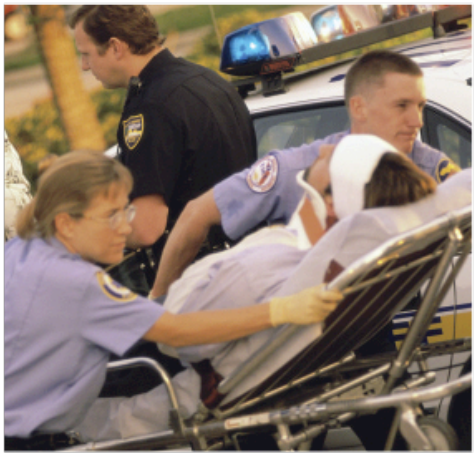
PATIENT SAFETY IN EMS



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Introduction

Every day in every community across our nation, emergency medical services (EMS) professionals face challenges that impact their safety, training and ability to act in the best interests of their patients. As medical professionals, they are expected to perform at the highest possible level and minimize any chance for error. However, as all humans do, they make mistakes. Collectively, humanity has survived and grown because of our ability to learn from our mistakes. Learning from mistakes is a foundation of education the EMS profession must embrace to improve patient safety and develop a just culture that will support the advancement of patient care.

[JUST CULTURE IS AN APPROACH TO ORGANIZATIONAL ACCOUNTABILITY THAT EXAMINES ADVERSE EVENTS AND NEAR-MISSES FOR CONTRIBUTING FACTORS AND FAULTY PROCESSES AND DESIGNS THAT MAKE ERRORS MORE LIKELY. SEE PAGE 9.]

From the earliest stages of their educational experiences, EMS practitioners are trained to protect themselves from danger. Each year they are required to complete training based on the various hazards they encounter. This training includes instruction on how to don and doff personal protective equipment and how to recognize situations and scenes that may be unsafe. Limited attention however has been given to patient safety.

The EMS community has long employed measures to ensure its patients arrive safely at hospitals. A widely recognized example is applying safety harnesses (seat belts) to all patients transported on cots. Originally these consisted of two- or three-belt systems that restrained lateral movement but did little to hold patients in place in a forward collision. As one patent application described, “When transporting a patient with an acute medical problem that requires constant monitoring, a current practice is to restrain the patient directly to the cot with chest and hip belts. However, such a practice provides virtually no crash restraint in the forward direction” [West]. In response came more elaborate designs that included over-the-

shoulder restraints. As these became standard, the chance of patient survival in the event of collision, particularly a forward collision, greatly improved.

In addition to harnesses, there are other patient safety measures practiced within EMS. In paramedic school, educators emphasize the “six rights” of medication administration [NHDHHS]. Some EMS agencies have their crews complete an emergency vehicle operations course. There are also other educational endeavors, such as classes and in-service training. These may cover areas such as stretcher use, new medications and the latest refinements to cardiopulmonary resuscitation.

EMS managers, leaders and those within clinical education departments recognize the need to discover the root causes of mistakes. They know that in order to fix problems, the problems must first be identified—and identified correctly. This benefits safety, but it also can save an EMS organization thousands of dollars in legal costs. In a report covering 326 liability claims to a major national EMS insurer made between January 2003 and December 2004, the median estimated total incurred cost was $17,000 [Wang, et al.]. The report concluded, “Emergency vehicle crashes and patient handling mishaps were the most common adverse events associated with tort claims against EMS agencies. Clinical management and other incidents were less common. This effort highlights potential areas for improving EMS operations and care.”

In order to reduce the occurrence of future mistakes, past errors must be recognized and their causes addressed. The result will curtail legal risks and motivate all of us in EMS to seek options that advance patient safety.

History

The pursuit of a safety culture in EMS has only been a recent development. The Institute of Medicine (IOM) began to examine safety in the healthcare industry in the late 1990s. The 1999 report *To Err is Human: Building a Safer Health System* [Kohn, et al.] raised a number of problems. Among them was the frequency of preventable medical errors in the U.S. healthcare system [Leggio, et al.]. The report determined at least 44,000 and as many as 98,000 patients died each year as a result of preventable medical errors.

