AAOS
American Academy of Orthopaedic Surgeons

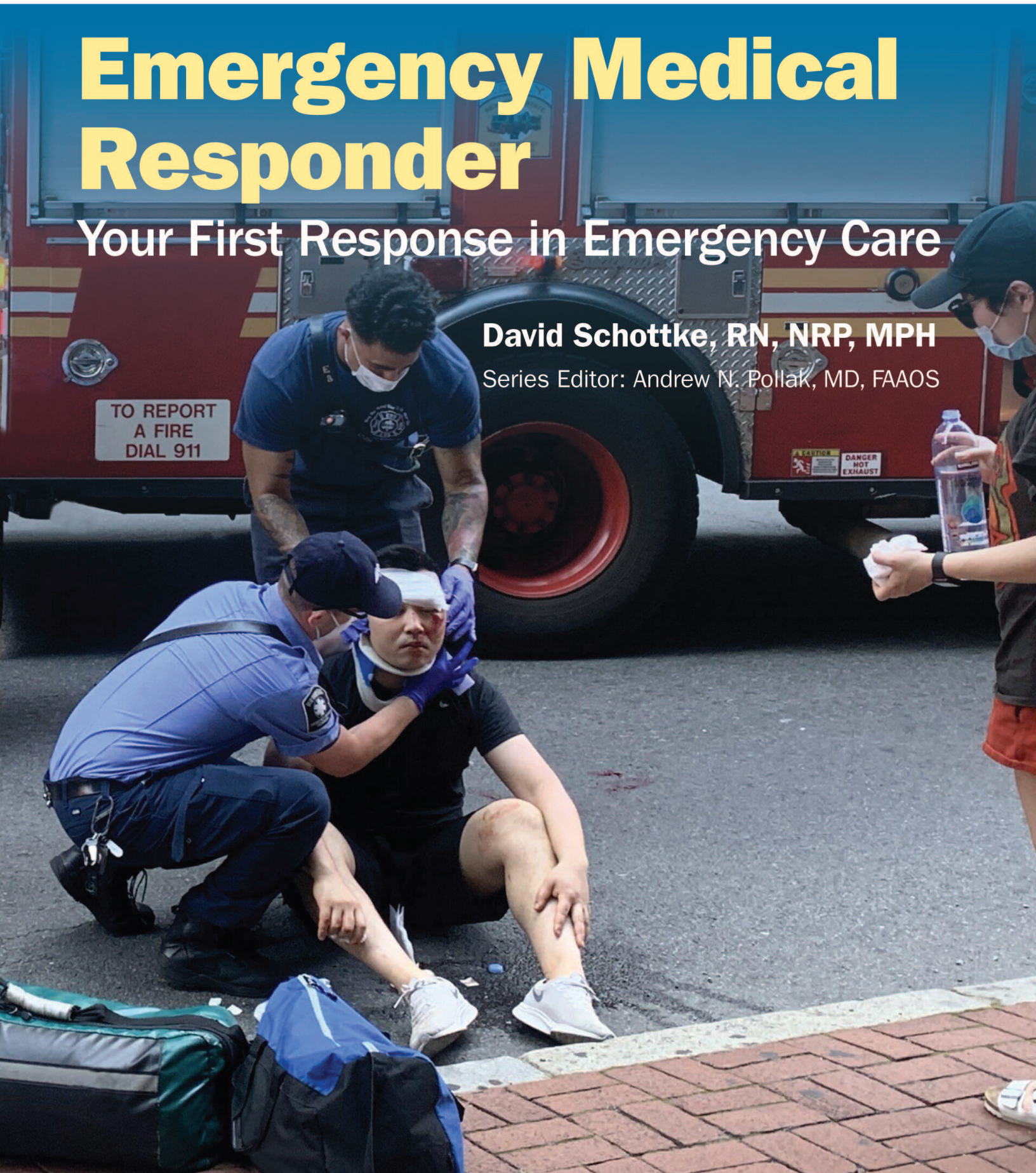
SEVENTH EDITION

Emergency Medical Responder

Your First Response in Emergency Care

David Schottke, RN, NRP, MPH

Series Editor: Andrew N. Pollak, MD, FAAOS



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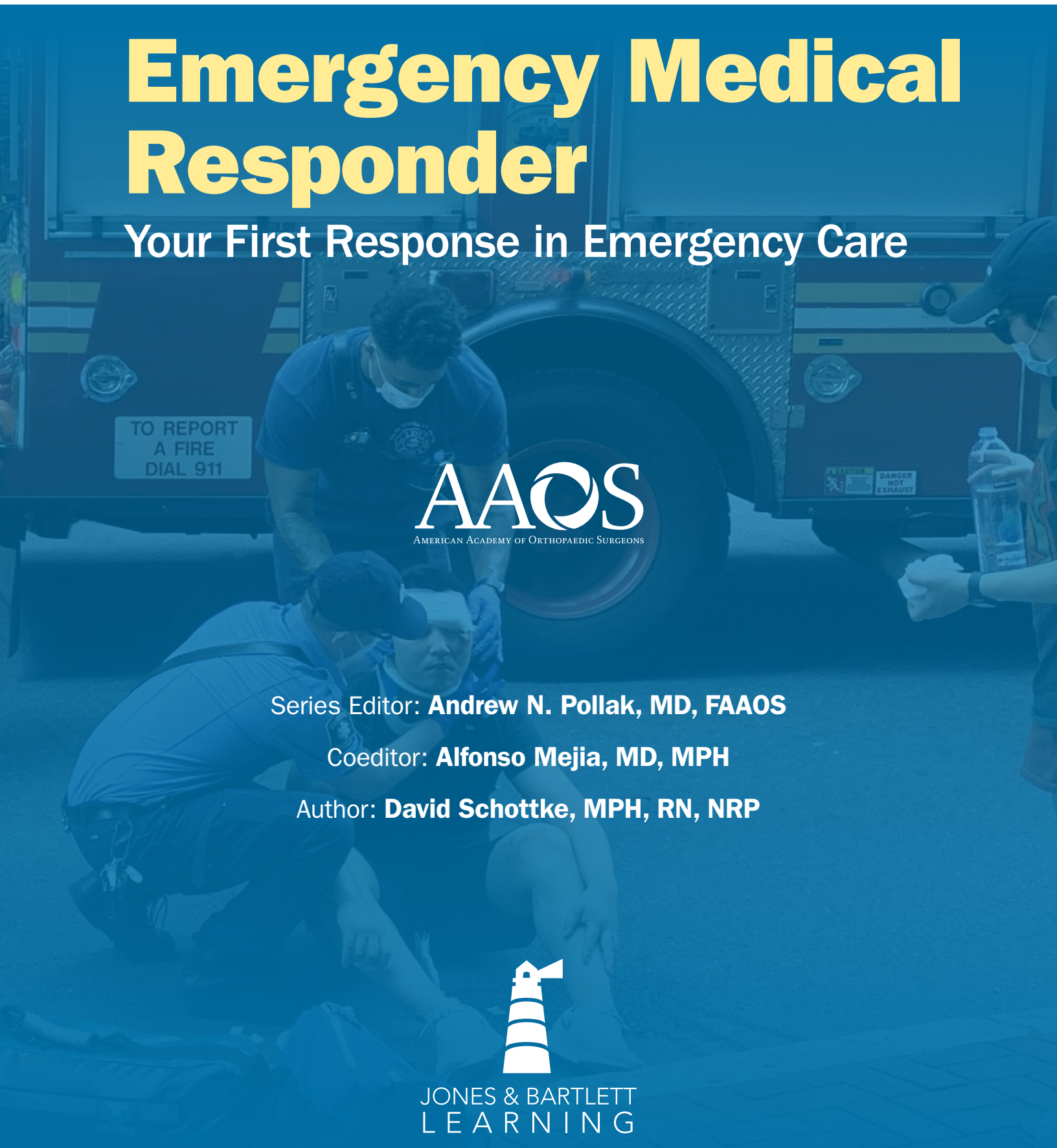

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Series Editor: **Andrew N. Pollak, MD, FAAOS**

Coeditor: **Alfonso Mejia, MD, MPH**

Author: **David Schottke, MPH, RN, NRP**

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World Headquarters
Jones & Bartlett Learning
5 Wall Street
Burlington, MA 01803
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Editorial Credits
Chief Education Strategist: Anna Salt Troise, MBA
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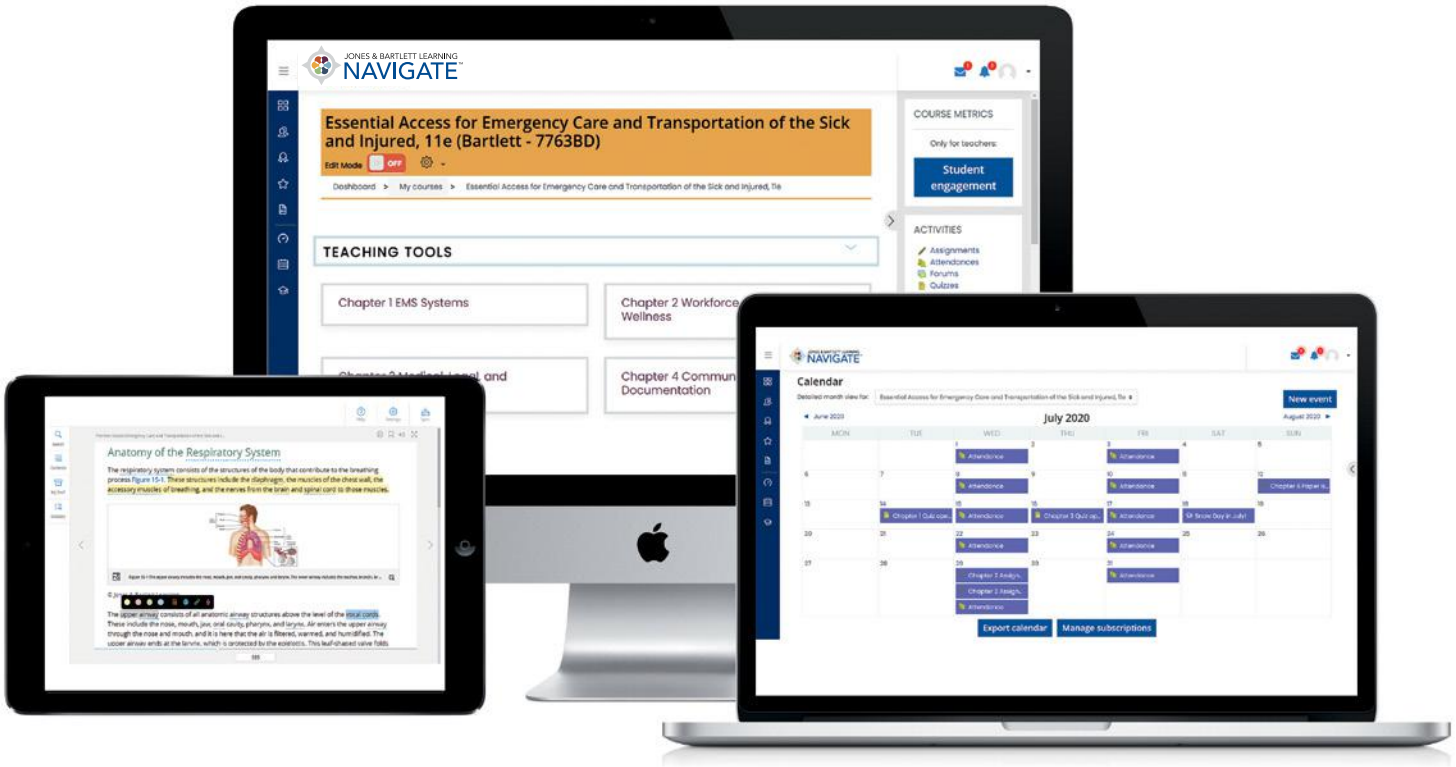

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Series Editor

Andrew N. Pollak, MD, FAAOS
The James Lawrence Kernan Professor and Chairman
Department of Orthopaedics
University of Maryland School of Medicine
Senior Vice President for Clinical Transformation and Chief of Orthopaedics
University of Maryland Medical System
Medical Director
Baltimore County Fire Department
Director, Shock Trauma Go Team
Special Deputy US Marshal
Baltimore, Maryland

Coeditor

Alfonso Mejia, MD, MPH
Program Director, Orthopedic Surgery Residency Program
Vice Head, Department of Orthopedic Surgery
University of Illinois College of Medicine
Medical Director
Tactical Emergency Medical Support Physician
South Suburban Emergency Response Team
Chicago, Illinois

Author

David Schottke, MPH, RN, NRP
Fairfax Volunteer Fire Department
Fairfax, Virginia

Contributors and Reviewers

Michael P. Alt, NREMT-P
West Virginia Public Service Training
Martinsburg, West Virginia

Stephen Barney, NRP
Vance Granville Community College
Henderson, North Carolina

Dana Baumgartner, BS, NRP, I/C
Nicolet College
Rhinelander, Wisconsin

Jason Baumgartner, RN, CCEMTP
Nicolet College
Rhinelander, Wisconsin

Edward L. Bays, BS, NRP
Mountwest Community & Technical College
Huntington, West Virginia

