

2nd Annual EMS Safety Symposium
 Edmonton, Canada
 May 8 th, 2007

Trends and Concepts in EMS Safety?



Nadine Levick, MD MPH
 CEO, Research Director
 EMS Safety Foundation
 Objective Safety LLC

Safety Trend Setter!

Edmonton
 Emergency Medical Services
 1st Annual
Safety Symposium
 May 24th 2006
 NAIT - New Theatre

"Promote excellence in medical care, your own!"
Thank you - Thank you!


NAOSH 2007 – Theme “All Modes of Transportation”

NAOSH2007
 Occupational Safety & Health Week
 May 6 - 12, 2007
 Occupational Safety & Health Professional Day - May 9th

Home Events/Activities Tools Media Partners Awards


FIND NAOSH EVENTS IN YOUR AREA!

Find out what Nation Events are happening near you. Please click here for more information.



NAOSH KICK OFF EVENTS AT OSHA, US CAPITOL

SEN PLANELS, S (May 8, 2007) - The U.S. Department of Labor's Occupational Safety and Health Administration (OSHA), the American Society of Safety Engineers (ASSE) and the Canadian Society of Safety Engineers (CSSE) will host off the annual North American Occupational Safety and Health Week 2007 Panels, May 8, 8:30 AM - 12:00 PM, at the U.S. Capitol, Room 3000, 500 Capitol Mall, NE, Washington, DC 20540. The event is free and open to all. The event will feature a panel discussion on the theme of "Transportation". Other representatives from OSHA, CSSE, ASSE, representing hundreds of businesses, federal agencies and workers of the 100 annual OSHA "Safe and Sound" poster contest. The theme of safety will be transportation.



This week's NAOSH events in Canada

North American Occupational Safety and Health Week
 Events Across Canada

NAOSH Week 2007 Events
 Safety & Health: A Commitment for Life!

Event Calendar

NAOSH Week activities can be viewed on the page. Not all events submitted content has been approved but we still want to hear about your NAOSH Week Events!

Thursday May 9, 2007 Denver's Safety Training
 Time: 8:00am - 12:00pm, Location: Denver, CO
 Host: South Regional Council (SRC)

Collision avoidance - Level 1 - Following a post "1000hour" session, participants will be asked to perform several "hands-on" driving exercises that focus on skills to avoid collisions by tracking what participants and their vehicles are capable of, participants will gain the all-around "low speed" of reaction time. 1.5 hour. Thursday May 9, 8:30 am - 10:00 am

Collision avoidance - Level 2 - After a short review of Collision avoidance - Level 1, participants will be asked to perform further "hands-on" driving skills that include vision, reaction, tracking, etc. speed, steering, monitoring, and tracking on the road. This workshop is Level 1 in difficulty, but not mandatory. 1.5 hours. Thursday May 9, 10:00 am - 11:30 am. Contact: Russ Barlett

A few months ago in Canada

NEWS Edmonton
 Staff are very, very shaken
 After one collision with ambulance dies

cbcnews
 Family killed in collision with ambulance

Staff are very, very shaken
 A 23-year-old paramedic was killed and a 36-year-old paramedic was injured in a collision with a car on the south side of Edmonton, Alberta, on Tuesday.

Family killed in collision with ambulance
 A family of four was killed in a collision with an ambulance on the south side of Edmonton, Alberta, on Tuesday.

Objectives

1. Educate on the risks to patients, transport and emergency medical service providers and the public from ambulance crashes.
2. Explore factors related to ambulance crashes and identify potential mechanisms of injury to patients and transport providers
3. Explain new transport safety technologies and innovations, and describe the new concepts that are underdevelopment.
4. Instruct providers on strategies for enhancing transport safety and reducing risk of injury to patients and providers during transport

Your Interactive Handout awaits you online...

▶ www.objectivesafety.net

<http://www.objectivesafety.net>



A devastating tragedy...

- ▶ An ETT down the wrong hole may kill your patient and be a terrible burden for the pts family and for the medic involved
- ▶ BUT an EMS crash can kill all involved AND wipe out an EMS systems response capacity.....

