

# **Creating a Safer EMS Workplace**

**Paul A. Bishop, MPA, NREMT-P**



# 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**



# **EMS Safety Pretest**

**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

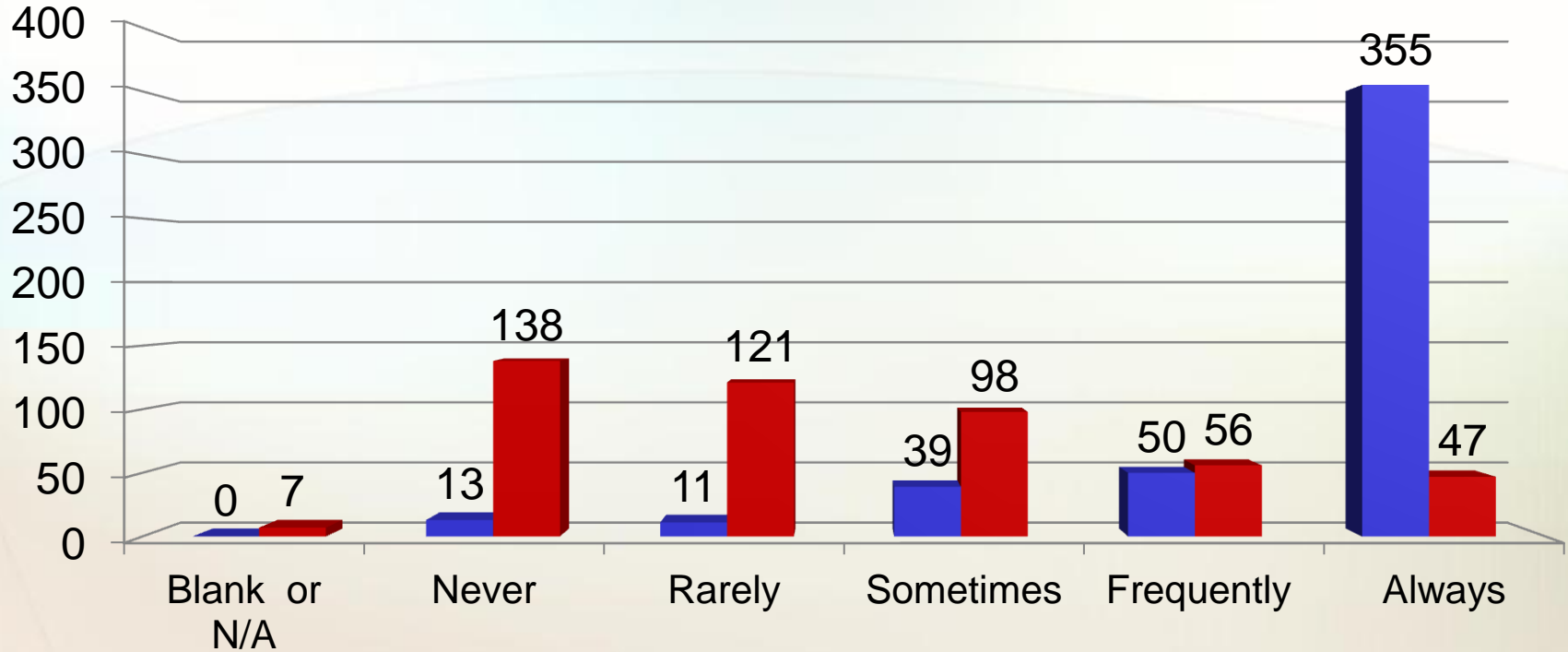
- Single Page Directed Response
- 26 Item Survey
  - Demographic Information
  - Experience Related to Injuries and “Accidents”
  - Likert Scale Safety Attitude Survey