Shelly Beck, MS, AEMT
University of Utah
Salt Lake City, Utah

Daniel Benard, MBA, Paramedic
Kalamazoo Valley Community College
Kalamazoo, Michigan

Darren Scott Blackburn, MA, PMP
Justice Institute of British Columbia
New Westminster, British Columbia, Canada

Nick Bourdeau, RN, Paramedic Instructor
Huron Valley Ambulance
Ann Arbor, Michigan

Karen Bowlin, NREMT, EMSI
Mid-Plains Community College
North Platte, Nebraska

Julia Chamberlain, BSN, RN, Paramedic
Onondaga Fire Department
Onondaga, Michigan

Jeffrey L. Foster, CP-C, CCEMTP, NRP, AEMD
Carteret County Emergency Services
Morehead City, North Carolina

Keith B. Hermiz, NREMT-A, I/C
Grafton Rescue Squad, Inc.
Grafton, Vermont

Blake E. Klingle, MS, RN, CCEMTP, EMS Instructor/Coordinator
Waukesha County Technical College
Pewaukee, Wisconsin

Josh Lopez, BS-EMS, NRP, I/C
University of New Mexico, School of Medicine–EMS Academy
Albuquerque, New Mexico

Joe Martinez, NRP, MN Community Paramedic (CP)
Hennepin Technical College–Brooklyn Park Campus
Brooklyn Park, Minnesota

Michael McDonald, BSN, RN, NRP, NCEE
Loudoun County Combined Fire Rescue System
Leesburg, Virginia

Kristen McKenna, BS, NRP
University of South Alabama EMS Department
Mobile, Alabama

Beth Ann McNeill, MS, EMT
Monroe Community College
Rochester, New York

Nicholas J. Montelauro, BS, NRP, FP-C, TP-C, NCEE, CHSE
Indiana University Health–Emergency Response Training Institute
Indianapolis, Indiana

Brian C. Nees, MBA, NRP
University of New Mexico
Albuquerque, New Mexico

Stacey Oho, NRP
Kapi`olani Community College
Honolulu, Hawaii

Kenneth Schaaf, NRP, IC
University of New Mexico, School of Medicine–EMS Academy
Albuquerque, New Mexico

Bernard J. Schweter, PhD, Paramedic, EMSI
Cuyahoga Community College
Cleveland, Ohio

Robert Stakem, Jr., MEd, Paramedic
Harrisburg Area Community College
Harrisburg, Pennsylvania

Stephen Trala, MPH, BSN, RN, CFRN, NRP
Vermont Technical College Paramedic Program
Williston, Vermont

Brian J. Turner, RN, CCEMT-P
Trinity Medical Center
Rock Island, Illinois

Matthew G. Watson, NREMT-B
Winchester City Sheriff's Office
Winchester, Virginia

COVID-19 Disclaimer

At the time of this edition's development, we find ourselves in the middle of a 100-year event: the COVID-19 pandemic. Although we are perhaps more mindful than ever of the importance of personal protective equipment (PPE) in our profession, readers will still notice some variability throughout this textbook with regard to the types of PPE worn by EMS providers and others as they care for patients. They may also question the inclusion of skills and techniques that are discouraged in the context of COVID-19. There are several explanations for these inconsistencies.

Prior to 2020, the level of PPE commonly worn by all providers during patient encounters typically included nitrile gloves. The use of eye protection has become more common and is a critical component of PPE in the COVID-19 era and beyond. Eye protection was added during situations when the risk of a splash is high or when there is significant risk of aerosolization of material that could potentially come in contact with the eyes. For example, eye protection is typically worn while caring for patients who are bleeding significantly, when performing airway-related procedures, and during maternity calls. It was added on calls when there was a perceived high risk of being splashed with a potentially contaminated body fluid.

In addition, masks are now standard equipment for all interpersonal encounters, not just patient encounters. At various times throughout the pandemic, masks have been required in public places, such as grocery stores. Social distancing guidelines mandate the use of masks in public. Simple face masks or cloth masks are considered mandatory both to decrease the risk of infection for the person wearing the mask and to decrease the risk associated with viral shedding that is a known consequence of infection, even in asymptomatic hosts. In other words, people without symptoms can still be infected with the virus and thus transmit it to others. Asking everyone to wear a mask in public can make the environment safer.

Furthermore, it is recommended that providers caring for COVID-19 patients or those who have overt symptoms such as fever or cough wear a higher level of protection, such as an N95 respirator. There is variability in that recommendation also, as many agencies are using N95 respirators for all patient encounters, given the increased level of protection afforded and the pervasiveness in the population of asymptomatic individuals who could transmit the disease.

We have tried throughout the text to apply the best current knowledge and practices available. However, that science is developing rapidly, as is clinical practice. It is likely that some of what is included in this textbook with regard to PPE recommendations may be partially or completely outdated by the time this textbook is published. We will attempt to make supplemental material available that reflects the most updated knowledge.

While incorporating best practices in an evolving pandemic, we must remain true to the education standards for the emergency medical responder (EMR) and the often less-than-ideal conditions in which the EMR works. This book has followed the widely accepted Consensus on Science With Treatment Recommendations (CoSTR) of the International Liaison Committee on Resuscitation (ILCOR) and the Emergency Cardiovascular Care (ECC) guidelines of the American Heart Association.

The use of mouth-to-mouth rescue breathing and mouth-to-barrier and mouth-to-mask devices are included in these standards. The use of a bag-mask device, while included in this book and strongly encouraged in the context of active community transmission of an aerosolized disease, is an optional skill and is not required of EMRs. Further, many EMR personnel carry limited or no first aid supplies. To present bag-mask ventilation as the only method of rescue breathing is to deprive them of any method of providing rescue breathing. Although this revised text suggests minimizing the use of barrier devices and discourages the use of mouth-to-mouth rescue breathing, these techniques are still key competencies for the EMR whose partner has suffered a sudden cardiac arrest, for example.

Revising the illustrations and images throughout the book has been a challenge. Organizing photo shoots has been dramatically hindered by necessary social distancing restrictions. For this reason, to provide students with the best information as soon as possible, we have edited many images associated with perceived high-risk procedures such as aerosol-generating procedures. In addition, we ensured that providers and other relevant parties are wearing N95 respirators and appropriate eye protection in any new images that were shot for this textbook. However, we were not able to update all photos to reflect new practice guidelines. It is certainly our hope that by the time the next edition is published, our knowledge of best practices with regard to PPE will be more static and there will be more consistency in the appearance of PPE in images throughout the text. It is absolutely our intention to teach students the best practices with regard to PPE so that their risk of becoming infected and transmitting infection to their patients and others is minimized to the greatest degree possible.

SECTION 1

Preparatory

CHAPTER 1

EMS Systems

National EMS Education Standard Competencies

Preparatory

Uses simple knowledge of the emergency medical services (EMS) system, safety/well-being of the emergency medical responder (EMR), and medical/legal issues at the scene of an emergency while awaiting a higher level of care.

EMS Systems

- EMS systems (pp 4–8)
- Roles/responsibilities/professionalism of EMS personnel (pp 11–13)
- Quality improvement (p 14)

Research

- Impact of research on EMR care (p 13)
- Data collection (p 14)

Public Health

Has an awareness of local public health resources and the role EMS personnel play in public health emergencies.

Knowledge Objectives

1. Describe the different elements of an emergency medical services (EMS) system. (pp 4–13)
2. Discuss the four levels of EMS training and licensure. (pp 4–6)
3. Describe the role of public health resources and how this role applies to EMS providers. (p 6)
4. Discuss the historic background of the development of the EMS system. (pp 6–7)
5. List the 10 standard components of an EMS system. (pp 7–8)
6. Describe how the seriousness of the patient's condition is used to determine the urgency of transport to an appropriate medical facility. (p 8)
7. Describe the four general goals of emergency medical responder (EMR) training. (pp 9–10)
8. Define the roles and responsibilities of EMRs. (p 11)
9. Explain the importance of documentation. (p 11)
10. Describe the attributes that EMRs are expected to possess. (p 13)
11. Define *medical oversight*. (p 13)
12. Discuss the EMR's role in relation to medical oversight. (p 13)
13. Explain the quality improvement process and why quality improvement is important for good patient care. (p 14)
14. Describe the impact of research on evidence-based patient care. (pp 4–6)

Skills Objectives

There are no skills objectives for this chapter.

Introduction

An **emergency medical responder (EMR)** is often the first medically trained person to arrive on the scene of an emergency. As an EMR, the care you give could mean the difference between life and death. Your care is usually followed by care given by an **emergency medical technician (EMT)**, **paramedic**, nurse, physician, or other type of allied health professional.

The EMS System

The EMS system was developed to improve patient outcomes. Evidence showed that patients who received appropriate emergency medical care before they reached the hospital had a better chance of surviving a major injury or sudden illness than patients who did not receive such care.

It is important that you understand the operation and complexity of your EMS system (**FIGURE 1-1**). Personnel from different agencies may provide emergency medical services. For some agencies, providing emergency medical services is a major function. Other agencies have a minimal yet vital role in providing emergency medical care.

Problems during an EMS operation often result from a lack of coordination between resources and personnel. Agencies and personnel need to share an understanding of their roles for an EMS system to operate smoothly. This understanding develops through close cooperation, careful planning, communication, and continual effort. You can best understand the EMS system by examining the sequence of events as an injured or ill patient is cared for in the system.

Reporting

The first step in reporting an emergency is recognizing that an emergency exists. The patient, a relative, or bystander sees a serious illness or injury and decides to call for help. Most 9-1-1 calls today are made using cell phones. Some other calls are still made using landline telephones, two-way radios, or personal emergency call systems. An **emergency response communications center** or **public safety answering point (PSAP)** usually receives the telephone call reporting an incident (**FIGURE 1-2**). The communications center may be a fire, police, or EMS agency; a 9-1-1 center; or a seven-digit emergency telephone number used by one or all of the emergency agencies. Enhanced 9-1-1 centers use computers to determine the location of landline telephones as soon as the telephone in the 9-1-1 center is answered. Under FCC guidelines, cellular carriers are required to also provide PSAPs with some information about the location of a cellular caller. The ability of different PSAPs to receive this information and incorporate it into dispatch information remains variable.

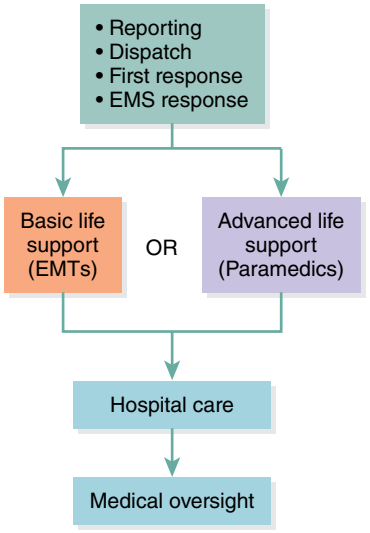


FIGURE 1-1 The EMS system.

FIGURE 1-2 Reporting an emergency.

YOU are the Provider — CASE 1

A few weeks after completing your EMR course, you are traveling along a freeway in your town. Suddenly the traffic slows down. At the right side of the road you see a car that has just crashed into the wall of a concrete overpass. As you pull over to stop, you see two people dragging a woman by her arms and legs away from the wrecked car.

1. Why is your role as an EMR so important during the first minutes after a crash?
2. Why is it important to know how the components of your EMS system work?
3. How does good interaction between different levels of the EMS team improve the quality of care?

Some communities are beginning to implement Next Generation 9-1-1 (NG9-1-1) systems. These systems use broadband technology to transmit voice, text, data, and multimedia information. NG9-1-1 systems have the capacity to transmit valuable data such as medical information and building plans to first responders. Upgraded systems will be able to better pinpoint the location of cell phone callers.

Dispatch

Once the emergency response communications center is notified of an incident, appropriate equipment and personnel are dispatched to the scene (**FIGURE 1-3**). Dispatch may occur by landline telephone, cell phone, pager, public safety radio system, computer, or other means. Agencies, personnel, and equipment that are involved in the emergency medical first response vary by community.

First Response

Firefighters (paid or volunteer) or law enforcement personnel, because of their location or speed in responding, are in many cases the first EMRs on scene (**FIGURE 1-4**). Most communities have many EMRs but fewer EMTs, and even fewer paramedics. Emergency medical responders may be employed as lifeguards, security officers, teachers, or workers in an industrial setting. A community with four or five fire stations may have only two or three ambulances. The patient's first and perhaps most crucial contact with the EMS system occurs when the trained EMR arrives. For example, a key survival factor for people in cardiac arrest is the length of time between when the heartbeat stops and when manual cardiopulmonary resuscitation (CPR) starts.

EMS Response

The arrival of an emergency medical vehicle (usually an ambulance) staffed by EMTs or paramedics is the patient's second contact with the EMS system (**FIGURE 1-5**). A properly equipped vehicle and the EMT staff make up a **basic life support (BLS)** unit. Each EMT has completed at least 150 hours of training. Many complete even longer training programs.