Some questions for you all:

- ▶ Have you ever been in a EMS crash?
- ▶ How many times?
 - 1?
 - 2?
 - More?
- ▶ Have you ever been hurt in an EMS crash?
- ▶ Do you know any one who has ever been hurt in an EMS crash?
- ▶ Do you know of anyone who has been killed in an EMS crash?

Goals

- ▶ Standards for safety
- ▶ Policy based on Science
- ▶ Databases to demonstrate outcome

Emergency Medical Service (EMS) vehicles - Ambulances

- ▶ What are the transport safety issues that pertain to this important public service and public safety industry?
- ▶ What do we know of the risks and hazards and how can we measure these ?
- ▶ How can the safety of this transport system be optimized?

"Nation's Emergency Care System is fragmented, unable to respond to disasters", says Institute of Medicine, June 14, 2006

FUTURE OF EMERGENCY CARE



Two days ago...

200 Yellow EMS Ambulance, Patient Killed - Idaho, Illinois

200 Yellow EMS ambulance transporting her to a hospital was struck by a suspended structure from an early 1990s, police said.

A 40-year-old man is dead and two others are being hospitalized after a 200 Yellow EMS ambulance was struck by a suspended structure from an early 1990s, police said.

Police said the ambulance was traveling southeast through the intersection of Jackson and College streets at about 10 p.m. when a large object fell from a building and struck the ambulance, according to police spokesman.

The ambulance, which was transporting a 40-year-old man suffering from head problems and possibly other medical complications to Silver Cross Hospital in Joliet, had the green light and the red-and-blue lights flashing.

Last Week

Ambulance Crashes While Transporting Patient

When police told NHTSA a heffy ambulance collided with a Ford Bronco, knocking the Bronco on its side.

It happened at Interstate 470 and Route 2 in Wheeling just before 5 p.m. Friday.

Police said the patient in the ambulance and the driver of the Bronco were transported to the hospital.

Police said they found the ambulance driver at fault.

Two weeks ago



This week....

The Huntsville Times • Subscribe • Today's Paper & More

Ambulance suit gets \$3.1 million

Memphisville teen killed in wreck with speeding vehicle

Tuesday, May 01, 2007

By DAVID HOLZEM
Times Staff Writer david.holzem@times.com

A federal jury awarded \$3.1 million in damages Friday to the family of a Madison County woman who was killed in a collision with a speeding ambulance from Tennessee in 2005.

A felony charge of manslaughter is still pending in Madison County Circuit Court against the ambulance driver, Charles Christopher Eades of Tennessee.

Diana Christine Bowden, 18, of Memphisville died in a two-vehicle crash Oct. 13 involving the ambulance owned by Lincoln County Medical Center Emergency Services. The wreck occurred around 9:45 p.m. at U.S. 23143.1 and West Limestone Road, about seven miles north of Huntsville.

Last month....

2 dead in Michigan ambulance crash

The Associated Press

SKANDIA TOWNSHIP, Mich. — An upper Peninsula township, state police said.

The truck was stopped at Township waiting for traffic General Hospital rear-end.

Investigators found no ev

Ambulance patient Carrie Comel, died at the scene member, Ryan Peterson,

CPR?

EMSNetwork

The onset of this advanced knowledge, training and skills drastically reduced the necessity for the ambulance to "race" back to the hospital. Highly skilled care can now be rendered immediately upon the crews' arrival at the patients' side and remain uninterrupted until arrival at the emergency department. The days of needing to travel 80-100 mph to "save" the patient are now gone, at least it should be. Studies time and time again confirm that CPR is best performed in the ambulance at speeds of 25 mph or less. While we are on the issue of CPR, statistics have shown that survival rates (patient walks out of the hospital) for "out-of-hospital" CPR is less than 2%. There are very, very few instances now when CPR should be performed in a speeding ambulance. Prolonged CPR in an ambulance is **CONTRAINDICATED** (should NOT be performed), due to the risks involved for the crew. An older, very wise ER doctor once told me, "Tom, dead is dead", and I can't argue that point.