		<b>NEW YORK STATE EMS COUNCIL</b>				
Special Committee on EMS Safety						
<b>Safety Experience, Attitudes and Behaviors Survey</b>						
The data from this survey will aid the SEMSCO and BEMS to target our efforts to improve EMS Safety						
What is your age?		How many years have you been involved in EMS?		Gender: Female Male		
What is current level of certification?		None	CFR	EMT	AEMT-I	AEMT-CC EMT-P
County of Residence:				What is your pay status? (circle all that apply):		
				Volunteer	Part-Time Paid	Full Time -Paid
What is your involvement in EMS? (circle all that apply)			Fire Dept.	Independent	Commercial	Municipal/Gov't
			Hospital	College	Air Medical	
1. Have you ever had a minor injury (no hospital admission) while performing EMS?						Yes No
1a. If yes, how did it (they) occur?(circle)						Clean Needle stick/Sharps Contaminated Needle stick/Sharp

# **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 Usage



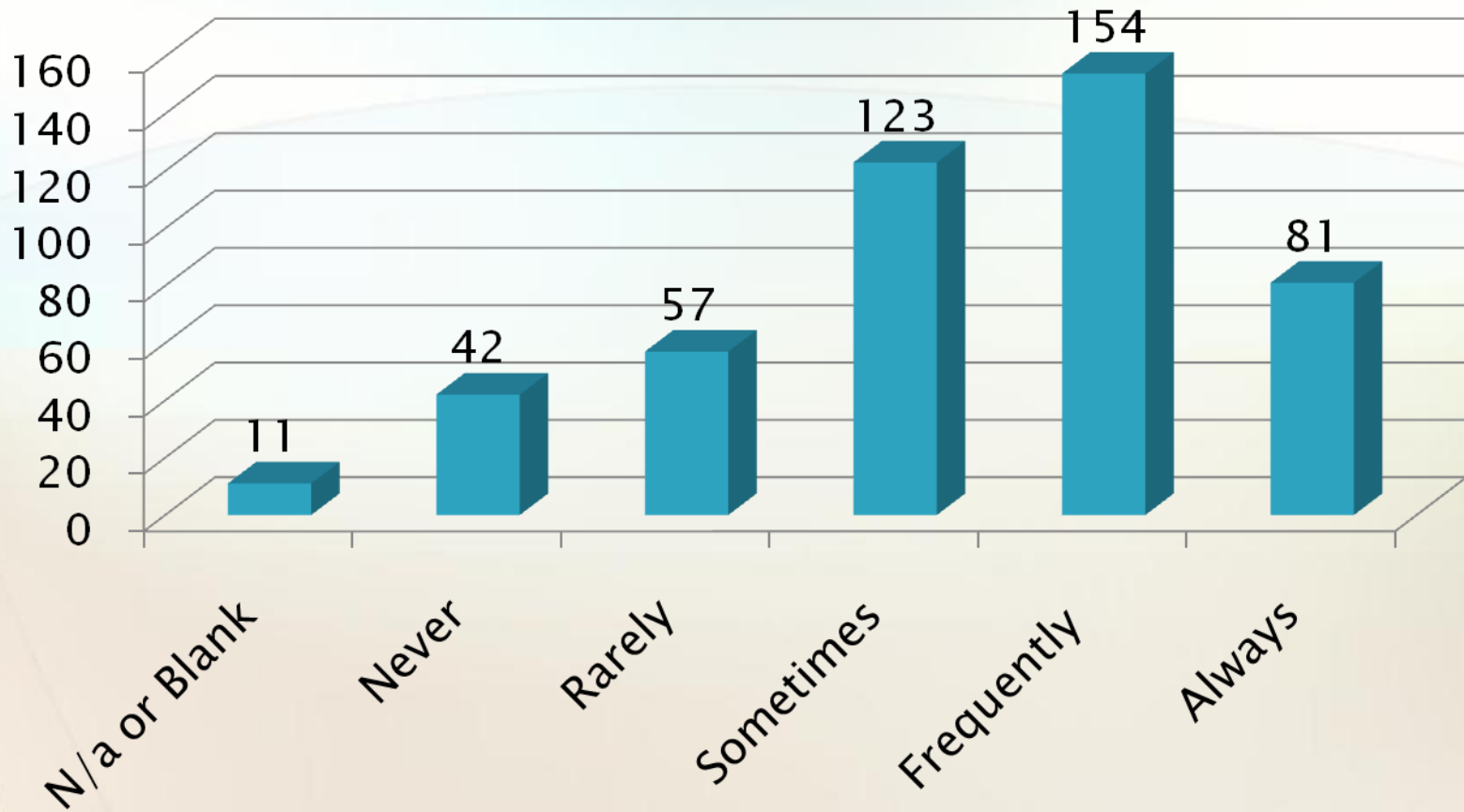
**Blue = front seat**

**Red = back seat**

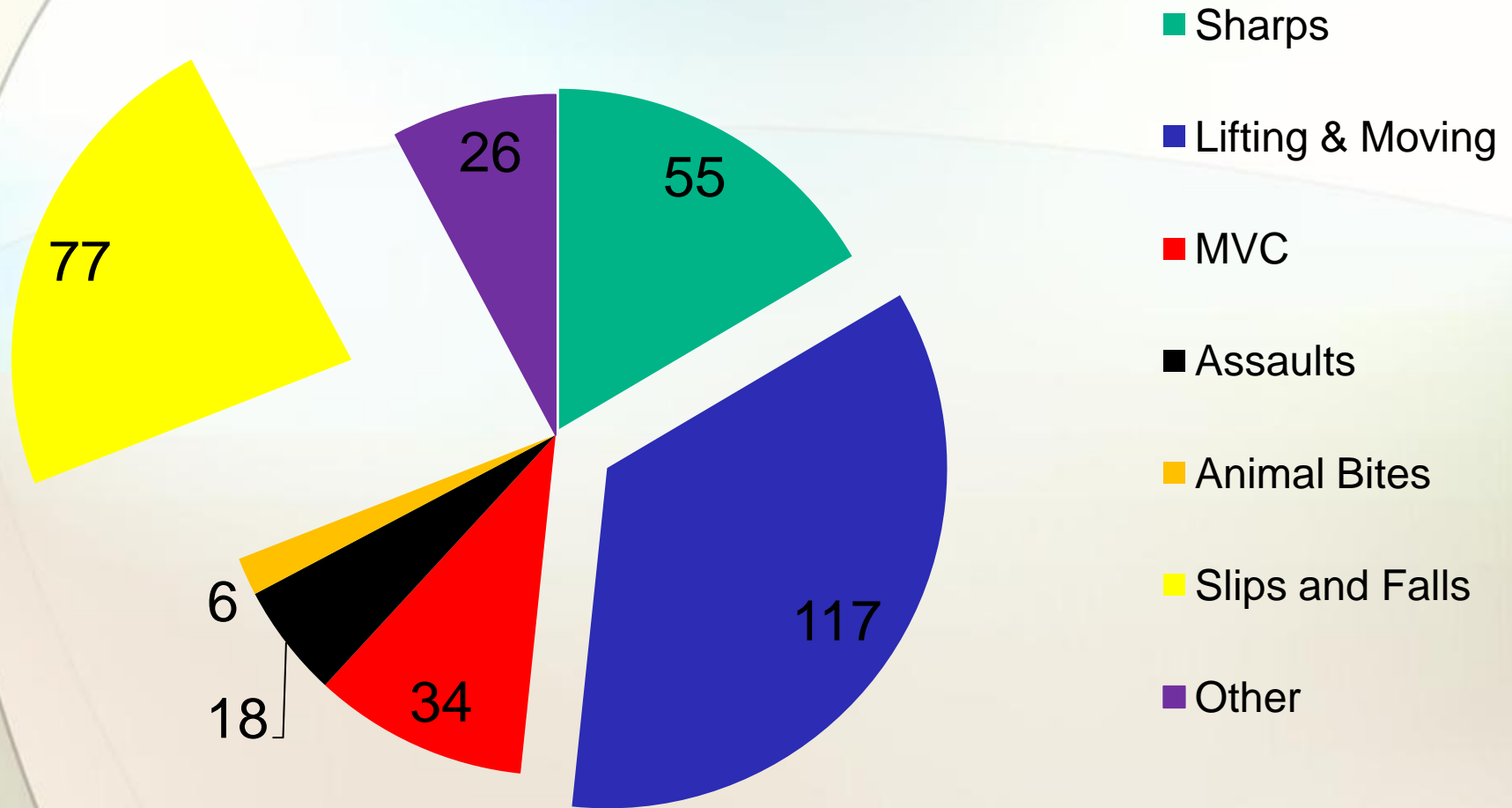
# Seatbelt Pledge

- **“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



# Minor Injuries (Less than 24 hrs)





# **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



# 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](http://www.operationsafeems.com)
  - Fitness