Following the IOM's report, Congress passed the Patient Safety and Quality Improvement Act of 2005 (PSQIA), also known as the Patient Safety Act. This law established a voluntary reporting system designed to help gather data on patient safety and healthcare quality issues, and provided confidentiality for those who submitted patient safety information. It defined patient safety organizations (external groups that collect and review patient safety information) and patient safety evaluation systems (systems for the collection, management and analysis of information reported to or by a patient safety organization).

While not a direct response to the high rate of medical errors, the Act represented an attempt by legislators to better serve the healthcare community and its patients. It noted that EMS practitioners should understand "the safety and quality activities that may be delegated to the patient safety evaluation system (PSES) and patient safety organization (PSO) reporting process" [AMA]. In a nutshell the Patient Safety Act was developed to provide a balance, when legal protection and confidentiality are needed, to report safety events while maintaining accountability and the rights of the patient.

Hospitals have been involved in making PSOs function within their systems. The prehospital/EMS community has been slower to embrace PSOs and the Patient Safety Act. For many EMS organizations, the extent of efforts has been little more than a basic announcement or short meeting with managers and chiefs.

One may wonder where else the EMS community can go. How can we further engage the patient safety movement?

The Patient Safety Act

The Patient Safety Act creates a protected environment in which EMS entities (both personnel and their organizations) can securely collect data on safety events as well as voluntarily report safety incidents. Reports are received by PSOs and used to make safety improvements in protocols. One goal of the Patient Safety Act is to accelerate the pace of improvements in patient safety. Another is to offer a forum that encourages the exchange of information across states within a protected legal environment so all EMS professionals can benefit from the knowledge gained [AMA].

The Patient Safety Act provides several protections for EMS practitioners. In 2009 the American Medical Association released *The Physician's Guide to Patient Safety Organizations,* which specified what the Patient Safety Act protects:

- Information assembled by providers who report to a PSO;
- All providers who assemble a safety or quality report to submit to a PSO;
- All providers who are named in a safety or quality report submitted to a PSO;
- Patient safety or quality information developed by a PSO.

With these protections in place, EMS agencies and their employees should have greater encouragement to participate with PSOs.

Patient Safety Organizations (PSOs)

Patient Safety Organizations (PSOs) are at the core of enhancing patient safety. They bring together participating agencies on a regular basis at both the regional and state levels to "collect data from the participating agencies, study it and develop recommendations for safer care" [Varner]. PSOs allow personnel from participating agencies to meet at conferences to exchange information and ideas in an environment where the flow of information is unhindered.

Participation in a PSO enables providers to "learn from the experiences of others, participate in redesigning systems that enhance patient care delivery, and develop resources and processes required to enhance safer care, mitigate patient harm and increase patient care efficiency" [AMA]. Additionally, "providers [that report to a PSO] can work together in a confidential, protected space to share and learn how to prevent mistakes, with the assurance that their safety work will not be used against them" [Varner]. Concepts are reviewed, analyzed and incorporated, if possible, to prevent further harm. PSOs have a primary goal: improvement. They are established specifically to allow the medical community to identify and reduce the risks and hazards associated with patient care.

While the Patient Safety Act does not require providers to report data to PSOs, it is in a provider's best interest to do so. The sharing of information cannot occur without good participation and data collection by EMS agencies. The National Association of Emergency Medical Technicians (NAEMT) released a position statement in 2013 that notes, "EMS agencies can become members of PSOs and not only achieve protection for their own processes, but also benefit from the collective knowledge provided by PSOs and their members" [NAEMT]. Without the acquisition of information, there are no improvements or advancements to be made.

