



CHAPTER 1

How Safety Impacts Patients and Practitioners

LESSON OBJECTIVES

- ③ Discuss the goals of the EMS Safety course.
- ③ Review EMS practitioner injury and mortality rates.
- ③ Identify best communication and documentation practices.
- ③ Discuss issues of patient safety in EMS.

Scenario

On your way into work, you notice that traffic is becoming congested, and you realize you are going to be late. As you pull into the station, you see that your partner also is just pulling in. You are both 15 minutes late. Both of you quickly grab your gear and toss it in the ambulance as the tones go off. There has been no time to check your ambulance, nor receive a hand-off report from the previous crew.

Dispatch reports that a 61-year-old man is in cardiac arrest. On arrival, your partner opens the side cabinet to retrieve the cardiac monitor and realizes it is not there. You look in the back of the unit and notice that your first-in bag is missing the intubation equipment.

1. How could this situation have been mitigated from the start?
2. What is your first priority in this situation?
3. What actions are required next?

Introduction

Emergency medical services (EMS) is a profession of extremes. One moment, we are dealing with patient care situations that stress our cognitive and psychomotor skills in potentially life-threatening environments. In the next moment, we are performing

a routine patient transport. We leap from emotionally charged scenes to emotionally neutral ones, often without the opportunity for physical or mental recovery (**FIGURE 1-1**). The transition from an intense situation to a calm one can be exhausting, and this can lead us to let down our guard during the moments of calm. For example, after running “hot” during a call,



A



B

FIGURE 1-1 EMS is a profession of extremes. **A.** One moment, you may be dealing with a life-threatening situation. **B.** The next moment, you may be moving a patient.

A. © David Grigger, Bristol Herald Courier/AP Photo; B. © Jones & Bartlett Learning.

we may be less attentive to traffic while driving back to the station after a call.

The constant cycle of crisis and calm may lead us to pay less attention to our surroundings and subsequently fail to process sensorimotor cues in the environment. **Sensorimotor cues** are the sights, sounds, and smells that create an awareness of environmental conditions; this awareness may prompt a behavioral response. For

example, the smell of smoke could prompt you to look for a fire.

EMS practitioners and patients are not harmed only in overtly dangerous situations, such as driving in an ice storm. A growing number of patients are injured, sometimes critically, in nonemergent patient-handling events, such as moving a patient from a bed to a stretcher. When a task seems “routine,” there is a risk of the mind slipping into **complacency**, which occurs when you believe you are so good at your job that you stop thinking about how to do it properly. When you stop thinking about your job, you lose the ability to maintain situational awareness.

You may be thinking that you have taken driving courses and patient safety training and have participated in a variety of other safety-oriented activities. You have onboard monitoring equipment and powered cots. You use all the appropriate personal protective equipment (PPE) on every call. You know the dangers of intersections, the use of lights and siren, and the plague of distracted drivers. What else can you possibly do to improve your safety? The *NAEMT EMS Safety* course was developed by a team of EMS safety faculty and subject matter experts. The course will explore the preventive measures that you and your colleagues can take to improve personal, patient, and bystander safety. The course will cover the following topic areas, which have been identified as those most vital to EMS professional safety:

- Crew resource management
- Emergency vehicle safety
- Roadway safety
- Patient safety
- Practitioner safety
- Injury and infection prevention
- Personal health

Overall course learning objectives ensure that the student participating in the course will be able to do the following:

- Identify the hazards faced by EMS practitioners.
- Describe the principles of crew resource management.
- Apply techniques to maintain vehicle safety.
- List and assess areas to improve patient safety.
- Identify strategies to ensure practitioner safety.
- Employ the principles of personal health.

Culture of Safety

The primary goal of EMS Safety is to change the culture of safety in the EMS profession and in each organization. There continues to be a need to change the safety culture in which EMS practitioners serve. An organization’s safety culture is the product of everyone’s competencies,



FIGURE 1-2 Safety is in your hands!

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attitudes, and values in determining the commitment to the organization's health and safety programs. EMS Safety is the only national, comprehensive safety course for EMS practitioners. A profession-wide culture of safety is instrumental in creating a safe environment for EMS personnel. The safety of a situation is dynamic and can change at any moment. Weather, traffic flow, and bystanders becoming unruly can all alter scene safety. The decisions that EMS providers make can contribute to creating a culture of safety. The EMS Safety course will provide guidance and introduce behaviors to avoid, prevent, and adapt to safety threats. Everyone, including organizational leaders, EMS practitioners, medical directors, management, and support staff, shares the goal of safety and the continuous improvement required to attain this goal. Leadership and management personnel must share the commitment to a culture of safety, and they should motivate everyone to share the same commitment.

Failure to initiate a culture of safety could have devastating effects. Self-injury prevention is the most valuable service a prehospital practitioner can provide. Safety is in your hands (**FIGURE 1-2**).