Safety oversight of what and by whom

- ▶ Vehicle Safety
- ▶ Vehicle Design
- ▶ Safety Equipment Design
- ▶ Vehicle and Safety Equipment Testing and Standard development
- ▶ Safety policies

the EMS transport process

- ▶ communications/dispatch
- ▶ the patient
- ▶ restraining device/seat
- ▶ transporting device/gurney
- ▶ paramedics/transport nurses, doctors & family
- ▶ patient monitoring equipment
- ▶ clinical care & interventions
- ▶ protective equipment
- ▶ the vehicle
- ▶ the driver/driving skill
- ▶ other road users
- ▶ the road



The Emergency Department (ED)



An ambulance is not an ED /ICU on wheels



This is not acceptable

In the USA*

- ▶ ~ 5,000 crashes a year
- ▶ One fatality each week
 - ~ 2/3 pedestrians or occupants of other car
 - Approximately 4 child fatalities per year
- ▶ ~10 serious injuries each day
- ▶ Cost estimates > \$500 million annually
- ▶ USA crash fatality rate/capita 35x higher than in Australia

*FARS/NTS 2004-5

Occupational Health and Safety.....?

- ▶ This IS an Automotive Safety issue

Is it your services tragic year?

- ▶ ~ 50 fatalities a year
- ▶ 15,000 EMS services
- ▶ Each year one in 300 services experiences a fatality

Paramedic charged in crash that killed 2

By Tille Fries, Rocky Mountain News
July 24, 2006

STORY TOOLS
Email this story (free)

STERLING, Va. — A paramedic with MetroFurcal Ambulance has been charged with careless driving in connection with an accident in May that killed two people and injured two others.

Chris Larusso, 22, of Westminster, was issued a summons for two counts of careless driving resulting in death and two counts of careless driving resulting in serious bodily injury.

All are misdemeanor charges and carry possible sentences of 10 days to a year in jail and fines of \$100 to \$1,000.

Larusso was driving an ambulance May 9 on Interstate 76, about 15 miles west of Sterling when he apparently ran-into a semi-tractor truck.

Two passengers in the ambulance — nurse Karen Woods, 43, of Elizabeth, and ultrasound technician Vicky Thomas, 35, of Goodland, Kan. — were killed.

Apparent, Kelsey Schichemeyer, 43, of Burlington, was seriously injured, but hours after the accident, gave birth to a boy at Sterling Regional Medical Center.

Larusso and paramedic Dan Becka, 31, of Centennial, were treated for their injuries and released.

Balance of concerns and risk during transport



- ▶ Response and transport time
- ▶ Clinical care provision
- ▶ Occupant safety/protection
- ▶ Public Safety

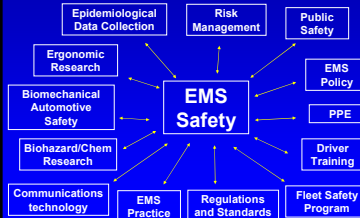
Benefit of Safety

- ▶ Any cost of addressing these issues is dwarfed in contrast to the huge burden of not doing so - in financial costs let alone the personal, societal, ethical and litigation costs

This is about you and your safety

- ▶ What safety practices do you use??
 - ♦ Seat belts ?
 - ♦ EVOC training ?
 - ♦ Equipment lock down ?
 - ♦ Helmets ?
 - ♦ "Black Box" technology ?
 - ♦ Tiered dispatch ?

EMS Transport Safety IS Complex AND Multidisciplinary



Background: USA Problems

- ▶ No reporting system or database specifically for identifying ambulance crash related injury
- ▶ No occupational and health safety standards to protect providers from injury
- ▶ Rear passenger compartment, > 60cm behind driver - exempt from Federal Motor Vehicle Safety Standards (FMVSS)

USA Ambulances: FMVSS Exempt

DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration

49 CFR Parts 571, 572, and 589
[Docket No. 02-26; Notice 7]
[RIN No. 2127-AB86]

Federal Motor Vehicle Safety Standards;
Head Impact Protection

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AMBULANCE MANUFACTURERS DIVISION OF THE NATIONAL TRUCK EQUIPMENT ASSOCIATION

AMD Position Statement on Ambulance Safety and Occupant Protection

Ambulances must comply with some of the strictest safety and performance standards applicable to vehicles in the United States. All motor vehicles operated on public roads and highways must conform to Federal Motor Vehicle Safety Standards (FMVSS) contained in Title 49 of the Code of Federal Regulations Part 571. Ambulances are no exception. FMVSS are the most visible and vigorously enforced safety standards governing the design, engineering and production of such vehicles. Nearly all government purchased ambulances, and the overwhelming majority of those sold to the public, also must be certified to the safety requirements of the Federal Star of Life Specification for Ambulances, KKK-A-1822, promulgated by the federal government. These requirements are in addition to FMVSS.