A recent example of changes made as a result of gathering and sharing information is the long spine board. An article published in 2015 revealed a scarcity of data to support the use of these devices. "The first notable study on the implementation of backboards and c-collars

was conducted in the 1960s," it noted, "but most of the recommendations have been based on tradition and informed opinion, and not necessarily validated, scientific evidence" [Kroll, et al.]. Recognizing this, many in the industry have reduced their long spine board use.

The data required to make intelligent decisions must come from the front lines—which means, in EMS, the daily providers of patient care. However, as with any good strategy, intelligence must be protected, and that is what the Patient Safety Act provides to EMS organizations. The reporting of information such as "medical errors, near-misses and unsafe conditions" can be done confidentially and with federal protection from disclosure [Varner]. Having that umbrella can give an organization the added protection it needs to develop a just culture environment.

Just Culture

Convincing the EMS community to open up about their mistakes and faults is no easy task. Such an initiative requires a multi-tiered campaign. Getting the daily care provider behind developing a just culture may be more difficult than enlisting the support of leaders, managers and educators. It must be understood that EMS practitioners may fear being judged or ostracized by their peers for making a mistake. The creation of a just culture environment, bolstered with a strong quality improvement program, can promote a setting where patient safety is pursued aggressively, yet in a way that's fair and satisfactory to personnel.

But what is just culture? Just culture is a concept that allows for ownership of the culture and behavior occurring within an organization. Authors led by Creighton University paramedic program director William Leggio, EdD, define it as "a framework that embodies fairness and shared accountability for the healthcare system's design and staff behavior" [Leggio, et al.]. Practically, it provides an approach for examining near-misses and adverse events in order to precede the unsafe conditions or practices that allowed the event to occur.

Eschewing the traditional "blame and shame" approach to discipline practiced in some organizations, just culture looks not only at the behavior of the individual(s) involved during an event, but also at the underlying processes and systems that precipitated their actions. Many adverse events or "mistakes" are linked to bad processes or faulty designs that set the provider up for failure. This can reduce their motivation and enthusiasm and contribute to their leaving EMS.

As an alternative, we should promote a world that helps enhance EMS professionals' performance. A paper from Leggio and colleagues, *Patient Safety Organizations and Emergency Medical Services,* says, "Instead of engaging in a manhunt to identify the 'bad apple,' the just culture approach looks at why the decision was made and whether the actions taken made sense at the time" [Leggio, et al.]. We must help EMS practitioners understand what just culture is all about.

Encouraging EMS practitioners to report near-misses and adverse incidents is a daunting task. Being isolated in the back of an ambulance where there is no overseer, no witness, no one other than clinician and patient, makes it easy to let near-misses go unreported and any underlying contributors are therefore unresolved. *How do you convince practitioners to open up freely and report those incidents?*

An active campaign should explain what just culture is and how it can be utilized by offering EMS leaders the ability to use a validated survey to measure patient safety. Many aspects of safety may be measured with an appropriate tool that can link an organization's culture and practices to safety issues, poor performance and/or burnout.

Replacing EMS personnel costs both time and money. Studies show the total cost of losing an employee can range from tens of thousands of dollars to up to twice that worker's annual salary [Bersin]. When you break down those costs, they include the process of hiring and training a new employee, as well as the loss in productivity and costs incurred to fill the vacancy. There may also be a tendency among the remaining personnel to what management expert Josh Bersin calls "lost engagement," where other employees who see high turnover disengage and become less productive.

Another consideration pointed out by Bersin directly concerns patient safety: customer service and errors. That is to say, "new employees take longer and are often less adept at solving problems. In healthcare this may result in much higher error rates, illness and other very expensive costs." These are among the errors we need to prevent.

The 'Three Fronts' Campaign

Ultimately it is the people employed in EMS who will make or break a just culture. For success, there needs to be an all-fronts approach. To do that, the fronts have to be recognized and plans developed for each. An average EMS organization may be broken down into three fronts: rookies, command staff and field staff. This may sound a bit militaristic, but there are structure and hierarchy within fire and EMS that make this stratification generally standard and easily applicable.