The National EMS Culture of Safety project was created in 2009 to improve safety in EMS. The six critical elements to a culture of safety are as follows:

1. Just culture, which encourages reporting of mistakes and near misses, so that errors can be avoided in the future
2. Coordinated support and resources among agencies across the nation
3. A responder and patient safety data system, allowing for better understanding of the scope of some of these issues

4. Evolution of EMS education to include better training on these topics
5. Promulgation of safety standards based on good evidence
6. Incident reporting and investigation

Stay in the Field

Safety is a dynamic issue. Remember the concept of homeostasis from your initial training? Cells constantly engage in a variety of actions to maintain a balanced internal environment. Homeostatic mechanisms work to limit the damage that cells incur when assaulted by everything from hypoxia to mechanical forces. Likewise, EMS practitioners need to develop a set of homeostatic mechanisms—or behaviors—to constantly adapt to the ever-changing environment and limit the potential risks to ourselves, our patients, and bystanders. EMS Safety will teach you how to develop ingrained behaviors that will allow you to adapt naturally to the current situation and address issues before they become threats. Proactive prevention is the key to maintaining your safety and the safety of your partner, patients, and bystanders.

The Facts

EMS remains an unsafe profession with a high probability of injury and fatality rate. Whether working for a paid, volunteer, private, fire-based, or government service, all EMS practitioners are at risk. The Centers for Disease Control and Prevention (CDC) reports more than 22,000 EMS personnel are seen in emergency departments for work-related injuries each year. The ways in which injuries occurred based on National Institute for Occupational Safety and Health data from July 2010 to June 2014 are shown in **TABLE 1-1**. The majority of these injuries occurred while responding to an emergency call, which includes patient care and transport. Strains and sprains to the neck and back were the most frequent injuries. Compared with other professions, the following statistics apply to EMS practitioners:

- The fatality rate for EMS practitioners is *2.5 times* the national average.
- The nonfatal injury rate for EMS practitioners is *5 times higher* than for other healthcare workers.
- EMS practitioners are *7 times more likely* than the average worker to miss work as result of injury.

TABLE 1-1 How Did Injuries Occur?

Injured Workers (per year)	Causes
6,000	Body motion (e.g., excessive physical effort, awkward posture, or repetitive movement)
6,000	Exposure to harmful substances (e.g., exposure to blood or respiratory secretions)
4,000	Slips, trips, and falls
2,000	Motor vehicle incidents (e.g., sudden stops, swerves, and crashes)
2,000	Violence/assaults

Reproduced from Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. Emergency medical services workers: how employers can prevent injuries and exposures [DHHS (NIOSH) Publication No. 2017-194]. Published July 2017. <https://www.cdc.gov/niosh/docs/2017-194/pdfs/2017-194.pdf?id=10.26616/NIOSH PUB2017194>

Aside from the pain and suffering, the National Safety Council estimates a financial impact of approximately \$886.4 billion in 2015 alone from fatal and nonfatal trauma in the United States. The wages and productivity lost was approximately \$458 billion. This is more than twice as much as the costs associated with injuries resulting in fatalities.

Motor Vehicle Crashes

According to the National Highway Traffic Safety Administration (NHTSA), between 1992 and 2011, there were 4,500 accidents involving ambulances; this represents an average of about 12 motor vehicle crashes (MVCs) involving ambulances per day (**FIGURE 1-3**). Of those accidents, 65% resulted in property damage, 34% resulted in injuries, and fewer than 1% resulted in fatalities. The breakdown of those fatalities is as follows:

- Ambulance driver: 4%
- Ambulance passenger: 21%
- Occupants of another vehicle: 63%
- Nonoccupants :12%

Of the 34% who were injured, the breakdown is as follows:

- Ambulance driver: 17%
- Ambulance passenger: 29%
- Occupants of another vehicle: 54%



FIGURE 1-3 According to the NHTSA, between 1992 and 2011, there was an average of about 12 motor vehicle crashes involving ambulances per day.

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The statistics show that in MVCs involving ambulance crashes, the ambulance driver is less likely to be killed or injured than ambulance passengers, occupants of other vehicles, and nonoccupants. This means that the person responsible for driving the ambulance safely carries the least amount of personal risk in the event of an MVC. The presence of a moving ambulance should not be a hazard to the general public, and the general public should not become “collateral damage” because of an MVC with an ambulance.

In MVCs involving ambulances, 58% of accidents were lights-and-siren events, and 42% were nonemergent driving events. Thus, nonemergent driving events pose an almost equal risk of an MVC as lights-and-siren events. This is one reason it is critical to be aware of potential safety hazards and be proactive about safe driving.