EMTs continue the care begun by EMRs. EMTs stabilize the patient's condition further and prepare the patient for transport to the emergency department of the hospital. Well-trained emergency personnel who can carefully

FIGURE 1-4 Firefighters **(A)** and law enforcement personnel **(B)** are EMRs in many emergencies.
A: © Corbis/Getty; **B:** Courtesy of Captain David Jackson, Saginaw Township Fire Department.

FIGURE 1-3 An emergency response communications center receives the call.
© Jones & Bartlett Learning. Courtesy of MIEMSS.

FIGURE 1-5 EMS responds.
© Jones & Bartlett Learning. Courtesy of MIEMSS.

move the patient and provide proper treatment increase the chance that the patient will arrive at the emergency department in the best possible condition.

An **advanced emergency medical technician (AEMT)** is able to perform limited **advanced life support (ALS)** skills. These providers have completed at least 300 hours of training. AEMTs may work alone or with a paramedic on an ALS unit.

Paramedics provide ALS services. They have received at least 1,200 hours of additional training. They can administer intravenous fluids and certain medications. They can also monitor and treat heart conditions with medications and defibrillation. **Defibrillation** is the administration of an electric shock to the heart of a patient who is experiencing a highly irregular heartbeat, known as ventricular fibrillation. Defibrillation may also be done by specifically trained EMTs and EMRs and by paramedics. Paramedics are also trained in other advanced skills such as inserting special airway tubes (endotracheal tubes) to keep the patient's airway open.

Each level of skill builds on the one that precedes it: the paramedic's skills originate from those of the EMT, and the techniques used by the EMT depend on those of the EMR. All skill levels are based on what is learned in the EMR course: airway maintenance; bleeding control; and prevention, recognition, and treatment of shock.

The EMS system involves more than emergency medical care. For example, law enforcement personnel may provide protection and control at the scene of an incident. Fire units provide fire protection, specialized rescue, and patient extrication.

Hospital Care

The patient's third contact with the EMS system occurs in the hospital, primarily in the emergency department. After being treated at the scene, the patient is transported to an appropriate hospital, where definitive treatment can be provided (**FIGURE 1-6**). It may be necessary to transport some patients to the closest **appropriate medical facility** first. An appropriate medical facility may be a hospital, trauma center, or medical clinic. They will be stabilized there and then transported to a hospital that provides specialized treatment. Specialized treatment facilities include trauma centers, spinal cord injury centers, hand centers, cardiac centers, stroke centers, burn centers, pediatric centers, poison control centers, and perinatal centers. You must learn and follow your local patient transportation protocols.

FIGURE 1-6 Hospital emergency care.

Public Health and EMS

The EMS system holds a unique place in our society. In most communities, it is considered part of the public safety function of government. EMS can also be considered a part of public health because these services are available to all people in a community. It is important for you to understand the basic functions of public health agencies because EMS personnel need to interact with public health practitioners.

Public health departments monitor restaurant cleanliness, conduct immunization programs, and determine the incidence of contagious diseases such as influenza, tuberculosis, and hepatitis. Public health departments also work to prevent the incidence or progression of diseases. They monitor the spread of contagious diseases and inform other members of the medical community about the scope of a disease. When people's actions can affect the spread of a disease, public health personnel work hard to educate the community about how to limit the spread of that disease.

Because prevention is better than treatment, public health and public safety departments provide education and screening programs to help prevent injuries and illness. They conduct car seat installation programs, programs to encourage seat belt use, alcohol awareness programs, programs to encourage bicycle and motorcycle helmet use, blood pressure screenings, and diabetes screenings. Public health departments provide support to EMS in certain situations. For example, EMS personnel may receive vaccinations at a public health clinic. In some cases, EMS may be called on to support certain functions of a public health department. In the event of an epidemic such as influenza, EMS systems may need to work with public health departments to determine the number of people who are sick. The US Centers for Disease Control and Prevention (CDC) is one public health agency that monitors the incidence of diseases. They also provide the standard precaution guidelines we use to prevent the spread of contagious diseases.

The History of EMS

As an EMS provider, you should have some understanding of the history of EMS. Many advances in civilian EMS have followed progress initially established in the military medical system. Horse-drawn ambulances were first used to remove wounded patients from the battlefield during the Civil War. Traction splints were first used in World War I, which greatly reduced the death rate from fractured femurs (thigh bones). During World War II, well-trained medical corpsmen and field hospitals helped reduce battlefield mortality (deaths).

In the 1950s, during the Korean Conflict, timely helicopter evacuations to mobile army surgical hospitals (MASH units) further reduced battlefield mortality. Additional medical advances were made in the 1960s and 1970s during the Vietnam War. Improved protocols for use of tourniquets, chemical blood clotting agents, and fluid resuscitation protocols have helped improve survival during the conflicts in Iraq and Afghanistan.

In the United States during the 1950s and 1960s, funeral homes, hospitals, and volunteer rescue squads provided most ambulance service. The only training available for ambulance attendants was basic first aid.

Even interns who staffed hospital-based ambulances had no special training for their prehospital duties. Hearses were commonly used to transport ill and injured patients. The mortality rate from trauma to civilians was much higher than the mortality experienced by military personnel.

Some physicians recognized that civilian prehospital medical care lagged behind military emergency medical care. They urged the National Academy of Sciences to investigate this situation. In 1966, the National Academy of Sciences/National Research Council published a landmark paper, *Accidental Death and Disability: The Neglected Disease of Modern Society*. This paper described the deficiencies in emergency medical care. It recommended the development of a national course of instruction for prehospital emergency care personnel. It also called for nationally accepted textbooks, ambulance vehicle design guidelines, ambulance equipment guidelines, state regulations for ambulance services, and improvements in hospital emergency departments. As a result, in the early 1970s, the US Department of Transportation developed a national standard curriculum for training EMS providers. This curriculum was the grandfather of the education guidelines in use today, the *National EMS Education Standards*.

During the 1970s and 1980s, the use of ALS within EMS became common. Today paramedics are able to perform many procedures that were limited to physicians in the early days of EMS. Currently, cities, counties, fire departments, third-party EMS departments, rescue squads, and hospitals provide most EMS. EMS providers are now trained through standardized courses conducted at accredited training centers. Certified personnel use standardized vehicles to transport patients to hospital emergency departments. Hospital emergency departments provide a high level of care for emergency patients.

In January 2019, the National Highway Traffic Safety Administration (NHTSA) of the US Department of Transportation released a report titled *EMS Agenda 2050: A People-Centered Vision for the Future of Emergency Medical Services*. This report focuses on bold, ambitious ideas for the future of EMS and provides ideas for today while looking toward the future. To achieve this vision, EMS systems of the future must be people centered and designed around six guiding principles: they must be (1) inherently safe and effective, (2) integrated and seamless, (3) reliable and prepared, (4) socially equitable, (5) sustainable and efficient, and (6) adaptable and innovative (**FIGURE 1-7**).

Words of Wisdom

To prevent confusion, in this text the term *provider* is used to refer to an EMS provider at any level: an EMR, an EMT, or a paramedic. The term *public safety provider* includes firefighters, law enforcement personnel, and EMS providers. The term *rescuer* refers to public safety providers engaged in the rescue and care of patients at an incident.

Ten Standard Components of an EMS System

EMS systems can be organized in many different ways. Different agencies may provide different parts of the system. For

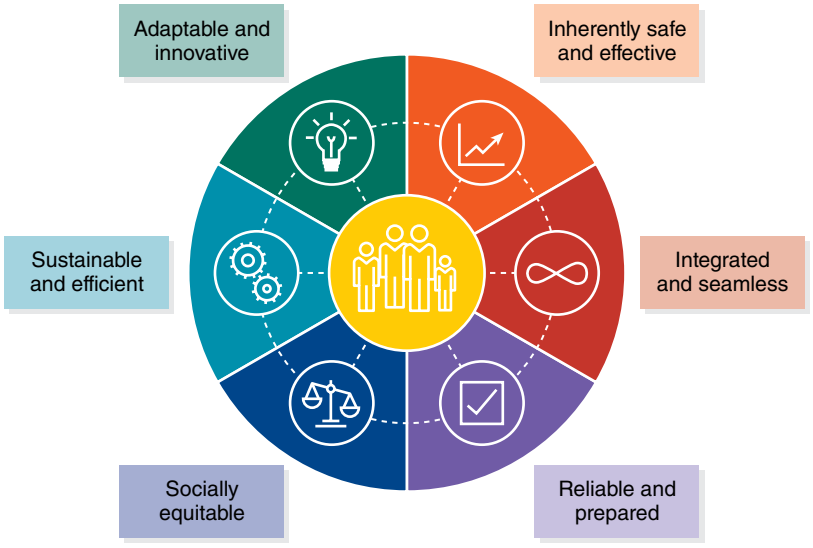


FIGURE 1-7 The six guiding principles from the National Highway Traffic Safety Administration's *EMS Agenda 2050*.
Courtesy of USDA.

example, first responders in one community may be law enforcement officers. In another community, the first responders may be firefighters. Another community may contract with a private EMS company to provide emergency services to that community. All three function similarly from a medical care perspective.

NHTSA evaluates EMS systems based on the following 10 criteria, which are used primarily in the administration of an EMS system:

1. Regulation and policy
2. Resource management
3. Human resources and training
4. Transportation equipment and systems
5. Medical and support facilities
6. Communications system
7. Public information and education
8. Medical direction
9. Trauma system and development
10. Evaluation

A Word About Transportation

As an EMR, your primary goal is to provide immediate care for a sick or injured patient. As more highly trained EMTs or paramedics arrive on scene, you will assist them in treating the patient and preparing the patient for transportation. Although other EMS personnel usually transport patients, you need to understand when a patient must be transported quickly to a hospital or other medical facility (**FIGURE 1-8**).

This text uses three terms to describe proper patient transportation to an appropriate medical facility:

- **Transport.** This term means the patient's condition requires care by medical professionals, but speed in getting the patient to a medical facility is not the most important factor. For example, this might describe the transportation needed by a patient who has sustained an isolated injury to an extremity but whose condition is otherwise stable.
- **Prompt transport.** This phrase is used when a patient's condition is serious enough that the patient needs to be taken to an appropriate medical facility in a short period of time. If the patient is not transported quickly, the condition may get worse and the patient may die.
- **Rapid transport.** This phrase is used when EMS personnel are unable to give the patient adequate life-saving care in the field. The patient may die unless he or she is transported immediately to an appropriate medical facility. This phrase is rarely used in this text.

Each of these three terms refers to transportation to an appropriate medical facility. An appropriate medical facility may be a hospital, trauma center, or medical clinic. It is essential that you be familiar with the services provided by the medical facilities in your community and that you follow the protocols for your department.

EMS personnel must work closely with their medical director to establish transportation protocols that ensure that patients are transported to the closest medical facility capable of providing adequate care. To provide the best possible care for the patient, all members of the EMS team must remember that they are key components in the total system. Smooth operation of the team ensures the best care for the patient.

EMR Training

This text is written for an emergency medical responder training course. Although the text alone can teach you many things, it is best to use it as part of an approved EMR course. In this EMR course, you will learn how to examine patients and how to use basic emergency medical skills. These skills are divided into two main groups: (1) those needed to treat injured trauma patients and (2) those needed to care for patients experiencing illness or serious medical problems. The skills and knowledge you will gain from this course provide the foundation for the entire EMS system (**FIGURE 1-9**). Your actions can prevent a minor situation from becoming serious and will sometimes determine whether a patient lives or dies.

FIGURE 1-8 Ambulance transport to a hospital or medical facility.

FIGURE 1-9 A typical emergency scene with injured patients.

You will learn the following skills to stabilize conditions and treat persons who have been injured:

- Controlling airway, breathing, and circulation (Chapters 7 and 8)
- Controlling external bleeding (hemorrhage) (Chapter 14)
- Treating shock (Chapter 14)
- Treating wounds (Chapter 14)
- Splinting injuries to stabilize extremities (Chapter 15)

In addition to these trauma skills, you will learn to recognize, stabilize, and provide initial treatment for the following medical conditions:

- Heart attacks (Chapter 10)
- Seizures (Chapter 10)
- Problems associated with excessive heat or cold (Chapter 13)
- Alcohol and drug abuse (Chapter 11)
- Poisonings (Chapter 11)
- Bites and stings (Chapter 11)
- Altered mental status (Chapter 10)
- Behavioral or psychological crises (Chapter 12)
- Emergency childbirth (Chapter 16)

Goals of EMR Training

It is important for you to understand the basic goals of EMR training. This training aims to teach you how to evaluate, stabilize, and treat patients using a minimum of specialized equipment. As an EMR, you will find yourself in situations in which little or no emergency medical equipment is readily available. You must know how to improvise using materials and objects already present at an emergency scene to serve in place of otherwise unavailable medical equipment. Finally, EMR training teaches you what you can do to help EMTs and paramedics when they arrive on the scene.