- Technology
  - Tracked Chairs
  - Auto-Lift Stretchers
  - [HoverMatt.com](http://HoverMatt.com)



## POWERful

Ferno's **POWERFlexx™** Powered Cot lifts & lowers patients up to **700 lb.** with the push of a button.

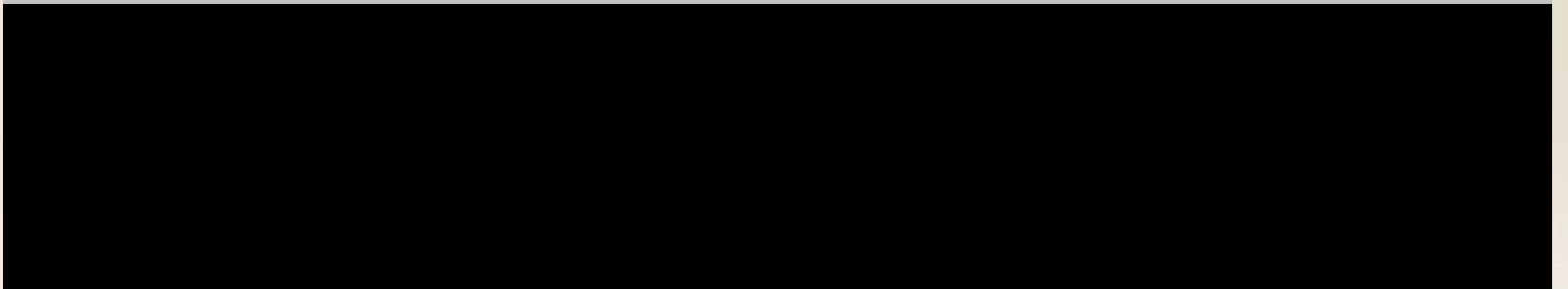
## Plus+

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

<http://www.ferno.com/powerflexx/>



# HoverJack



# **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**



➤ *Fairbanks RJ, Caplan SH, et al. Usability Study of Two Common Defibrillators Reveals Hazards. Annals of Emergency Medicine Oct 2007; 50(4): 424-432.  
[See also associated editorial: Karsh and Scanlon, Oct 2007; 50(4): 433-435]*