Educational institutions must not be overlooked. Just culture education should begin when an individual enters school to become a First Responder or EMT. These groups are among the "rookies" of EMS—they have not been exposed to the work environment. Their minimal experience makes them perfect candidates to begin their employment with no preconceived notions to cloud their judgment and understanding.

Leading paramedic textbooks only briefly cover continuous quality improvement (CQI) and report analysis. *Mosby's Paramedic Textbook* mentions the IOM report with a brief discussion about patient safety. It points out, "most errors are caused by faulty systems, processes and conditions" [Sanders]. *Nancy Caroline's Emergency Care in the Streets* contains no direct mention of the IOM report, nor any information about patient safety as related to the Patient Safety Act [American Academy of Orthopedic Surgeons, et al.]. However, it discusses CQI and devotes even more space to research. Finally, a review of the EMT-P National Standard Curriculum for guidance on patient safety, just culture or the Patient Safety Act returns nothing more than a mention of CQI [U.S. Department of Transportation]. This may lead one to conclude that there is no active system in place to really discuss, let alone teach, just culture, CQI or the Patient Safety Act in modern American EMS.

Further investigation is needed to determine whether fundamental flaws in the education process may be creating or contributing to adverse events. In the meantime, concepts of patient safety should be ingrained in those entering the field from the ground up.

Schools have a vantage point to spot problems within the education system before students graduate. They also have a strong opportunity to implement the findings of PSOs at a base level. With each new generation of providers comes a chance to change the culture of the past. Changes must occur across the board—from day one in the education system up through the managers and leaders of the EMS community as a whole.

The First Front: Rookies

Reaching the first front, the rookies, encompasses primary education programs, students and newly hired employees. Rookies gain exposure during their education and, as they enter the workforce, with their new employers. The new employer's orientation and probationary period present an opportunity to mold new and impressionable minds. If EMS agencies already have a just culture in place, then educating and mentoring new employees is just another step in their orientation. Treat it as such, and new employees will never second-guess it. Just culture will become part of their work ethic from the start.

The Second Front: Command Staff

The second front in developing a just culture is with command staff and management—your CEOs, chiefs, medical directors, battalion chiefs, operations managers and field supervisors, to name a few. It is not generally difficult to convince superiors to launch a new program if it can be shown that it will save money in the long run. Identifying potential harm and injuries to patients before they happen will not only save money, it will spare patients' suffering and may even save their lives.

The rising cost and increased frequency of litigation against EMS professionals since the 1990s can be a motivating factor. "It has only been within the last decade," noted Jacob Hafter and Victoria Fedor in *EMS and the Law,* "that significant verdicts have been rendered against EMS providers." Just culture can not only help organizations avoid lawsuits; it will further their pursuit of quality and overall health: "With proper leadership development and support, companies can unleash the potential of their mid-level managers to improve morale, foster collaboration, and help the organization more quickly and efficiently respond to changing market conditions and seize strategic opportunities" [McKinney, et al.].

Proactively applying a just culture environment could end up saving an EMS agency thousands of dollars each year.

The Third Front: Field Staff

The most difficult challenge will be with the third front: rank-and-file employees, particularly veterans of the organization. Their resistance will not be due to a lack of desire or belief in new ideas; the challenge will be overcoming suspicion that any effort toward just culture represents a threat to their employment. Just culture contradicts long-standing and dearly held notions of privacy and independence among EMS field crews. Typically there are only three people in an ambulance—the patient, the practitioner delivering care and the practitioner driving—and often, what happens in the ambulance stays in the ambulance.

For years, we've nurtured the concept of "if it isn't written in the report, it didn't happen." And when one stops to think about what just culture asks of employees and their peers—which is basically to tell on themselves—the need for an incentive to balance the fear of potentially losing livelihood and career becomes apparent.