Know What You Should Not Do

The first lesson you must learn as an EMR is what not to do. For example, it may be better for you to leave a patient in the position found rather than attempt to move him or her without the proper equipment or an adequate number of trained personnel. Sometimes the first priority at an emergency scene is to stabilize the scene or call for more help before beginning patient care. It is also critical that you not judge a patient based on his or her cultural background, religion, color, gender, sexual orientation, age, or socioeconomic status. Doing so may undermine the quality of care you provide. Treat all your patients as you would treat a member of your own family.

Know How to Use Your EMR Life Support Kit

The second goal of EMR training is to teach you to treat patients using limited emergency medical supplies. An EMR life support kit should be small enough to fit in the trunk of an automobile or on almost any police, fire, or rescue vehicle. Although the contents of the kit are limited, such supplies are all you need to provide immediate care for most patients you will encounter. The suggested contents of an EMR life support kit are shown in **FIGURE 1-10** and described in **TABLE 1-1**.

Know How to Improvise

The third goal of EMR training is to teach you how to improvise. As a trained EMR, you will often be in situations with little or no emergency medical equipment. Therefore, it is important that you know how to improvise. This text gives

FIGURE 1-10 Suggested contents of an EMR life support kit.

YOU are the Provider — CASE 2

You are dispatched to 11 North Fourth Street for a report of an injured woman. Your dispatcher reports that the woman was excited and that he was not able to get additional information from her. He indicates that the patient will meet you in front of her house. You arrive at the address and find a 38-year-old woman sitting on the front porch steps crying. After you introduce yourself, you ask her why she called EMS. She tells you that she had a skillet of grease, and as she tried to move it, it caught on fire. She has some blisters and reddening on both hands and redness on her face. You ask her if the fire is out. She says she does not know. She says there is no one else in the house.

1. Why is it so important to get correct information from the emergency dispatcher?
2. What are the first actions you need to take at this emergency scene?

TABLE 1-1 Suggested Contents of an EMR Life Support Kit

Patient examination equipment	1 flashlight
Personal safety equipment	5 pairs nitrile or latex gloves 5 face masks 1 bottle hand sanitizer Eye protection 1 disposable gown (for responses possibly involving COVID-19)
Resuscitation equipment	1 mouth-to-mask resuscitation device 1 portable hand-powered suction device 1 set oral airways 1 set nasal airways
Bandaging and dressing equipment	10 gauze adhesive strips, 1 inch (2.5 cm) 10 gauze pads, 4 × 4 inches (10 × 10 cm) 5 gauze pads, 5 × 9 inches (13 × 23 cm) 2 universal trauma dressings, 10 × 30 inches (25 × 76 cm) 1 occlusive dressing for sealing chest wounds 4 conforming gauze rolls, 3 × 15 inches (8 × 38 cm) 4 conforming gauze rolls, 4.5 × 15 inches (11 × 38 cm) 6 triangular bandages 1 roll of adhesive tape, 2 inches (5 cm) 1 burn sheet 1 tourniquet
Patient immobilization equipment	2 (each) cervical collars: small, medium, large *or* 2 adjustable cervical collars 3 rigid conforming splints (structural aluminum malleable [SAM] splints) *or* 1 set air splints for arm and leg *or* 2 (each) cardboard splints, 18 inches and 24 inches
Extrication equipment	1 spring-loaded center punch 1 pair heavy leather gloves
Miscellaneous equipment	2 blankets (disposable) 2 cold packs 1 bandage scissors
Other provider equipment	1 set personal protective clothing (helmet, EMS jacket) 1 American National Standards Institute (ANSI)–approved reflective vest 1 fire extinguisher (5-lb ABC dry chemical) 1 *Emergency Response Guidebook* 6 flares 1 set of binoculars
Optional equipment (based on the protocols of your service)	Oral glucose Naloxone intranasal spray (for opioid overdoses) Saline

examples of improvisation that can be applied to real-life situations. You will learn, for example, how to use articles of clothing and handkerchiefs to stop bleeding and how to use wooden boards, magazines, or newspapers to immobilize injured extremities.

Know How to Assist Other EMS Providers

Finally, EMR training teaches you how to assist EMTs and paramedics once they arrive on the scene. Many procedures that EMTs and paramedics use require at least three people to be performed correctly. Thus, you may have to assist with these procedures and you must know what to do.

Additional Skills

EMRs operate in a variety of settings. Many problems encountered in urban areas differ sharply from those found in rural settings. Regional variations in climate not only affect the situations you encounter, but also require you to use different skills and equipment in treating patients. Certain

skills and equipment mentioned in this text are beyond the essential minimum knowledge you need to successfully complete an EMR course. However, these supplemental skills and equipment may be required in your local EMS system.

Roles and Responsibilities of the EMR

As an EMR, you have several roles and responsibilities. Depending on the emergency situation, you may need to:

- Maintain your body in a healthy physical and mental condition.
- Maintain equipment in a ready state.
- Respond promptly and safely to the scene of an accident or sudden illness.
- Ensure that the scene is safe from hazards.
- Protect yourself.
- Protect the incident scene and patients from further harm.
- Summon appropriate assistance (EMTs, fire department, rescue squad).
- Gain access to the patient.
- Perform patient assessment.
- Administer emergency medical care.
- Provide reassurance to patients and family members.
- Move patients only when necessary.
- Seek and then direct help from bystanders, if necessary.
- Control activities of bystanders.
- Assist EMTs and paramedics, as necessary.
- Maintain continuity of patient care.
- Document your care.
- Keep your knowledge and skills up to date.

Concern for the patient is primary; you should perform all activities with the patient's well-being in mind. Prompt response to the scene is essential if you are to provide quality care to the patient. It is important that you know your response area well so you can quickly determine the most efficient route to the emergency scene.

When you reach the emergency scene, park your vehicle so that it does not create an additional hazard. The emergency scene should be protected, with the least possible disruption of traffic. Do not block the roadway unnecessarily. Assess the scene for hazards such as downed electrical wires, gasoline spills, or unstable vehicles. When operating on highways, take steps to control traffic to prevent additional crashes and injuries. These steps are necessary to ensure that patients experience no further injuries and that rescuers (other than EMS personnel) and bystanders are not hurt.

If the equipment and personnel already dispatched to the scene cannot cope with the incident, you must immediately summon additional help. It may take some time for additional equipment and personnel to reach the scene, especially in rural areas or in communities with systems staffed by volunteers.

Once you have taken the preceding steps, you must gain access to the patient. This may be as simple as opening the door to a car or house or as difficult as squeezing through the back window of a wrecked automobile. Next, examine the patient to determine the extent of the injury or illness. This assessment of a patient is called the patient assessment sequence. Once the patient assessment is completed, you must stabilize the patient's condition to prevent it from getting worse. To do this, you will use techniques you learned in training and the equipment available. Correctly applying these techniques can have a positive effect on the patient's condition.

When EMTs or paramedics arrive to assist, it is important to tell them what you know about the patient's condition and what you have done to stabilize or treat it. Your next task is to assist the EMTs or paramedics.

In some communities or situations, you may be asked to accompany the patient in the ambulance. If CPR is being performed, you may need to assist or relieve the EMT or paramedic, especially if the hospital is far from the scene. In some EMS systems, you may be qualified to drive the ambulance to the hospital so EMS personnel with more advanced training can devote all their efforts to patient care.

The Importance of Documentation

Once your role in treating the patient is finished, it is important that you record your observations about the scene, the patient's condition, and the treatment you provided. Documentation should be clear, concise, accurate, and according to the accepted policies of your organization. Documentation is important because it allows others to know about your findings and any treatment you rendered. It also serves as a legal record of your treatment and may be required in the event of a lawsuit. Documentation also provides a basis to evaluate the quality of care given.

YOU are the Provider — CASE 3

It is shortly after 1000 hours on a sunny Sunday morning when dispatch interrupts your breakfast with a report of a 37-year-old man who has slipped on a dock and fallen at the local marina. You arrive on scene to find the man lying on the dock clutching his foot, breathing normally. You notice the ankle is deformed.

1. Reaching into your medical kit, you are unable to find a splint. What else could you use to splint the man's ankle?
2. How might you be asked to assist advanced EMS personnel?
3. Why is it important that EMRs know how to improvise?

Voices OF Experience

One day, while running errands, I stopped by the local coffee shop for my usual double latte with extra cream and sugar. While standing in line waiting to place my order, I saw my neighbor, Mrs. Jones. We were talking about her family (who did not live nearby) when she started to experience some type of medical emergency. I was very concerned by this and asked Mrs. Jones if she was okay. She responded, "My, what a gorgeous day it is outside," and began to fall down. I quickly caught her, lowered her to a chair, and told someone to call 9-1-1. After the EMS crew arrived and I told them what I saw, I left.

As I was walking back home, I thought, "I have lived here for 25 years and think it's time I gave something back to the community." That afternoon I called the EMS system that transported Mrs. Jones. They helped me sign up for an EMR course at the local community center. On completion of the course, I volunteered for a couple shifts a month for the EMS system. During the course, I learned how to protect myself while responding to a medical emergency or a traumatic event. I also learned how the EMS system works, how they are notified, how to prepare myself to respond to a call safely and effectively, which skills and procedures I can and cannot do, and what happens when the patient is transported to the hospital. These are all parts of an effective EMS system, starting with personnel training and moving to vehicle staffing and transport of patients. It is important to remember that the system is like a circle that is complete only when the patient is discharged from the facility.

> **"Because of you, I am here today."**

That day at the coffee shop, the EMS crew showed up about 2 or 3 minutes after they were called. They assessed the situation, called for a higher level of care, loaded the patient on the stretcher, and, due to the long transport time, met ALS providers on the way. What I didn't see was what happened when Mrs. Jones arrived at the hospital. A couple of days later, I saw Mrs. Jones back at the coffee shop. She came over to me, gave me a big hug, and said, "Thank you for saving my life. I had an ischemic stroke, but because of you, I am here today."

Greg LaMay, BS, NREMT-P
Education Coordinator
East Texas Medical Center-EMS (ETMC-EMS)
Tyler, Texas

Documentation should include:

- The condition of the patient when found
- The patient's description of the injury or illness
- The initial and later vital signs
- The treatment you gave the patient
- The agency and personnel who took over treatment of the patient
- Any other helpful facts

Further information about documentation is included in Chapter 5, *Communications and Documentation*.

Attitude and Conduct

As an EMR, you will be judged on your attitude and conduct, as well as on the medical care you provide. It is important to understand that professional behavior has a positive impact on your patients. To be a good EMR, you need to reflect certain characteristics. You need to be honest and conduct yourself with integrity. You need to be aware of the patient's feelings and have empathy for your patients. You need to be motivated to get the job done and to understand the limits of your training and skills. You must advocate for patients. Unresponsive patients depend totally on your skills, knowledge, and the concern you bring to the emergency scene.

Because you will often be the first medically trained person to arrive on the scene of an emergency, it is important to be calm and caring. You will gain the confidence of patients and bystanders more easily by using a courteous and caring tone of voice. Introduce yourself by name and title or position. Show an interest in your patients. Avoid embarrassing your patients and help protect their privacy. Talk with your patients and let them know what you are doing. A good rule of thumb to follow is to treat all your patients the way you would treat a close family member. This attitude will go a long way in helping patients through the emergency and will make your job easier, too.

Remember, medical information about patients is confidential and should not be discussed with your family or friends. This information should be shared only with other medical personnel who are involved in the care of that patient.

Your appearance should be neat and professional at all times. You should be well groomed and clean. A uniform helps identify you as an EMR. If you are a volunteer who responds from home, always identify yourself as an EMR. Your professional attitude and neat appearance help provide much needed reassurance to patients (**FIGURE 1-11**). Good EMS personnel learn to keep a cool head and maintain a warm heart while caring for a patient.

FIGURE 1-11 A professional attitude and neat appearance reassure patients.

Medical Oversight

The overall leader of the medical care team is the physician or medical director. To ensure that the patient receives appropriate medical treatment, it is important that EMRs receive direction from a physician. Each EMS agency should have a physician who directs training courses, helps set medical policies and procedures, and ensures quality management of the EMS system. This type of medical direction is known as indirect (or off-line) medical control.

A second type of medical control is known as direct (or online) medical control. A physician who is in contact with prehospital EMS providers, usually paramedics or EMTs, by two-way radio or wireless telephone provides online medical control. In cases where large numbers of people are injured or in cases of prolonged entrapment, physicians may respond to the scene of the incident to provide on-scene medical control.

Quality Improvement

Quality improvement is a process used by medical care systems to evaluate the effectiveness and safety of current treatments and procedures. It is also used to determine the

YOU are the Provider — CASE 4

You are dispatched to a local big box store for a report of a sick man. You are close to this location and arrive on the scene within 2 minutes. A store employee meets you at the front door and directs you to a 73-year-old man who is sitting on a chair close to the checkout area. As you approach, you notice that the patient is pale and sweaty and seems to be short of breath. His wife tells you that he started to have severe chest pains just before she called 9-1-1. She says that his pain is just like the pain he had 3 years ago when he had a heart attack.

