours either in the sleeper berth, off duty, or any combination of the two.

New Short-Haul Provision

Drivers of property-carrying CMVs which do not require a Commercial Driver's License for operation and who operate within a 150 air-mile radius of their normal work reporting location:

- May drive a maximum of 11 hours after coming on duty following 10 or more consecutive hours off duty.
- Are not required to keep records-of-duty status (RODS).
- May not drive after the 14th hour after coming on duty 5 days a week or after the 15th hour after coming on duty 2 days a week.

Employer must:

- Maintain and retain accurate time records for a period of 6 months showing the time the duty period began, ended, and total hours on duty each day in place of RODS.

Drivers who use the above-described short-haul provision are not eligible to use 100 air-mile provision 395.1(a) or the current 16-hour exception in 395.1(e)

FMCSA HOS – detailed info

U.S. Department of Transportation Federal Motor Carrier Safety Administration

Home Rules & Regulations Registration & Licensing Forms Safety & Security Facts & Research Cross Border About FMCSA

Hours-of-Service Regulations - Effective October 1, 2005

The Hours-of-Service (HOS) regulations (49 CFR, Part 395) were revised in August 2005. See a summary of the rule changes below.

For questions concerning HOS regulations, please contact your State's Division Office.

HOS Reference Materials

- Frequently Asked Questions [PDF]
- HOS Brochure [PDF]
- Driver's Pocket Guide [PDF]
- HOS Poster [PDF (5 MB)]
- Logbook Examples [PDF]

HOS Regulatory Materials

- HOS Final Rule [PDF]
- View Docket
- Regulatory Impact Analysis and Small Business Impact Analysis
- HOS Presentation [PPT (4 MB)]

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

Pennsylvania Code

Commonwealth of Pennsylvania
Pennsylvania Code
Title 26, Health and Safety
Chapters 1001 - 1015

PART VII. EMERGENCY MEDICAL SERVICES

Chapter

- 1001. ADMINISTRATION OF THE EMS SYSTEM
- 1002. PERSONNEL
- 1003. LICENSING OF BLS AND AEMT GROUND AMBULANCE SERVICES
- 1004. LICENSING OF AIR AMBULANCE SERVICES—ROTORCRAFT
- 1005. MEDICAL COMMAND FACILITIES
- 1006. ACCREDITATION OF EMS TRAINING INSTITUTES
- 1007. SPECIAL EVENTS EMS
- 1008. OFFICE RESPONSE SERVICE RECOGNITION PROGRAM

(1) Accident, injury and fatality reporting. An ambulance service shall report to the appropriate regional EMS council, in a form or manner prescribed by the Department, an ambulance vehicle accident that is reportable under 75 Pa.C.S., and an accident or injury to an individual that occurs in the line of duty of the ambulance service that results in a fatality, or medical treatment at a facility. The report shall be made within 24 hours after the accident or injury. The report of a fatality shall be made within 8 hours after the fatality.

Voluntary, verified ...

Voluntary, ? anecdote ...

Results:

- ▶ Estimates for ambulance fatality per mile traveled are 3 to 50 fold the rate of large truck fatal crashes
 - ♦ Large trucks - 2.2 fatal crashes per 100 million miles traveled in 2005
 - ♦ Ambulance - general estimates of 7.7 to 109 fatal crashes per 100 million ambulance miles traveled.
- ▶ Estimates of 37 truck crash injuries per 100 million miles, are well exceeded by ambulance estimates of crash injury of 308 to 4,360 injuries per 100 million ambulance miles traveled
- ▶ Ambulance vehicle occupant crash fatality percentage is double that for large trucks.

Results:

- ▶ FMCSA (EMS exempt)
 - ♦ extensive data on both numerator and denominator aspects of truck travel safety – for companies, vehicles and drivers (including hours of service)
 - ♦ Safety performance monitoring and targeted safety guidance
- ▶ NHTSA (re: EMS)
 - ♦ minimal with incomplete numerator data for both morbidity and mortality and virtually non-existent denominator data
 - ♦ No safety monitoring nor any targeted safety guidance
- ▶ NTSB (re: Ground EMS)
 - ♦ One crash report, 1979
 - ♦ No safety monitoring, no recommendations since 1979

Valuable information... EMS exempt

The screenshot shows the FMCSA website with the following content:

- Comprehensive Safety Analysis (CSA) 2010**: Purpose is to develop more effective and efficient methods for FMCSA, together with industry and state partners, to achieve an increase in reducing commercial motor vehicle (CMV) crashes, fatalities, and injuries.
- Key Features of CSA 2010 are to:**
 - Increase the opportunity to have contact with more carriers and drivers.
 - Use more and better data to improve performance measurements for identifying high risk carriers and driver behaviors, and
 - Apply a wide range of interventions to correct these high risk behaviors before they become chronic and habitual.
- What's New:**
 - Listening Session on December 4, 2007, in Arlington, Texas
 - Operational Model Test to Commence in Early 2008
- Reports & Presentations:**
 - Presentation to Commercial Vehicle Safety Alliance, September 2007 (PPT - 753 KB)
 - Listening Session Final Report, November 2008 (Coming Soon)
 - March 2008 (PDF - 2.9 MB)
- Outreach Material:**
 - CSA 2010 Fact Sheet (PDF)