Fortunately, there are provisions within the Patient Safety Act to protect those who fear punishment for making or reporting errors. The AMA points out there is a safety net of sorts: "While an employer may require its providers to make reports through its patient safety evaluation system, section 922(e)(1)(B) [of the Act] prohibits an employer from taking an adverse employment action against an individual based upon the individual's reporting information in good faith directly to the PSO" [AMA].

For employees set in their ways, it may be a difficult adjustment to feel safe and protected in reporting problems.

Peer Review

Most states have peer review laws for physicians, nurses and hospitals. These let adverse events be examined by panels of comparable professionals. They do not always account for EMS providers. Some use the all-encompassing term *healthcare providers,* but courts have ruled that EMS agency personnel are not protected when not specifically mentioned. EMS providers (staff and agencies) need to be included within those peer review laws alongside other healthcare professionals.

The *2011 National EMS Assessment* points out that only 27 states "were noted to have laws or regulations providing peer review protection to EMS agencies" [Federal Interagency Committee on EMS]. Varner further points out that "the PSQIA offers these protections to ensure efforts are made by EMS organizations to improve safety and quality. It allows EMS organizations to have a confidential system that is legally protected so information can be shared [with the PSO] and discussed without the fear of that information being used against the organization in legal proceedings. The law is designed to protect, as well as drive, improved patient safety and greater quality in EMS organizations." The *Assessment* includes a brief synopsis of the status of peer review for EMS in state laws across the United States. Many of these state laws are inadequate in their breadth of coverage and level of protection.

This inadequacy or lack of state laws affording protection for EMS quality and patient safety efforts increases the need for EMS agencies to understand the Patient Safety Act and take advantage of its provisions. "The Patient Safety and Quality Improvement Act of 2005… protects entities from discovery by trial attorneys and from state investigations," says EMS attorney Frank Foster. "We have found that the trial attorneys vigorously oppose expansion of state laws and regulations regarding peer review discovery, and consequently participation in a PSO becomes essential if you want these protections."

Peer review protection is necessary in every state and should be a top-priority goal actively pursued by state EMS offices and associations. Without such protection, the full potential of peer review, PSOs and overall patient safety improvement will not be realized.

Moving Forward

The goal of the National EMS Culture of Safety Project was to "stimulate the growth of a 'culture of safety' within the EMS community through development of a strategy document" [Braithwaite].

Despite the work that went into the Culture of Safety Project, implementation of its findings has been slow at best. National organizations are working to involve more EMS professionals, but agencies still need guidance at the local level. They need help getting started, explaining what the program is about and getting buy-in from the rank and file.

In 2015, several national EMS and safety organizations came together to establish the **National EMS Safety Council.** The purpose of the Council is to ensure that patients receive emergency and mobile healthcare with the highest standards of safety, and promote a safe and healthy work environment for all emergency and mobile healthcare practitioners.

The National EMS Safety Council:

- Develops practical ways to implement the recommendations included in National EMS Culture of Safety Strategy;
- Reviews the latest information, research, and best practices on EMS patient and practitioner safety;
- Develops and publishes consensus statements on the issues of EMS patient and practitioner safety as guidance to EMS agencies and practitioners;
- Raises awareness of the importance of EMS patient and practitioner safety within the EMS industry; and
- Identifies additional steps that the EMS industry can take to improve EMS patient and practitioner safety.

In addition, the National Registry of Emergency Medical Technicians (NREMT), in collaboration with the Center for Patient Safety, has developed an EMS patient safety

survey to measure and develop data in important areas of safety. The survey will be sent to 300,000 EMS providers who are certified with NREMT. Details and analysis of its results will be published.

Most people do not like change. Just culture supports shared learning in an open environment without the fear of punishment. PSOs offer protection of that environment to foster analysis and deliberations aimed at improving patient care protocols and provider behaviors. It's a symbiotic relationship. Participation in a PSO by EMS agencies and organizations is currently on a volunteer basis. Involvement brings myriad benefits, nonparticipation innumerable risks. At the end of the day, what really matters is that EMS providers treat the patient safely and efficiently, while holding true to the core mission of doing no harm.