1. What should you say as you approach this patient?
2. What level of emergency medical care do you think is best for this patient?
3. With whom can you share information about this patient's history, symptoms, and treatment?

effectiveness and safety of new treatments and procedures. This process is used to evaluate all parts of the health care system, including EMS. The Institute of Medicine has identified six components of the quality improvement process. These are:

1. **Safety.** The actions of EMRs must not cause harm to patients, bystanders, or EMS providers.
2. **Effectiveness.** EMS care should be based on scientific knowledge and provide the desired benefit to the patient. Refrain from any treatment that does not benefit the patient.
3. **Patient centeredness.** Emergency medical care must be responsive to the patient's needs. Be responsive to the patient's physical needs as well as to his or her values, religion, and heritage.
4. **Timeliness.** Provide care in a timely manner. Timely patient care is an especially important component of EMS.
5. **Efficiency.** Always strive to deliver care without wasting supplies, equipment, or time.
6. **Equitability.** Strive to deliver your best care to all people. This means patient care should not vary between people of different genders, different sexual orientations, different ethnic backgrounds, different geographic locations, or different socioeconomic levels.

EMS systems should have quality improvement programs to evaluate the care they provide. Evaluations should include the six preceding components. They should consider whether errors have occurred because of a gap in skills or knowledge. Your organization uses protocols, continuing medical education, and call debriefing to help improve the quality of care being given to your patients. As part of the quality improvement process, you may be asked to participate in a research study or in data collection in your service. EMS research is an important part of the quality improvement process to ensure good patient care.

Your Certification

Most states require certification, registration, or licensure of emergency medical care providers. **Certification** is the process by which a person, institution, or program is evaluated and recognized as meeting certain standards to ensure safe and ethical patient care. Your state has a lead agency that administers regulations relating to EMS operations. Once certified as an EMR, you must follow the national or state standards for your level of practice. Your employer may set additional requirements for your conduct and practice. You must keep your certification current by meeting continuing education requirements and keeping your skills up to date. Failure to keep your certification current can result in penalties.

In 2020, the National Registry of Emergency Medical Technicians launched the National EMS-ID number system. An EMS-ID is a 12-digit identification number issued at no charge to all EMS professionals, from EMR to paramedic, and to students entering the profession. The number is automatically generated by the National Registry when a person creates an account. For EMS providers with an existing account, an EMS-ID is retroactively created. Unlike the number issued by the National Registry (NR Number) when an individual becomes certified, EMS-IDs do not change as the person's certification level changes. Thus, the various certification numbers a person may obtain in his or her career are all tied back to the single EMS-ID.

YOU are the Provider SUMMARY

You are the Provider: CASE 1

1. Why is your role as an EMR so important during the first minutes after a crash?

In the first few minutes after a crash or other emergency, you may be the only person on the scene who has been trained to deal with a medical emergency. Your initial actions can keep the scene safe until other responders arrive and make a difference in the patient's outcome. Also, you can determine whether additional resources need to be dispatched.

2. Why is it important to know how the components of your EMS system work?

It is important to understand the components of the EMS system because you are a part of the system. You provide a vital function in the system and are supported by and interact with people who fulfill other functions within the system.

3. How does good interaction between different levels of the EMS team improve the quality of care?

Good interactions between different levels of the EMS team improve patient care by relaying vital patient information and improving the efficiency of patient care.

You are the Provider: CASE 2

1. Why is it so important to get correct information from the emergency dispatcher?

You need the correct address to get to the emergency scene. Responding to an incorrect address will result in a delay in stabilizing the scene and providing care for the patient.

YOU are the Provider SUMMARY

2. What are the first actions you need to take at this emergency scene?

The first actions you need to take at this scene include: Ensure that the scene is safe. Do not enter the building to see if the fire is out unless you are properly trained and equipped. Protect yourself. Do not let the patient reenter the house. Call for additional assistance. In this case, that would include fire suppression personnel and to verify that EMS transportation has been dispatched.

You are the Provider: CASE 3

1. Reaching into your medical kit, you are unable to find a splint. What else could you use to splint the man's ankle?

Look around the dock or the man's boat for anything that can be made into a splint—a magazine, a newspaper, a pillow, a towel, or seat cushions.

2. How might you be asked to assist advanced EMS personnel?

Given the man's location, responding EMTs may need assistance with lifting and moving the patient onto a stretcher and into an ambulance.

3. Why is it important that EMRs know how to improvise?

EMRs occasionally face situations where they have little or no medical gear available and must find solutions, such as using a pillow to stabilize a broken ankle when a conventional splint is not available.

You are the Provider: CASE 4

1. What should you say as you approach this patient?

Introduce yourself by name and title. Sometimes it is helpful to say, "I'm here to help you." Include the patient's wife in your introduction to put her at ease. Asking the patient his name can also be helpful. Patients respond better to your questions when you use their name.

2. What level of emergency medical care do you think is best for this patient?

Experienced emergency medical care providers learn to listen to what the patient and patient's family tell them. When the man's wife tells you that the pain is just like the pain he had with a heart attack, there is a good chance that he might be having a heart attack now. When you combine that information with his pain, sweating, and shortness of breath, you can conclude that this is a serious condition that would benefit from ALS care, if it is available. It is reasonable for you to relay your findings to the emergency dispatcher and request ALS personnel to stabilize this patient and promptly transport him to an appropriate medical facility.

3. With whom can you share information about this patient's history, symptoms, and treatment?

You can share information about this patient such as signs and symptoms of his illness, his medical history, and treatment with other members of the prehospital EMS system who are involved with his care. It is also necessary to share this information with health care workers who are caring for him at the hospital. In addition, it is important to have someone talk with the patient's wife.

Prep Kit

Ready for Review

- The EMR is often the first medically trained person to arrive on the scene. The initial care provided is essential because it is available sooner than more advanced emergency medical care and could mean the difference between life and death.
- EMRs should understand the EMS system. The typical sequence of events of the EMS system is reporting, dispatch, emergency medical response, EMS vehicle response, and hospital care.
- The four basic goals of EMR training are to know what not to do, how to provide care using your EMR life support kit, how to improvise, and how to assist other EMS providers.
- As an EMR, your primary goal is to provide immediate care for a sick or injured patient. As more highly trained personnel (EMTs or paramedics) arrive on the scene, you will assist them in treating and preparing the patient for transportation.
- Once your role in treating the patient is finished, it is important that you record your observations about the

Prep Kit

scene, the patient's condition, and the treatment you provided. Documentation should be clear, concise, accurate, and according to the accepted policies of your organization.

- Remember that medical information about a patient is confidential and should be shared only with other medical personnel who are involved in the care of that particular patient.
- The overall leader of the medical care team is the physician or medical director. To ensure that the patient receives appropriate medical treatment, it is important that EMRs receive direction from a physician.
- Quality improvement helps to determine the level of care rendered by an EMS service. It measures care in six component areas: safety, effectiveness, patient centeredness, timeliness, efficiency, and equitability. EMS systems should have an ongoing quality improvement program.

Vital Vocabulary

advanced emergency medical technician (AEMT) A person who is able to perform basic life support skills and limited advanced life support skills.

advanced life support (ALS) The use of specialized equipment (such as cardiac monitors and defibrillators) and specialized techniques (such as intravenous fluid administration, drug infusion, and endotracheal intubation) to stabilize a patient's condition.

appropriate medical facility A hospital or medical clinic with adequate medical resources to provide continuing care to sick or injured patients who are transported after field treatment by emergency medical responders.

basic life support (BLS) Emergency life-saving procedures performed without advanced emergency procedures to stabilize the condition of patients who have experienced sudden illness or injury.

certification The process by which a person, institution, or program is evaluated and recognized as meeting certain standards to ensure safe and ethical patient care.

defibrillation Process of delivering an electric shock through a person's chest wall and heart for the purpose of ending lethal heart rhythms such as ventricular fibrillation and to help establish normal heart contraction rhythms.

emergency medical responder (EMR) The first medically trained person to arrive on the scene.

emergency medical technician (EMT) A person who is trained and certified to provide basic life support and certain other noninvasive prehospital medical procedures.

emergency response communications center A fire, police, or emergency medical services agency; a 9-1-1 center; or a seven-digit telephone number used by one or all of the emergency agencies to receive and dispatch requests for emergency care; also called a public safety answering point.

paramedic A person trained and certified to provide advanced life support.

public safety answering point (PSAP) A fire, police, or emergency medical services agency; a 9-1-1 center; or a seven-digit telephone number used by one or all of the emergency agencies to receive and dispatch requests for emergency care; also called an emergency response communications center.

Assessment IN ACTION

A call comes in on a Friday evening at 1943 hours. You and your partner are dispatched to a local high school for a report of an injured soccer player. As you arrive on the scene you are directed to a 17-year-old female soccer player who is trying not to cry. She states she is in a lot of pain. On questioning her, you learn that she was hit from the right side as she was running and now her knee is very painful. She states that she tried to walk, but she cannot put any weight on her right knee. Her right knee shows some deformity and swelling. She tells you nothing else seems to be hurt.

1. What is your initial responsibility when arriving on scene?
   - **A.** Document your patient care.
   - **B.** Summon appropriate assistance.
   - **C.** Protect the incident scene and the patient from further harm.
   - **D.** Move the patient inside a building.
2. If a patient's first contact with the EMS system is interaction with an EMR, and the second occurs when EMTs arrive, the third would be when the patient:
   - **A.** arrives in the emergency department at the hospital.
   - **B.** sees his or her personal physician.
   - **C.** is discharged.
   - **D.** is moved to the ambulance.
3. How can you assist emergency medical providers with more advanced training?
   - **A.** Maintain command of the incident scene.
   - **B.** Interpret cardiac rhythms.
   - **C.** Help prepare the patient for transport.
   - **D.** Give epinephrine.
4. All of the following are standard components of an EMS system EXCEPT:
   - **A.** medical and support facilities.
   - **B.** communications system.
   - **C.** testing.
   - **D.** transportation systems.
5. In the EMS system, a medical director does all of the following EXCEPT:
   - **A.** help set medical policies and procedures.
   - **B.** ensure that the EMRs are properly trained.
   - **C.** direct the staffing for the ambulance fleet.
   - **D.** ensure the quality management of the EMS system.
6. The roles and responsibilities of the EMR include all of the following EXCEPT:
   - **A.** ensuring that the scene is safe from hazards.
   - **B.** sharing the patient's medical condition with the public media.
   - **C.** gaining access to the patient.
   - **D.** protecting the incident scene and patients from further harm.
7. Why is it important for you to know how to improvise certain medical equipment?
8. With whom can you share information about the patient's injuries, illness, and treatment?
9. What should you tell EMTs arriving on the scene about the condition of this soccer player?
10. Why is it important to tell responding EMS personnel about your assessment and treatment of this patient?

CHAPTER 2

Workforce Safety and Wellness

National EMS Education Standard Competencies

Preparatory

Uses simple knowledge of the emergency medical services (EMS) system, safety/well-being of the emergency medical responder (EMR), and medical/legal issues at the scene of an emergency while awaiting a higher level of care.

Workforce Safety and Wellness

- Standard safety precautions (pp 24–34)
- Personal protective equipment (pp 29–31)
- Stress management (pp 21–24)
  - Dealing with death and dying (p 21)
- Crew resource management (p 24)
- Prevention of work-related injuries and illnesses (pp 31–34)

Medicine

Recognizes and manages life threats based on assessment findings of a patient with a medical emergency while awaiting additional emergency response.

Infectious Diseases

Awareness of

- A patient who may have an infectious disease (pp 24–31)
- How to decontaminate equipment, vehicles, and clothing after treating a patient (p 34)

Knowledge Objectives

1. Describe the emotional aspects of emergency care encountered by patients, patients' families, and emergency medical responders (EMRs). (p 20)
2. Describe five stages a person may experience when dealing with grief or death. (p 21)
3. Explain how to confront death and dying with integrity, empathy, respect, and careful delivery of service. (p 21)
4. Describe reactions to stress and grief that EMRs must face concerning care of the dying patient, death, and the grieving process of family members. (p 21)
5. List six signs and symptoms of stress. (p 22)
6. Describe the steps that contribute to wellness and their importance in managing stress. (pp 21–24)
7. Explain the types of actions EMRs can take to reduce or alleviate stress. (pp 22–23)
8. List hazards commonly encountered by EMRs. (p 24)
9. Describe three routes of disease transmission. (pp 26–29)
10. Describe the standard precautions for preventing infectious diseases from airborne and bloodborne pathogens. (pp 29–31)
11. Discuss the importance of standard precautions. (p 29)
12. Explain proper handwashing techniques. (p 29)
13. Explain how to remove gloves properly. (pp 30–31)
14. Describe the order in which you should don and doff personal protective equipment. (pp 30–31)
15. List the steps to take if clothing comes in contact with body fluid from a patient. (p 31)
16. Describe the safety equipment that EMRs should have available for their protection. (p 32)
17. Describe three phases of safety when responding to the scene. (pp 31–32)
18. Describe 11 types of hazards to look for when assessing the scene for unsafe conditions. (pp 32–34)

Skills Objectives

1. Demonstrate integrity, empathy, respect, and careful delivery of service when confronted with the death of a patient. (p 21)
2. Demonstrate proper handwashing techniques. (p 29)
3. Demonstrate the safe removal of medical gloves. (p 30) (Skill Drill 2-1)
4. Demonstrate the proper order and procedure for donning and doffing personal protective equipment. (p 30)
5. Demonstrate proper treatment of clothing that has come into contact with a patient's body fluid. (p 31)
6. Demonstrate the proper use of safety equipment needed for EMRs. (p 32)
7. Demonstrate scene assessment of a real or simulated rescue event for safety hazards. (pp 32–34)

Introduction

This chapter provides information that will help you understand the factors that may affect your physical or emotional well-being as an emergency medical responder (EMR).