EMS Transport General Concerns

- ▶ Consequences can be predictable & likely preventable
- ▶ Costs of these adverse events are high in loss of life, financial burden and negative impact on delivery of EMS care
- ▶ Other high speed vehicles (eg. racing cars) have a different safety paradigm
- ▶ Design of interventions to mitigate injury is predicated on a valid testing model
- ▶ Complex both engineering and public health issues

NAEMT July 2006 Position statement



NAEMT
National Association of Emergency Medical Technicians

Statement on Safety Restraint Use in Emergency Medical Services

Background
The National Association of Emergency Medical Technicians (NAEMT) strongly advocates the use of available safety seat and restraint systems in ground ambulances to EMTs, Paramedics, patients, and all occupants of an emergency response vehicle.

Position
The NAEMT strongly advocates the inclusion of a National EMS Safety Study which can be used to guide all states in their efforts to ensure the highest level of performance for all responders 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 crashes (MVCs). Each year there are an average of 10,000 fatalities nationwide in motor vehicle crashes. In the majority of these deaths, the driver is not wearing a seat belt.

Background
Emergency Medical Services (EMS) throughout the nation has been shown to be a dangerous profession. Although there is a strong push to create better the standard of performance for all responders 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 crashes (MVCs). Each year there are an average of 10,000 fatalities nationwide in motor vehicle crashes. In the majority of these deaths, the driver is not wearing a seat belt.

Tips for Emergency Vehicle Operations



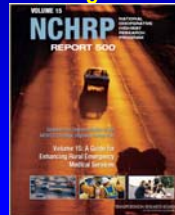
Alive on Arrival
Tips for Safe Emergency Vehicle Operations

ITSA

The truck and bus industry is on the right track.... Where is EMS??



Transportation Research Board is an excellent resource... we should be using it!!



TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

Active Projects

(all due early 2007)

- ▶ Commercial Motor Vehicle Driver Training Curricula and Delivery Methods and Their Effectiveness
- ▶ Commercial Motor Vehicle Carrier Safety Management Certification
- ▶ The Role of Safety Culture in Preventing Commercial Vehicle Crashes
- ▶ The Impact of Behavior-Based Safety Techniques on Commercial Motor Vehicle Drivers
- ▶ Health and Wellness Programs for Commercial Motor Vehicle Drivers

EMS Transport Safety Strategies - 2006-2007 New York State Strategic Highway Safety Plan

- ▶ **EMERGENCY MEDICAL SERVICES DISPATCH SERVICES**
- ▶ **EMERGENCY MEDICAL SERVICES PARTNERSHIPS**
 - Increase the participation and role of Regional EMS Councils in local and regional highway traffic safety boards and/or organizations
- ▶ **PRE-HOSPITAL TRAINING PROGRAMS**
 - Train EMS providers in the use of the new medical protocols; provide funds and/or other support to certified EMS Course Sponsors to train EMS providers in the use of these protocols; and collaborate with Regional EMS Councils and/or Regional Emergency Medical Advisory Committees (REMASC) on the development and implementation of training programs
- ▶ **ROAD CONDITION AND INCIDENT RESPONSE**
 - Provide a placeholder for regional and/or county EMS representatives in municipal DOT emergency management plan development and implementation

EMS Transport Safety Strategies - 2006-2007 New York State Strategic Highway Safety Plan

- ▶ **EMS RESPONDER CRASH PREVENTION**
 - Undertake a systematic review of other state actions and protocols on ambulance traffic safety measures to identify and prioritize those appropriate for the New York State pre-hospital system
 - Increase education and involvement of EMS providers in principles of appropriate traffic safety techniques
 - Develop and implement ambulance traffic safety protocols at state, regional and service level
 - Review treatment modalities and protocols to identify those that may contribute to injuries resulting from the impact of ambulance crashes
 - Identify methods to provide incentives for adoption by EMS services of protocols that enhance traffic safety
 - Partner with organizations that provide public driver awareness and education campaigns to improve driver awareness of driver responsibility and appropriate response to approaching emergency vehicles

Sit Down for EMS Safety!