Major crash investigation - NTSB comprehensive analysis for commercial vehicles



Law enforcement and Fire data

The image shows two reports:

- 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, accidentally, 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.
- U.S. Fire Administration Firefighter Fatalities in the United States in 2005**: 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 1993. 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

Discussion

- ▶ Existing data point clearly to ground EMS transport as being hazardous
- ▶ Exemptions from FMCSA oversight
- ▶ Scant data capture by NHTSA
- ▶ Lack of attention by NTSB
- ▶ No formal oversight, rather voluntary (even anecdote), absent of structured accepted transport systems safety data capture remains

Why isn't EMS ground transport data captured by FMCSA?

The table outlines reporting criteria for FMCSA:

- REPORT A TRAFFIC CRASH IF IT INVOLVES:**
 - Any truck that has a gross vehicle weight (GVW) of more than 10,000 pounds or gross combination weight rating (GCWR) of more than 15,000 pounds used on public highways.
 - Any motor vehicle with seating for more than 10 or more people, including the driver's seat.
 - Any motor vehicle by definition, a motor vehicle (regardless of weight).
- AND MEETS IN:**
 - A fatality (any person) killed in or on a public highway.
 - Any injury (any person) injured as a result of the crash who subsequently receives medical treatment away from the crash scene.
 - A tow-away (any motor vehicle) towed as a result of the crash to a public highway.
- EXCLUDED:**
 - Crashes involving commercial motor vehicles and some non-commercial vehicles must be reported as a traffic crash report and in the FMCSA's Commercial Motor Vehicle In-Service Report that is used as a basis for the transportation of goods, property, or people in interstate or interstate commerce.
 - Crashes involving commercial motor vehicles and some non-commercial vehicles must be reported as a traffic crash report and in the FMCSA's Commercial Motor Vehicle In-Service Report that is used as a basis for the transportation of goods, property, or people in interstate or interstate commerce.

Why ISN'T EMS on the NTSB's "Most Wanted List"??

The NTSB Most Wanted 20 list includes the following actions:

- HIGHWAY**: The Federal Motor Carrier Safety Administration should act to:
 - Improve the Safety of Motor Carrier Operations
 - Prevent motor carriers from operating if they put vehicles with mechanical problems on the road or unqualified drivers behind the wheel.
 - Prevent Medically-Unqualified Drivers from Operating Commercial Vehicles
 - Establish a comprehensive medical oversight program for interstate commercial drivers.
 - Ensure that examiners are qualified and know what to look for.
 - Track all medical certificate applications.
 - Enhance oversight and enforcement of invalid certificates.
 - Provide mechanisms for reporting medical conditions.
- The National Highway Traffic Safety Administration and U.S. DOT should act to:**
 - Enhance Protection for Bus Passengers
 - Redesign motor coach window emergency exits so passengers can easily open them.
 - Issue standards for stronger bus roofs and require them in new motor coaches.
 - Devise new standards to protect motor coach passengers from being thrown out of their seats or ejected when a bus sustains a front, side, or rear impact or rolls over.
 - Develop standard definitions and classifications for each of the different bus body types.

Conclusion:

- ▶ There appears to be wide disparity in transportation safety between EMS and commercial transport per mile traveled, with a safety record for EMS ground transport per mile traveled, at least an order of magnitude worse than trucks
- ▶ The FMCSA database provides extensive detail on many aspects of truck transport safety - similar national data do not exist for EMS transport
- ▶ FMCSA provides monitoring, oversight and safety guidance to non-EMS transport
- ▶ There is no comprehensive monitoring or safety performance oversight for EMS transport
- ▶ NTSB provides crash investigation and safety recommendations for commercial vehicles and monitoring for aviation EMS – but not for ground EMS since 1979

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

The screenshot shows the TRB website interface. At the top, it says "TRANSPORTATION RESEARCH BOARD OF THE NATIONAL ACADEMIES". Below that, there's a search bar and navigation links. The main content area displays the "87th Annual Meeting - January 13-17, 2008" and "87th Annual Meeting - January 13-17, 2008" with a "Topic" dropdown menu. Below this, there are buttons for "ADD TO MY PROGRAM", "OPEN MY PROGRAM", and "PRINTABLE VIEW". The specific meeting details are listed as "Emergency Medical Services Safety Subcommittee, ANB105" on "Wednesday, January 16, 2008, 8:00 AM - 12:00 PM, Marriott" with "Nadine Lewick, EMS Safety Foundation, presiding". It is sponsored by the "Transportation Safety Management Committee (ANB10)".