You and your patients and their families can experience varied degrees of stress and grief during and following a medical emergency. This chapter addresses methods for recognizing, preventing, and reducing stress from emergency incidents. It also discusses hazards you may encounter from infectious diseases and outlines procedures you must follow to reduce your risk of infection. Finally, this chapter covers scene safety and how to prevent injury to yourself and further injury to your patients.

To fulfill your duties as an EMR, you must be in good physical condition. As a new EMR, you should have a complete physical examination to ensure that you are healthy enough to do your job. Most public safety departments require this examination as part of their hiring process. If your department does not have this requirement, you should still have periodic physical examinations to ensure continuing good health.

Emotional Aspects of Emergency Medical Care

Providing emergency medical care as an EMR is stressful. You will experience stress while handling emergency incidents. You may also experience signs of stress following these incidents. In addition, your patients, their families and friends, and bystanders will often show signs and symptoms of stress. Because stress cannot be completely eliminated, you must learn how to avoid unnecessary stress and how to prevent your stress level from getting too high. Some of the stress-reduction techniques discussed in this chapter will also be helpful when dealing with your patients and their families and friends.

Although all emergency medical calls produce a certain level of stress, some types of calls are more stressful than others. Your past experiences may make it difficult for you to deal with certain types of calls. For example, if a patient with severe injuries reminds you of a close family member, you may have difficulty treating the patient without experiencing a high level of stress. This is especially true if an emergency call involves a very young or a very old patient (**FIGURE 2-1**). Calls involving critical patients; death; unusual danger; violence; unusual sights, smells, or sounds; or mass casualties are also likely to produce high levels of stress. Likewise, past experiences may also play a part in reducing (or increasing) your stress during the care of a patient.

FIGURE 2-1 Certain kinds of patients may produce a high level of stress.

Because you work in a stressful environment, you must make a conscious effort to prevent and reduce unnecessary stress. You can do this in several different ways: learn to recognize the signs and symptoms of stress, adjust your lifestyle to include stress-reducing activities, and learn what services and resources are available to help you.

Safety

Do not underestimate the effect that stress can have on you. As a firefighter, EMS provider, or law enforcement officer, you may see more suffering in a year than many people will see in their entire lifetime.

YOU are the Provider — CASE 1

The past week has been especially busy for you and the other members of your shift. You have been dispatched to an unusually large number of serious medical emergencies. You and your crew have cared for a seriously burned infant, an older woman who was found dead by her caregiver, and a motorcyclist about your age who had severe head injuries. As your crew reviews these calls, you realize that crew members were affected differently by these calls.

1. Why do you think crew members had different reactions to the events of the past week?
2. Which types of calls would be most stressful for you?
3. What changes should you consider to reduce your stress level?

Normal Reactions to Stress

You need to understand how stress can affect you and the people for whom you provide emergency medical care. It is important to realize that a wide variety of stressful events may trigger a grief reaction. These events include the death of a loved one, a major injury or traumatic experience, a serious illness, drug or alcohol addiction, incarceration, the end of a relationship or divorce, the loss of a job or income, or a major personal rejection. As an EMR, you need to understand how stress is affecting the people you are caring for. Moreover, you and your coworkers will experience some of these grief triggers, such as the death of a patient. You need to know how to stay emotionally healthy in this often stressful profession.

One well-recognized model for understanding people's reactions to grief and stress was proposed by Dr. Elisabeth Kübler-Ross. This model defines five stages of grief: denial, anger, bargaining, depression, and acceptance. In studying this model, it is important to understand that people will experience grief in a variety of ways. Some people will exhibit no outward signs of grief. Other people will experience only some of these stages. People do not experience these stages of grief in any predetermined order. They can occur at any time during the grieving process.

- **Denial ("Not me!").** The first stage in the grieving process is denial. A person experiencing denial cannot believe what is happening. This stage may serve as a protection for the person experiencing the situation, and it may also serve as a protection for you as the caregiver. Realize that this reaction is normal.
- **Anger ("Why me?").** The second stage of the grieving process is anger. Understanding that anger is a normal reaction to stress can help you deal with anger that is directed toward you by a patient or the patient's family. Do not become defensive; this anger is likely a result of the situation and not a result of your patient care. This realization can enable you to tolerate the situation without letting the patient's anger distract you from performing your duties of providing care.
- **Bargaining ("Okay, but . . ."). ** The third stage of the grieving process is bargaining. Bargaining is the act of trying to make a deal to postpone death and dying. If you encounter a patient or family member who is in this stage, try to respond with a truthful and helpful comment such as, "We are doing everything we can and the paramedics will be here in just a few minutes." Remember that bargaining may be a normal part of the grieving process.
- **Depression ("Heavy-hearted").** The fourth stage of the grieving process is depression. Depression is often characterized by sadness or despair. A person who is unusually silent or who seems to retreat into his or her own world may have reached this stage. This may also be the point at which a person begins to accept the situation. It is not surprising that patients and their families get depressed about a situation that involves death and dying—nor is it surprising that you as a rescuer also get depressed. Our society tends to consider death a failure of medical care rather than a natural event that happens to everyone. A certain amount of depression is a natural reaction to a major threat or loss. The depression can be mild or severe, and it can be of short duration or long-lasting. If you have depression that continues, it is important for you to contact qualified professionals who can help you.
- **Acceptance.** The final stage of the grieving process is acceptance. Acceptance does not mean that you are satisfied with the situation. It means that you understand that death and dying cannot be changed. It may require a lot of time to work through the grieving process and arrive at this stage. As an EMS provider, you may see acceptance in family members who have had time to realize that their loved one's illness is terminal. However, not all people who experience grief are able to work through it and accept the loss.

By understanding these five stages, you can better understand the grief reaction experienced by patients, their families, and their friends. You can also better understand your own reaction to stressful situations. Some helpful techniques for dealing with patients in stressful situations are presented in Chapter 12, *Behavioral Emergencies*. These techniques will help you to develop more comfort and skill when dealing with stressful situations.

Words of Wisdom

As you go through the anger phase of the grieving process, you may want to direct your anger at the patient, the patient's family, your coworkers, or your own family. Anger is a normal reaction to unpleasant events. Sometimes it helps to talk out your anger with coworkers, family members, or a counselor. By talking through your anger, you avoid keeping it bottled up inside where it can cause unhealthy physical symptoms or emotional reactions. Directing the energy from your anger in positive ways may help you move forward. For example, at the scene of a motor vehicle crash, you may be angry that a child has been injured. Focusing your energy on providing the best medical care for the injured child may help you work through your feelings.

Stress Management

Stress management has three components: recognizing stress, preventing stress, and reducing stress.

Recognizing Stress

An important step in managing stress in yourself and others is the ability to recognize its signs and symptoms. Only then can you take steps to prevent or reduce stress.

Signs and Symptoms

The following warning signs should help you recognize stress in your coworkers, friends, or yourself:

- Irritability (often directed at coworkers, family, and friends)
- Inability to concentrate
- Change in normal disposition
- Difficulty in sleeping or nightmares (may be hard to recognize because many emergency care personnel work a pattern of rotating hours that makes normal sleep patterns hard to maintain)
- Anxiety
- Indecisiveness
- Guilt
- Loss of appetite or overeating
- Loss of interest in sexual relations
- Loss of interest in work
- Isolation
- Feelings of hopelessness
- Alcohol or drug misuse or abuse
- Physical symptoms

Preventing Stress

Three simple-to-remember techniques that can prevent stress are eat, drink, and be merry (in a healthy, stress-reducing manner):

1. **Eat.** A healthy, well-balanced diet helps prevent and reduce stress. According to the 2018 American Heart Association Guidelines, you should eat a variety of fruits and vegetables every day, eat a variety of grain products every day, eat fish at least two times each week, stay at a healthy weight by balancing the amount of calories you eat with the activity you do each day, and eat foods that are low in saturated fats and trans fats. An illustration of a healthy diet compiled by the United States Department of Agriculture (USDA) is shown in **FIGURE 2-2**.

   The amount of food you need is related to several factors, including your body type, your weight, and your level of physical activity. The steps you can take to plan a healthy diet are illustrated in **FIGURE 2-3**. Many people need to cut down on the amount of sweets in their diet. Eating large quantities of sweets puts your energy level on a roller coaster. Your blood glucose level quickly rises, but in a few hours the level drops and you crave more sweets. To maintain more consistent glucose levels, it is much better to eat an adequate amount of whole grain breads, cereals, rice, and pasta. These food products provide energy over a longer period of time and help to reduce the highs and lows brought on by consumption of excess sugars. Reducing your intake of sugars now may help you reduce your chance of developing type 2 diabetes later in life.

   EMS providers often find it hard to maintain regular meal schedules. By planning your food intake and having healthy foods available, you can improve your eating habits. Healthy eating not only helps to cut down on your stress level, it also helps reduce your risk of heart and blood vessel diseases, which are the most common causes of death in public safety workers. Keeping your weight at recommended levels helps your body better cope with stress.

2. **Drink.** Active EMS providers need to drink adequate amounts of fluids every day (**FIGURE 2-4**). Law enforcement officers, firefighters, and EMS providers who work in hot environments or wear hot bunker gear or ballistic vests are at special risk

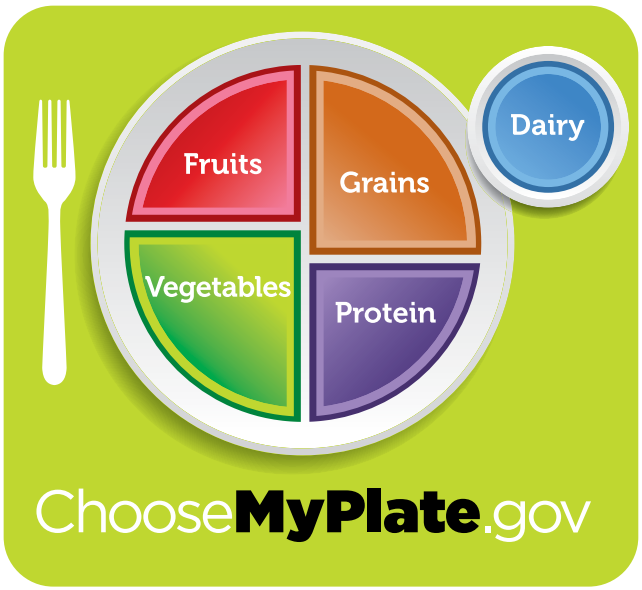
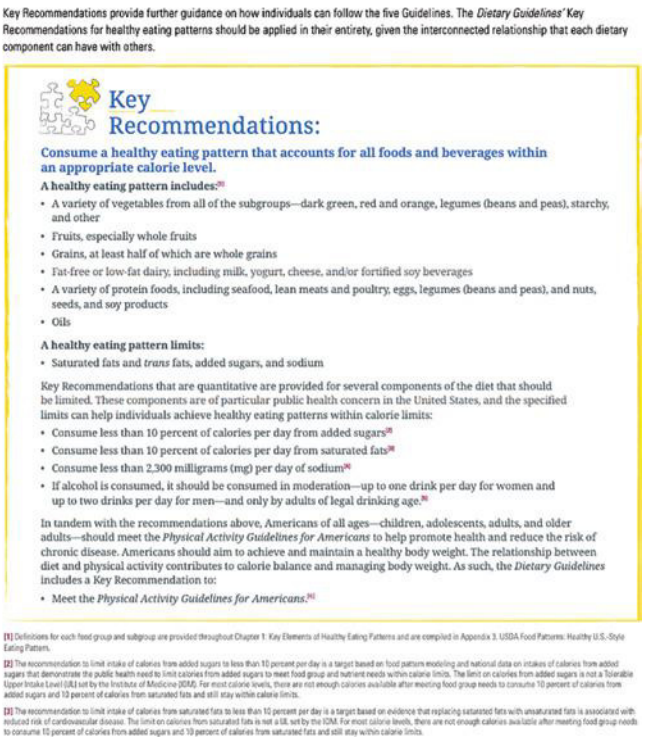


FIGURE 2-2 A healthy diet is illustrated by the USDA MyPlate food guidance system.
Courtesy of USDA.