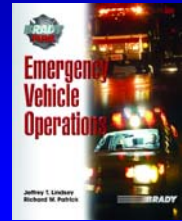
USFA Emergency Vehicle Safety Initiative



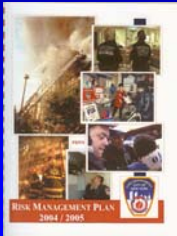
VFIS Summer 2006



Where is transport research ?



FDNY a leader in safety



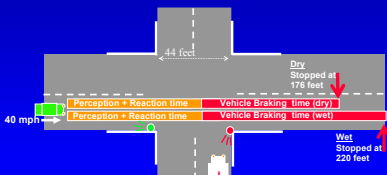
And very Predictable...

- ▶ Intersections are lethal environments

So.. The real world for an EMS vehicle approaching a red light

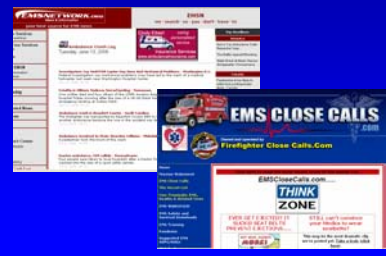
- ▶ You think they heard you...
- ▶ You know they must have seen you..
- ▶ But..
- ▶ There is NO way humanly possible that they could stop.....

The real world Intersection passenger car stopping distance* at 40 mph dry and wet



* Stopping distance:
Perception time + Reaction time + Vehicle braking time
(varies with age, skill, agility, alertness + vehicle type, tire pressure, road etc)

Increasing awareness ...



But what about head protection?



New EMS helmet prototypes for 2006-2007



News we don't want to see..

Jan 22, 2007 6:27 am US/Eastern

Caught On Video: EMT Struck By Car

Low Young Reporting

(CRE) BROWNSVILLE The car hit 46-year-old Capt. Steven Quindongo so violently it smashed the vehicle's windshield and sent him flying through the air.

Quindongo, a 19-year veteran of the city's emergency medical services, was on the scene of a fire on Riverside Avenue in the Brown Sunday afternoon when a stolen car moved past police barricades and caught him from behind. Chief Wayne McFarland was on the scene as the damaged health food store where his men had successfully put out the flames.

"We had two firefighter minor injuries," he told us, "and they were taking care of our men and when he (Quindongo) was walking back to the ambulance he was struck by the stolen vehicle."

Hmm...



So why is it...

- ▶ That the EMS providers -
 - Were wearing navy blue – one of the most difficult colors to see at night
 - Had no head protection, when all other emergency personnel at the scene did
 - Had no protective clothing, when other emergency personnel at the scene did???

It isn't like this outside of North America



cool AND remember this guy?



NOW Very cool AND very safe!!!



Safety leadership... from the IAFIC and USFA

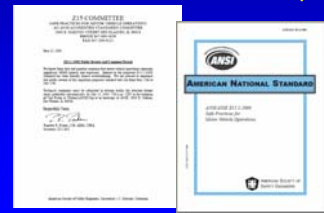
IAFIC NEWS ALERT FOR IMMEDIATE RELEASE

Contact: IAFIC Communications Department
International Association of Fire Chiefs
763/273-0911
www.iafic.org

The IAFIC and the USFA Develop Model Policy and Procedures Guide for Emergency Vehicle Safety

Fairfax, Va., October 20, 2006— The International Association of Fire Chiefs (IAFIC) and the Department of Homeland Security's United States Fire Administration (USFA) announce the release of a Guide to Model Policies and Procedures for Emergency Vehicle Safety. This innovative, web-based educational program is aimed at reducing the impact of vehicle-related incidents on the fire service and the communities they protect. The guide provides in-depth information for developing policies and procedures related to support the safe and effective operation of all fire and emergency vehicles, as well as privately-owned vehicles, which are the leading cause of volunteer firefighter mortality. It also provides information on liability, responding and returning to emergencies.