Communications

Maintaining healthy communication with colleagues, bystanders, and patients will assist in creating a safe environment. Always maintain situational awareness and communicate concerns to your partner(s). To practice proactive accident prevention, everyone needs to be aware of the potential hazards. The effectiveness of situational awareness is amplified when EMS practitioners communicate their findings with each other. Be proactive regarding accident prevention by communicating all findings with your team. Situational awareness is a common practice used in law enforcement to ensure the safety of oneself and other peer officers (this topic is discussed further in Chapter 2, *Crew Resource*

Management). EMS personnel should designate one person to maintain contact with the patient while the other person remains alert for scene safety issues.

However, this awareness of safety issues will not occur if interpersonal barriers exist. Interpersonal barriers lead to increased injuries and fatalities. An interpersonal barrier is something preventing clear and open communication among people, such as language barriers, fear of speaking in front of others, or the effects of a stroke. Failing to provide a report to hospital staff of assessment findings or treatment mistakes out of fear of criticism is an example of an interpersonal barrier. EMS practitioners should have a strong desire to protect each other, including from any criticism for speaking up about safety.

In the Field

All healthcare personnel must be aware of safety “red flags” and feel comfortable addressing them. Examples include driving at unsafe speeds, distraction from the roadway, lack of restraints for patient or self, improper lifting techniques, and patient behavior that may lead to an angry outburst or assault. Can you think of others?

Limiting background noise and distractions will improve communication between the healthcare team and the patient. Sometimes this is as simple as turning off the television, or turning down the radio, or asking bystanders to step outside if speaking loudly is disruptive. Always keep your communications equipment with you and listen to your instincts. If the situation does not feel right, leave and call for help.

Documentation

Effective documentation is critical in preventing future safety issues. Documenting all practices, both safe and unsafe, will assist in promoting a culture of safety in an organization. Recognizing and implementing safety awareness can lead to reduced injuries and fatalities in the workplace. Incident/accident reports should be



FIGURE 1-4 Documentation is critical.

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completed as soon as possible after an incident has occurred (**FIGURE 1-4**). Ensure you tell a complete story of the incident occurrence. Effective documentation of the incident, including unsafe practices, could lead to increased awareness of behaviors or policies that can impact injuries and fatalities.

Effective communication and documentation are critical components to implement a culture of safety. There should be no administrative barriers to solving safety issues. EMS leadership should spearhead a culture of safety by instituting an injury prevention policy, maintaining adherence to the policy, and rewarding positive performance. An “open door” policy should be in place for personnel to address safety concerns. People who report a problem should not be identified by coworkers or supervisors as contributing to a problem. The manner in which a problem will be solved and the timeline for the execution of the solution should be shared with everyone in the agency. The inability to completely fix a problem should be shared as well.

Effective documentation is critical to preventing future safety issues. Organizational policy should include the appropriate means to document unsafe practices, and it should be made available to all employees. Providing the flexibility for anonymous reporting of unsafe practices could provide comfort and protection to employees who fear retribution.

CHAPTER WRAP-UP

- ③The goal of the EMS Safety course is to create a culture of safety in EMS.
- ③Self-injury prevention is the most valuable service a prehospital practitioner can provide.
- ③Everyone is responsible for the commitment to fostering a culture of safety.
- ③Effective communication and documentation are critical components to implementing a culture of safety.

SUMMARY

- ③The primary goal of EMS Safety is to change the culture of safety in the EMS profession and in each organization.
- ③The safety of a situation is a dynamic issue that changes from moment to moment. EMS practitioners need to develop a set of ingrained behaviors to constantly adapt to the ever-changing environment and limit the potential risks to ourselves, our patients, and bystanders.
- ③A profession-wide culture of safety is instrumental in creating a safe environment for EMS personnel.
- ③EMS is a dangerous job for both professional and volunteer EMS practitioners. The fatality rate for EMS practitioners is 2.5 times the national average. EMS practitioners are 3 times more likely than average workers to miss work as a result of injury.
- ③Driving carries a significant amount of risk. According to the NHTSA, between 1992 and 2011, an average of about 12 MVCs involving ambulances occurred per day.
- ③There must be an equal level of awareness and focus given to operating nonemergently and to driving with lights and siren on.
- ③The National EMS Culture of Safety project was created in 2009 to improve safety in EMS.
- ③Healthy communication with colleagues, bystanders, and patients will assist in creating a safe environment.
- ③All healthcare personnel must be aware of safety “red flags” and feel comfortable addressing them.
- ③Effective documentation is critical to preventing future safety issues.
- ③EMS practitioners have the right and the responsibility to insist on a safe work environment.

GLOSSARY

complacency A feeling of satisfaction with one's own performance to the point of not recognizing the potential for errors.

sensorimotor cues Sights, sounds, and smells that create an awareness of environmental conditions; this awareness may prompt a behavioral response.

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