Key Recommendations provide further guidance on how individuals can follow the five Guidelines. The *Dietary Guidelines'* Key Recommendations for healthy eating patterns should be applied in their entirety, given the interconnected relationship that each dietary component can have with others.

Key Recommendations:

Consume a healthy eating pattern that accounts for all foods and beverages within an appropriate calorie level.

A healthy eating pattern includes:[1]

- A variety of vegetables from all of the subgroups—dark green, red and orange, legumes (beans and peas), starchy, and other
- Fruits, especially whole fruits
- Grains, at least half of which are whole grains
- Fat-free or low-fat dairy, including milk, yogurt, cheese, and/or fortified soy beverages
- A variety of protein foods, including seafood, lean meats and poultry, eggs, legumes (beans and peas), and nuts, seeds, and soy products
- Oils

A healthy eating pattern limits:

- Saturated fats and *trans* fats, added sugars, and sodium

Key Recommendations that are quantitative are provided for several components of the diet that should be limited. These components are of particular public health concern in the United States, and the specified limits can help individuals achieve healthy eating patterns within calorie limits:

- Consume less than 10 percent of calories per day from added sugars[2]
- Consume less than 10 percent of calories per day from saturated fats[3]
- Consume less than 2,300 milligrams (mg) per day of sodium[4]
- If alcohol is consumed, it should be consumed in moderation—up to one drink per day for women and up to two drinks per day for men—and only by adults of legal drinking age.[5]

In tandem with the recommendations above, Americans of all ages—children, adolescents, adults, and older adults—should meet the *Physical Activity Guidelines for Americans* to help promote health and reduce the risk of chronic disease. Americans should aim to achieve and maintain a healthy body weight. The relationship between diet and physical activity contributes to calorie balance and managing body weight. As such, the *Dietary Guidelines* includes a Key Recommendation to:

- Meet the *Physical Activity Guidelines for Americans*.[6]

[1] Definitions for each food group and subgroup are provided throughout Chapter 1. Key Elements of Healthy Eating Patterns and are compiled in Appendix 3. USDA Food Patterns: Healthy U.S.-Style Eating Pattern.

[2] The recommendation to limit intake of calories from added sugars to less than 10 percent per day is a target based on food pattern modeling and national data on intakes of calories from added sugars that demonstrate the public health need to limit calories from added sugars to meet food group and nutrient needs within calorie limits. The limit on calories from added sugars is not a Tolerable Upper Intake Level (UL) set by the Institute of Medicine (IOM). For most calorie levels, there are not enough calories available after meeting food group needs to consume 10 percent of calories from added sugars and 10 percent of calories from saturated fats and still stay within calorie limits.

[3] The recommendation to limit intake of calories from saturated fats to less than 10 percent per day is a target based on evidence that replacing saturated fats with unsaturated fats is associated with reduced risk of cardiovascular disease. The limit on calories from saturated fats is not a UL set by the IOM. For most calorie levels, there are not enough calories available after meeting food group needs to consume 10 percent of calories from added sugars and 10 percent of calories from saturated fats and still stay within calorie limits.

FIGURE 2-3 Key Recommendations: Components of Healthy Eating Patterns from the USDA's *2015–2020 Dietary Guidelines for Americans*.
USDA Dietary Guidelines for Americans 2015- 2020, 8th ed., p. 15. https://health.gov/sites/default/files/2019-09/2015-2020_Dietary_Guidelines.pdf

FIGURE 2-4 Drinking adequate quantities of water is important.

for dehydration. The average adult loses about eight glasses of water a day through sweat, exhaling, and elimination. Water in adequate quantities is essential for maintaining proper body function. Natural fruit juices are another good source of fluids. It is important to keep your body hydrated while you are on duty. When you are working in a hot environment or are involved in a strenuous incident, rehydrate yourself by regularly consuming adequate amounts of water or a sports drink. It is better to prevent dehydration by drinking adequate amounts of water than it is to try to take in enough water to recover from dehydration.

Avoid consuming excessive amounts of caffeine and alcohol. Caffeine is a drug that causes adrenaline to be released in your body. Adrenaline raises your blood pressure and increases your stress level. By limiting your intake of caffeine-containing beverages such as coffee, tea, cola drinks, and energy drinks, you can reduce your tendency toward stress. Caffeine and alcohol also cause dehydration. Using tobacco products and drinking alcoholic beverages are discouraged. Although alcoholic drinks seem to relax you, they can cause depression and reduce your ability to deal with stress. Some people who drink alcohol become addicted to it. Drinking too much alcohol can end your career.

3. **Be merry.** When a person is happy, he or she generally is not experiencing an elevated level of stress. It is important to learn to balance your lifestyle. Assess both your work environment and your home environment. At work, address problems promptly before they produce major stress. When you are off duty, remember to get an adequate amount of sleep and make time for personal activities. If you are working in a volunteer agency, it is best that personnel not be on call all the time.

Other ways to prevent stress include spending time with your friends and family. In your recreational activities, include friends who are not coworkers. Develop hobbies or activities that are not related to your job. Exercise regularly. Increasing your activity, no matter what form of exercise, is a great stress reliever. Swimming, running, and bicycling are three types of excellent aerobic exercise. Meditation and religious activities also reduce stress for many people. People who can balance the pressures of work with relaxing activities at home usually enjoy life much more than people who can never leave the stories and stress of work behind. If you are feeling stress away from your job, consider seeking assistance from a mental health professional. Several resources exist, both locally and nationally, to help you and your fellow responders cope with increased stress. Stress is not a sign of weakness that suggests you can't handle the job; it is a natural human reaction and can be managed.

Safety

Because public safety services must be provided 24 hours a day, many law enforcement, fire, EMS, and security personnel work rotating shifts. Firefighters and emergency medical providers may work shifts that are 24 hours or longer with a variety of days off. Emergency responders may be required to alternate between day and night shifts.

These work schedules disrupt normal sleep patterns. In addition, many people in public safety work overtime shifts, have a second job, or commute long distances to work. This combination of factors often means that many public safety personnel do not get enough sleep.

Scientific studies have shown that most people need about 8 hours of uninterrupted sleep per night. If you are not meeting this need, your mental and physical health may suffer and you will be less able to deal with stress. In addition, the care you give to patients may be compromised. It is important to make getting enough sleep a priority in your life.

Reducing Stress

If pressures at work or home are causing you continual stress, you may benefit from the help of a mental health professional. Mental health professionals include psychologists, psychiatrists, social workers, and specifically trained clergy. They are trained to listen in a nonjudgmental way and to help you find ways to diminish your stress. You may be able to connect with a mental health professional through your department's employee assistance program. Your medical insurance usually covers this type of care. Contact your employee assistance representative if you are experiencing continuing signs or symptoms of stress.

Critical incident stress management (CISM) is a program available through some public safety departments. It consists of **preincident stress education**, **on-scene peer support**, and **critical incident stress debriefing (CISD)**:

1. Preincident stress education provides information about the stresses you will encounter and the reactions you may experience. It is designed to help you understand the normal stress responses you may experience when encountering an abnormal emergency situation.
2. On-scene peer support and disaster support services provide aid for you on the scene of especially stressful

FIGURE 2-5 A debriefing after a demanding emergency situation may be helpful in relieving stress.

incidents. Examples are major disasters or situations that involve the death of a coworker or a child.

3. CISD after a stressful emergency situation may help to alleviate the stress reactions caused by the situation. CISD is a technique in which emergency responders meet with specifically trained leaders to openly discuss feelings, fears, and reactions to the high-stress situation. CISD is not an investigation or an interrogation. These debriefings are usually held within 24 to 72 hours after a major incident. The specifically trained leaders can offer suggestions and information on overcoming stress (**FIGURE 2-5**).

Find out if your department has an employee assistance program. Contact this program's representative if you are involved in a high-stress incident such as a call that involves a very young or very old patient, a mass-casualty incident, or a situation that involves unusual violence. If you think you might be experiencing signs or symptoms of stress from such an incident, contact your supervisor or a stress counselor. More information about CISD is presented in Chapter 12, *Behavioral Emergencies*.

Crew Resource Management

Crew resource management (CRM) is, in short, a way for team members to work together with the team leader to develop and maintain a shared understanding of the emergency situation. CRM allows team members with different skill sets to collaborate and communicate, fulfill their roles and responsibilities, and achieve the shared goal of the best possible patient outcome. The concept of CRM says that each member is responsible for maintaining awareness of the current and overall patient situation and for openly sharing any critical information with the team leader. Likewise, the team leader is responsible for listening to any critical information provided by you or any other team members, and incorporating it into his or her decision making.

In the loud and often hectic environment in which EMS providers work, it is easy for errors to occur. When you believe there is an immediate or potential problem that must be brought to the attention of the team leader, use the PACE mnemonic:

- **P** **Probe.** Look or ask to confirm the problem or make sense of the situation.
- **A** **Alert.** Communicate the problem to the team leader.
- **C** **Challenge.** If the issue is not corrected, then clearly challenge the team's present course of action that is leading to the problem and suggest an alternative plan. For example, "Lieutenant, I think this additional action should be taken. Do you agree?"
- **E** **Emergency.** If the problem is clear and critical (such as an immediate safety issue), then immediately communicate the emergency to the entire team. This is used when a team member believes that there may be an imminent and serious danger.

The CRM concept does not mean you are free to ignore the chain of command. It means you are empowered to provide the team leader and other team members with immediate feedback in the event of a potential threat to patient or crew safety. It means the team, as a whole, recognizes the importance of every individual's input and that the team is committed to creating open lines of communication. CRM empowers people to speak clearly and concisely when they detect a problem or potential problem.

Workforce Safety

As an EMR, you will encounter a wide variety of hazards at emergency scenes. It is important for you to recognize these hazards and to know what steps to take to minimize the risk they pose to your patients, your partners, and yourself. This section covers common hazards you will encounter, including infectious diseases, traffic, crime and violence, crowds, electrical hazards, fire, hazardous materials, unstable objects, sharp objects, animals, environmental conditions, and special rescue situations.

Infectious Diseases

Infectious diseases are illnesses that are caused by germs such as bacteria, viruses, or fungi that can enter the body, multiply, and cause an infection. Because many infectious diseases can be spread from one person to another, it is important for you to understand how these diseases are spread in order to protect yourself, your patients, and other caregivers from contracting a disease. This knowledge will also prevent you from becoming unduly alarmed when you encounter these diseases. In recent years, methicillin-resistant *Staphylococcus aureus* (MRSA), coronavirus 2019 (COVID-19), Middle East respiratory syndrome (MERS), influenza A virus subtype H1N1, acquired immunodeficiency syndrome (AIDS), and the increasing concern about hepatitis and tuberculosis (TB) have increased awareness of infectious (communicable) diseases.

Voices OF Experience

It was the middle of the night, and we were dispatched to a domestic violence event. The scene was not secure, so we staged a mile from the scene and waited until police arrived and declared the scene secure. The wife was complaining of head and neck injuries and had been beaten pretty badly. She stated her husband had come home from a bar and started beating her. The husband was not around and could not be found, although his vehicle was still in the driveway. The wife stated that her husband ran out the door when he heard sirens coming. The neighbors had called 9-1-1 as a result of all of the yelling and noise coming from this home.

> **"It was a very scary moment—the husband had a shotgun."**

We treated the wife for her injuries. As we proceeded outside to load her into the ambulance, the husband jumped out from the backseat of his car and came toward us. It was a very scary moment—the husband had a shotgun and was waiting to shoot his wife and anyone treating her. Luckily the police were walking with us, and they were able to subdue the husband and secure his firearm.

We then proceeded to load the wife into the ambulance and left the scene heading toward the hospital. We drove down the road, stopped, and finished treating our patient with an IV and pain medication. The call could have been so much worse, but fortunately we had police on scene, and they quickly took care of the shooter and kept us safe.

Any domestic violence scene, even one that is considered secure, can change quickly and without warning. Situations occurring in the middle of the night may also contribute to questionable security. Always watch your back in any situation, as the scene could change for the worse quickly and at any time.

Julia Chamberlain, BSN, RN, Paramedic, I/C
Onondaga Fire Department
Onondaga, Michigan

Words of Wisdom

All communicable diseases are infectious, but not all infectious diseases are easily communicable. For example, *Salmonella* is an infectious bacterium that causes food poisoning, but the infection is not communicable to others. Hepatitis B is an infectious disease that is communicable to others.

Methods of Disease Transmission

The three most common routes for transmission of infectious diseases are direct contact with infectious agents, indirect contact with airborne droplets, and contact with infected blood.

Direct Contact. MRSA is an example of a disease that is spread primarily by direct contact. It is spread by direct contact with a patient's skin, contaminated clothing, or towels. MRSA infection is caused by the bacterium *Staphylococcus aureus*—often called staph. MRSA is a strain of *S aureus* that is resistant to many of the broad-spectrum antibiotics commonly used for treatment. Most MRSA infections occur in health care settings such as hospitals, dialysis centers, and nursing homes. It commonly occurs in people with weakened immune systems, where it can be fatal. However, MRSA can also occur in otherwise healthy people. In healthy people, MRSA may show up as a skin sore. As an EMR, you need to be sure you follow **standard precautions** to avoid contracting MRSA from your patients. In addition, you need to avoid sharing your towels, razors, and other personal care items. Wash your towels in hot water and dry them thoroughly.