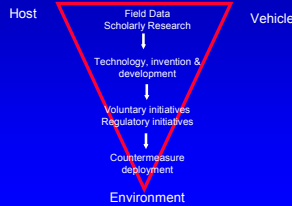
American National Standard ANSI/ASSE Z15.1-2006 Safe Practices for Fleet Motor Vehicle Operations



What Z15 encompasses

- ▶ Safety Program
- ▶ Safety Policy
- ▶ Responsibilities and Accountabilities
- ▶ Driver Recruitment, Selection and Assessment
- ▶ Organizational Safety Rules
- ▶ Orientation and Training
- ▶ Reporting Rates and Major Incidents to Executives
- ▶ Oversight

Automotive Injury Triangle and Safety Development



Protective devices/concepts

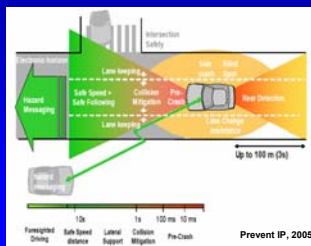
To prevent a crash

- ▶ Driver feedback
- ▶ Driver monitoring
- ▶ Driver training
- ▶ Vehicle Intelligent Transportation System (ITS) technologies
- ▶ Tiered dispatch
- ▶ Appropriate policies

In the event of a crash

- ▶ Vehicle crashworthiness
- ▶ Seat/seat belt systems
- ▶ Equipment lock downs
- ▶ Padding
- ▶ Head protection

Intelligent Transport Safety Systems



The "Black Box"

Driver behavior monitoring and feedback device

EVIC Education - Articles

How to modify the risk-taking behaviour of emergency medical services drivers?

How to modify the risk-taking behaviour of emergency medical services drivers?

Dr. Steven H. Davis MD, CMC PA, Yorkville ON, Sudbark MD.

...in the context of emergency medicine. Dr. Steven H. Davis MD, CMC PA, Yorkville ON, Sudbark MD.

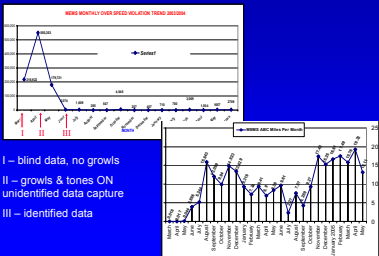
...and an aggressive style of driving. Furthermore, we are convinced that a "black box" is a good tool to modify the risk-taking behaviour of emergency medical services drivers.

High speed emergency medical services drivers have an increased likelihood of... we report on two studies designed to modify the risk-taking behaviour of emergency medical services drivers.

Purpose of 'Black box' Program

- ▶ Enhance Safety
- ▶ Improve Driver Performance
- ▶ Save Maintenance Dollars
- ▶ Aid Accident / Incident Investigation

Demonstrated Effectiveness



A key to safe ambulance transport



What do we know now??

- ▶ Intersection crashes are the most lethal
- ▶ There are documented hazards, some which can be avoided
- ▶ Occupant and equipment restraint with standard belts is effective. (Over the shoulder harnesses for patients should be used, with the gurney in the upright position where medically feasible)
- ▶ Some vehicle design features are beneficial - automotive grade padding in head strike areas, seats that can slide toward the patient
- ▶ Electronic Driver monitoring/feedback systems appear to be highly effective
- ▶ Head protection??

Dynamic Safety Testing

- ▶ requires sophisticated, expensive equipment
- ▶ measurably demonstrates forces generated during collision
- ▶ accepted international standard for vehicle restraint systems

If we know this – and its published....



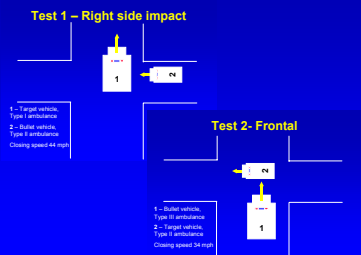
Why do we do this?