# Normal Error

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

Console

Learn

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.**

Coach

Learn

From: David Marx, *Just Culture*. Outcome Engineering 2008

# Reckless Behavior

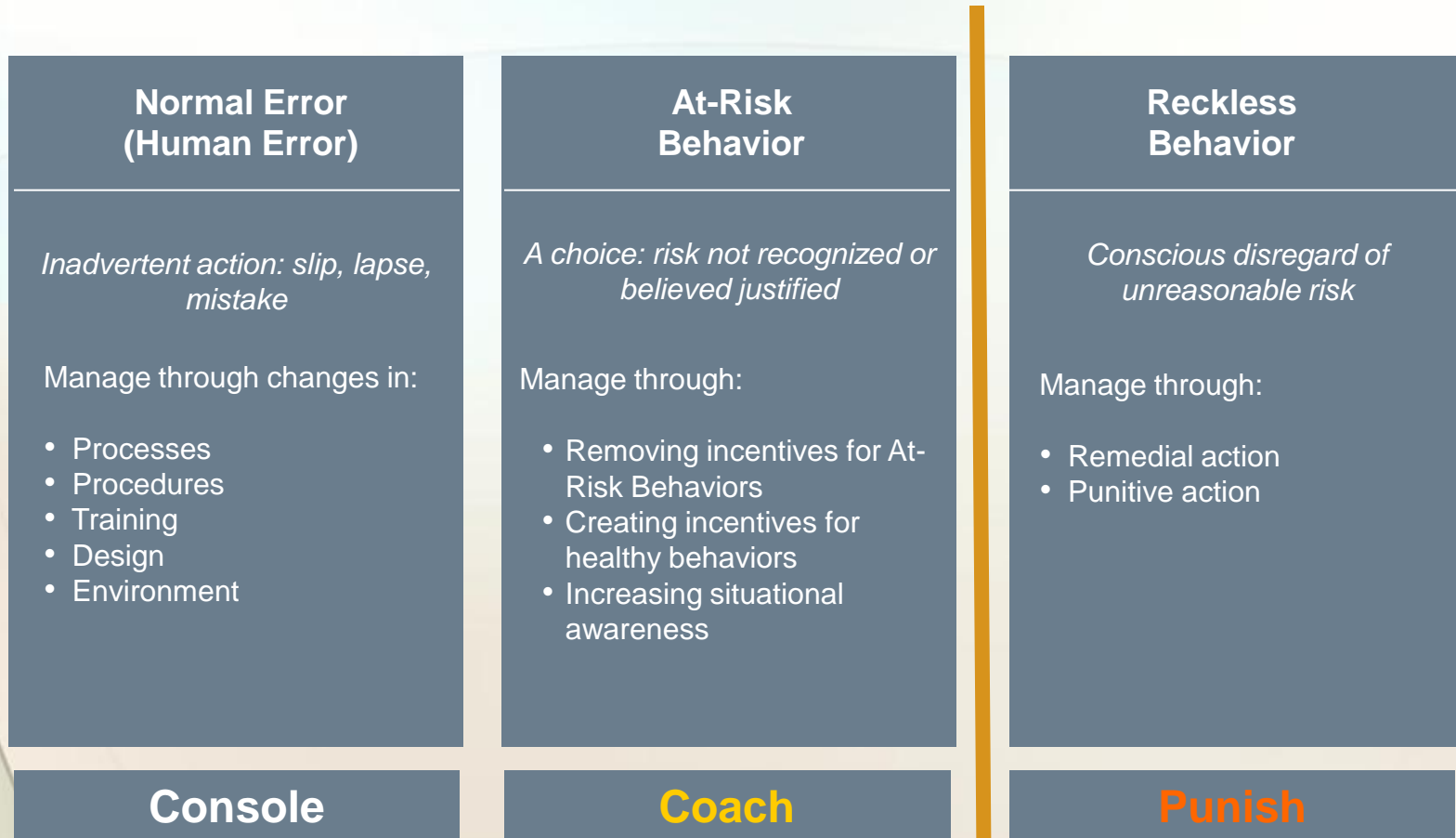
- **Reckless Behavior - behavioral choice to consciously disregard a substantial and unjustifiable risk.**

Punish

From: David Marx, *Just Culture*. Outcome Engineering 2008

# Just Culture:

## The Three Behaviors



From: David Marx, *Just Culture*. Outcome Engineering 2008

# QA Response?

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

=====

- 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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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](http://www.ems.gov)**
- **[www.naemt.org](http://www.naemt.org) – EMS Safety Course**
- **Trade Journal**
  - **[www.jems.com](http://www.jems.com)**
  - **[www.emsworld.com](http://www.emsworld.com)**
  - **[www.EMS1.com](http://www.EMS1.com)**
- **The Secret List**
  - **<http://firefighterclosecalls.com/secret.php>**
- **Just Culture [www.JustCulture.org](http://www.JustCulture.org)**
- **[www.MedicalHumanFactors.com](http://www.MedicalHumanFactors.com)**

# Acknowledgements

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- **Dr. Terry Fairbanks**
  
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