Works Cited & References

American Academy of Orthopaedic Surgeons, Caroline NL, Elling B, Smith M. *Nancy Caroline's Emergency Care in the Streets,* 7th ed. Burlington, MA: Jones & Bartlett, 2013.

American Medical Association. The Physician's Guide to Patient Safety Organizations, http://aegris.org/publicaciones/patient-safety-organizations.pdf.

Bersin J. Employee Retention Now a Big Issue: Why the Tide has Turned. LinkedIn, https://www.linkedin.com/pulse/20130816200159-131079-employee-retention-now-a-big-issue-why-the-tide-has-turned.

Bledsoe BE. The Evidence Against Backboards. EMS World, http://www.emsworld.com/10964204.

Braithwaite S. National EMS Culture of Safety NEMSAC Update, https://www.ems.gov/pdf/nemsac/aug2012/Culture%20of%20Safety%20Update%20-%20ACEP%20-%2008292012.pdf.

Department of Transportation, National Highway Traffic Safety Administration. EMT-Paramedic: National Standard Curriculum. Washington, DC: U.S. Department of Transportation, 1998.

Federal Interagency Committee on Emergency Medical Services. *2011 National EMS Assessment*. Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration, 2012.

Foster F, attorney. Personal conversation, April 2016.

Hafter JL, Fedor VL. *EMS and the Law*. Sudbury, MA: Jones and Bartlett, 2004.

Kohn LT, Corrigan JM, Donaldson MS, eds; Institute of Medicine Committee on Quality of Health Care in America. *To Err Is Human: Building a Safer Health System*. Washington, DC: National Academy Press, 2000.

Kroll M, Moy HP, Schwarz E. Ditch the Spine Board. *Emergency Physicians Monthly,* http://epmonthly.com/article/ditch-the-board/.

Leggio WJ, Varner L, Wire K. Patient Safety Organizatons and Emergency Medical Services, n.d.

McKinney R, McMahon M, Walsh P. *Danger in the Middle: Why Midlevel Managers Aren't Ready to Lead*. Boston: Harvard Business Publishing, 2013.

Morrissey J. Research suggests time for change in prehospital spinal immobilization. *J Emerg Med Serv,* 2013; 38:3.

National Association of Emergency Medical Services Physicians and American College of Surgeons Committee on Trauma. EMS Spinal Precautions and the Use of the Long Backboard, http://www.naemsp.org/pages/position-statements.aspx.

National Association of Emergency Medical Technicians. NAEMT Position Statement: Protecting EMS Patient Safety and Quality Information, https://www.naemt.org/docs/default-source/advocacy-documents/positions/Protecting_EMS_Patient_Safety_and_Quality_Information.pdf?sfvrsn=0.

National Highway Traffic Safety Administration, Health Resources and Services Administration, American College of Emergency Physicians. *Strategy for a National EMS Culture of Safety*. Irving, TX: American College of Emergency Physicians (ACEP), 2013.

New Hampshire Department of Health and Human Services, http://www.dhhs.nh.gov/dcbcs/bds/nurses/documents/sectionIV.pdf.

Pronovost P, Vohr E. *Safe Patients, Smart Hospitals*. New York: Hudson Street Press, 2010.

Sanders MJ. *Mosby's Paramedic Textbook,* 4th ed. Burlington, MA: Jones & Bartlett, 2012.

Varner L. Quality Assurance and Safety in EMS: Protecting, Learning, and Preventing Adverse Events, n.d.

Wang HE, et al. Tort Claims and Adverse Events in Emergency Medical Services. *Ann Emerg Med,* 2007; 52(3): 256–62.

West S, Brendale Q. US2007074951 Patient Harness System for an Emergency Cot. International patent publication number: WO2008/021731; application number: PCT/US2007/074951, 2007.