Patients must be in the over the shoulder harness, medics restrained in seat belts, equipment secured



Full Vehicle Crash Tests



Being seated IN an automotive seat is what will protect you

- ▶ Anything that allows or encourages you to get up out of your seat will also encourage you to be injured or killed – it is potentially lethal to be out of your seat in any fashion
- ▶ 4 or 5 point harnesses for sidefacing occupants are potentially lethal – and is in **NO WAY SUPPORTED BY ANY DATA OR AUTOMOTIVE SAFETY EXPERTISE**

Vehicle design and safety

- ▶ The principles of automotive safety involve a complex science, engineering technical skill, expertise, training and knowledge
- ▶ “Give the engineers a working list of our needs and let them tell us how it should be built to accomplish those tasks.....”

Were we safer in the Cadillac???



Safety Management

- ▶ A Safety Culture
- ▶ Protective Policies
- ▶ Protective Devices
 - ♦ In the event of a crash
 - ♦ To prevent a crash
- ▶ Continuous Education and Evaluation

Creating a Safety Culture

within a company must start with upper management's commitment to safety

- ▶ Awareness
- ▶ Training
- ▶ Incentive

An excellent model

<http://www.EveryoneGoesHome.com>

16 Firefighter Life Safety Initiatives www.EveryoneGoesHome.com

1. Define and advocate the need for a cultural change relating to safety; incorporating leadership, management, supervision, accountability and personal responsibility.
2. Enhance the personal and organizational accountability for health and safety.
3. Focus greater attention on the integration of risk management with incident management at all levels, including strategic, tactical, and planning responsibilities.
4. All must be empowered to stop unsafe practices.
5. Develop and implement national standards for training, qualifications, and certification based on the duties expected to perform.
6. Develop and implement national performance related medical and physical fitness standards.
7. Create a national research agenda and data collection system.
8. Utilize available technology to produce higher levels of health and safety.
9. Thoroughly investigate all fatalities, injuries, and near misses.
10. Grant programs support the implementation of safe practices and/or mandate safe practices as an eligibility requirement.
11. Develop national standards for emergency response policies and procedures.
12. Develop national protocols for response to violent incidents.
13. Must have access to counseling and psychological support.
14. Public education must receive more resources and be championed.
15. Advocacy for the enforcement of codes and the installation of home fire sprinklers.
16. Safety must be a primary consideration in the design of apparatus and equipment.



Safety Enhancements Being Implemented

- ▶ EVOC
- ▶ Tiered dispatch
- ▶ Monitoring & Feedback devices
- ▶ Helmets
- ▶ Optimized ambulance vehicle design
- ▶ New Policies and Standards

Future

- ▶ Meaningful Goals
- ▶ New policies
- ▶ New practices
- ▶ New standards
- ▶ New vehicles
- ▶ New technologies

Important Principles !

1. A culture of safety
2. Drive cautiously
3. Wear your belts & restrain all occupants
4. Secure all equipment
5. Integrate scientific data into your policies and procedures

- Unrestrained occupants and equipment are a potential injury risk to all occupants

Very Important Principle

Ambulance transport safety is part of a SYSTEM, the overall balance of risk involves the safety of all occupants and the public

**small changes can make a
BIG DIFFERENCE**

- ▶ **PREPARE – TEACH – REACH – RESPOND**
- **Look** at your own safety record
- **Teach** safety and hazard awareness
- **Reach** out with safety information to all your EMS providers
- **Respond** with the best safety practices

**PREDICTABLE
PREVENTABLE
and
NO ACCIDENT**

Conclusion

- ▶ EMS transport has serious hazards and safety issues
- ▶ Major advances in EMS safety research, infrastructure and practice over the past 5 years
- ▶ New technologies for vehicle design, occupant PPE and equipment restraint and driver performance are now available
- ▶ Development of substantive EMS safety standards is a necessity and a reality
- ▶ Enhanced cross disciplinary collaboration in development of safety initiatives now exist
- ▶ EMS is still way behind the state of the art in vehicle safety and occupant protection