FIGURE 2-6 An N95 HEPA respirator.

Airborne Pathogens. The group of infectious diseases that are spread primarily through indirect contact with airborne droplets includes seasonal influenza, COVID-19, TB, and severe acute respiratory syndrome (SARS). COVID-19, seasonal influenza, and TB are contagious diseases that are primarily spread by indirect contact through tiny droplets from the respiratory system. When an infected person coughs or sneezes, the infecting virus is spread through the air. These diseases can also be transmitted by indirect contact if a person touches a surface that has been contaminated with the virus.

When you encounter a patient with an airborne disease, you may need to protect yourself by donning a high-efficiency particulate air (HEPA) respirator. HEPA respirators are commonly called N95 masks because they filter out at least 95% of infectious particles (**FIGURE 2-6**). To be effective, they must be fit-tested to ensure that there is an effective seal between the mask and the health care provider's face.

The steps for donning an N95 mask are shown in **FIGURE 2-7**. When removing an N95 mask, first remove your gloves according to the steps listed in Skill Drill 2-1, and then carefully follow the steps in **FIGURE 2-8** to remove the N95 mask by touching only the straps.

To prevent an infected or potentially infected patient from infecting caregivers, you should place a surgical-type mask on the patient. This type of mask prevents droplets from being released into the air and infecting other people. It protects the people around the person wearing the mask. A surgical mask fastens around the patient's ears or around the back of the patient's head (**FIGURE 2-9**). If a surgical mask is not available, placing an oxygen mask on the patient may provide some protection to caregivers.

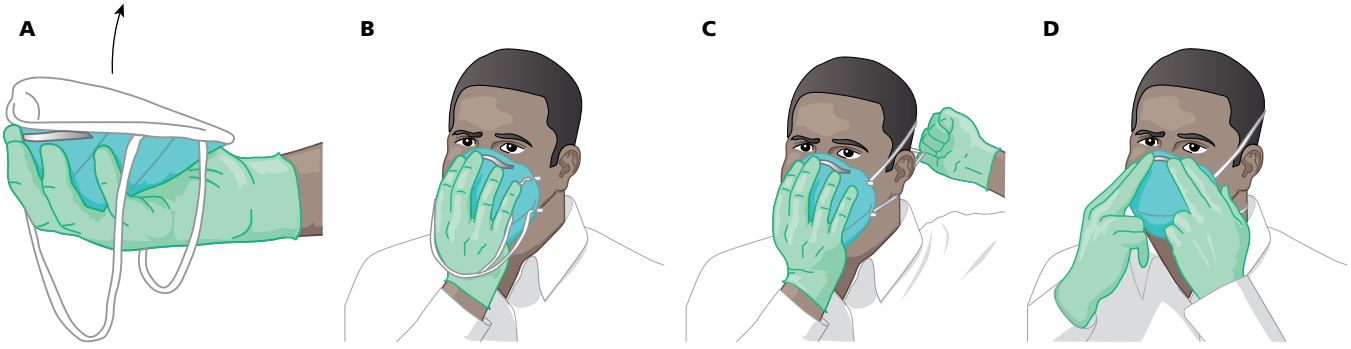


FIGURE 2-7 Steps used to don a disposable respirator. **A.** Position the respirator in your hands with the nose piece at your fingertips. **B.** Cup the respirator in your hand and hold it under your chin, allowing the bands to hang below your hand. **C.** The top strap rests at the top back of your head. The bottom strap is positioned around the neck, below the ears. **D.** Use your fingertips to mold the metal strip to the shape of your nose.

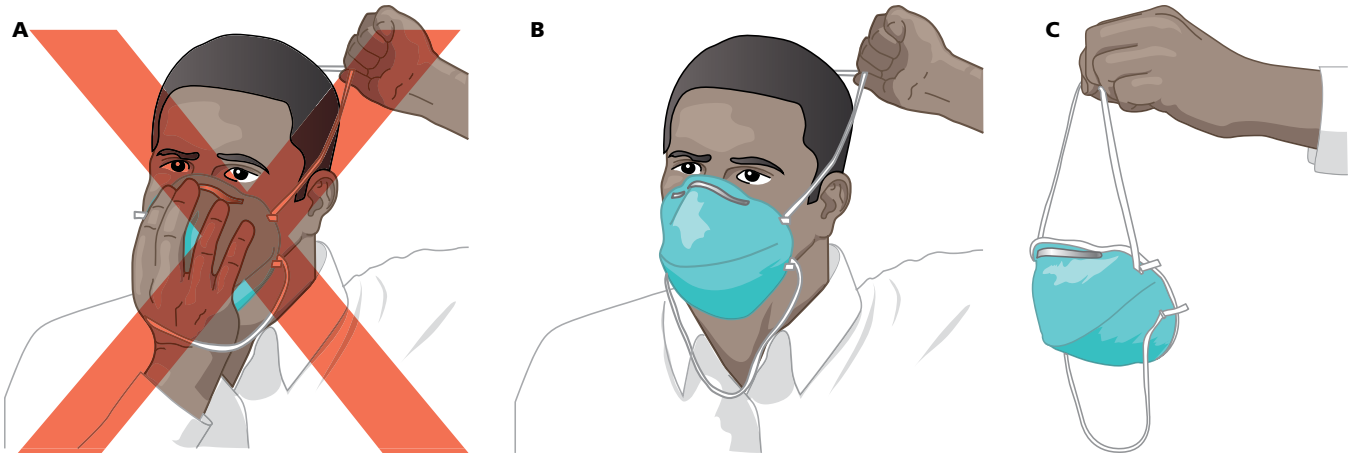


FIGURE 2-8 Steps used to doff a disposable respirator. **A.** Do not touch the front of the respirator. **B.** Remove by pulling the bottom strap over the back of your head, followed by the top strap, without touching the respirator. **C.** Discard the respirator in a waste container or in an appropriate receptacle for reprocessing, depending on local procedure, and wash your hands.

FIGURE 2-9 A surgical mask.

Bloodborne Pathogens. Bloodborne pathogens are infectious microorganisms in blood that can cause disease. The viruses that cause AIDS and hepatitis B and C are bloodborne pathogens.

Human immunodeficiency virus (HIV) is transmitted by contact with infected blood, semen, or vaginal secretions. There is no scientific documentation that the virus is transmitted by contact with sweat, saliva, tears, sputum, urine, feces, vomitus, or nasal secretions, unless these fluids contain visible signs of blood. Exposure can take place in the following ways:

- The patient's blood is splashed or sprayed into your eyes, nose, or mouth or into an open sore or cut.
- You have blood from the infected patient on your hands and then touch your own eyes, nose, mouth, or an open sore or cut.

Words of Wisdom

Coronavirus Disease 2019 (COVID-19)

COVID-19 is a respiratory illness that can spread from person to person. The virus that causes COVID-19 is a new coronavirus first identified during an investigation into an outbreak in Wuhan, China. COVID-19 spreads through respiratory droplets, the same way influenza and other respiratory diseases spread.

Symptoms of COVID-19 appear 2 to 14 days after exposure and include fever, cough, and shortness of breath. In severe cases of COVID-19, pneumonia has developed in both lungs. In a small percentage of cases, COVID-19 can be fatal.

To protect yourself from contamination with this virus, follow these suggestions:

- Wash your hands often with soap and warm water for at least 20 seconds. Use an alcohol-based hand sanitizer if soap and water are not available.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- Cover your cough or sneeze with a tissue, then throw the tissue in the trash.
- Wear a mask in public places to reduce the risk that you will pass the disease to others and to limit the risk that you will be infected if exposed to someone who has the disease.
- Practice social distancing. Maintain 6 feet between yourself and others during social interactions whenever possible.
- Avoid gatherings of large numbers of people where social distancing will be hard to maintain.
- Stay home if you are sick.
- Avoid close contact with people who are sick.
- Get a flu shot! A flu shot will not protect against COVID-19, but if you do get influenza, your symptoms will be less severe, easing the burden on health care facilities.
- Clean frequently touched surfaces and objects daily (eg, light switches, doorknobs, cabinet handles) using household cleaning products and water.
- Clean your electronic devices (eg, phones, keyboards) with approved wipes or cleaning products.
- Always follow the manufacturer's instructions for all cleaning and disinfection products.

EMRs who will directly care for a patient with possible COVID-19 infection or who will be in the compartment with the patient should follow standard precautions and use the following personal protective equipment (PPE):

- **For the EMR:**
  - Wear an N95 or a higher-level respirator or, if a respirator is not available, a face mask (**FIGURE 2-10**).
  - Wear eye protection (goggles or disposable face shield that fully covers the front and sides of the face).
  - Wear a single pair of disposable patient examination gloves.
  - Wear a disposable gown for any high-contact patient-care activities, such as patient transfer onto a stretcher.
- **For the patient:**
  - Have the patient wear a face mask to help control the source.
  - If a nasal cannula is in place, a face mask should be worn over the nasal cannula.
  - Alternatively, an oxygen mask can be used if clinically indicated.

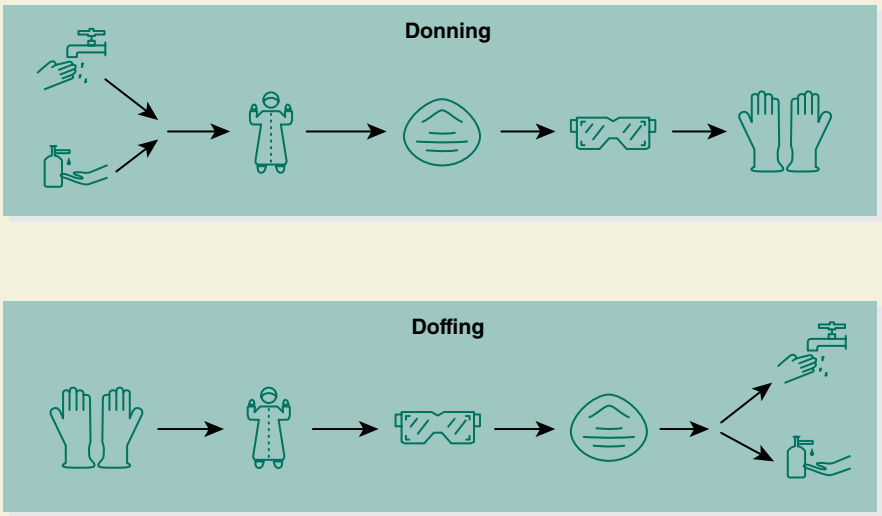


FIGURE 2-10 Personal protective equipment to protect against spread of COVID-19.

Data from National Center for Immunization and Respiratory Diseases, Division of Viral Diseases. What law enforcement personnel need to know about coronavirus disease 2019 (COVID-19). Centers for Disease Control and Prevention website. Reviewed March 12, 2020. Accessed July 6, 2020. https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-law-enforcement.htm

- A needle that was used to inject the patient breaks your skin.
- Broken glass at a motor vehicle crash or other incident that is covered with blood from an infected patient penetrates your glove and skin.

Remember that some patients who are infected with HIV do not know they are infected. Others who are infected do not show any symptoms. Therefore, the US Centers for Disease Control and Prevention (CDC) recommends that health care workers wear latex or nitrile gloves any time they are likely to come into contact with secretions or blood from any patient. Whenever you are on the job, you should also cover any open wounds you have.

Hepatitis B is also spread by direct contact with infected blood, and it is far more contagious than HIV. EMRs should follow the standard precautions described in the following section to reduce their chance of contracting hepatitis B. Check with your medical director about receiving injections of hepatitis vaccine to protect you against this infection. This vaccine should be made available to you. Meningitis and syphilis are two other diseases that can be spread by contact with contaminated blood.

YOU are the Provider CASE 2

Three days after being dispatched to the home of a teenage mother whose 4-month-old child had died, you notice your partner is not as upbeat as normal. You have also noticed that in the last 2 days your partner has stopped eating during the usual station house meals and has become irritable.

1. What may be causing the changes in your partner's behavior?
2. What can your partner do to alleviate the signs and symptoms?
3. During the initial incident, the mother repeatedly asked rescuers, "Why me?" Which stage of grief was she experiencing?

Safety

The most important step you can take to remain healthy and reduce the transmission of any disease is to wash your hands. Bacteria and viruses are picked up when you touch any contaminated surface. Examples include keyboards, doorknobs, steering wheels, telephones, head sets, and EMS equipment. Once bacteria and/or viruses are on your hands, touching your eyes, mouth, or nose with your fingers can introduce these microorganisms into your body.

Wash your hands before and after eating, before and after using the toilet, after blowing your nose or sneezing into your hands, before and after preparing food, and before and after touching a patient. After you touch something that might be contaminated, wash your hands as soon as possible. Wearing gloves does not excuse you from the need to wash your hands regularly.

Wash your hands with clean, warm, running water. Apply soap and rub your hands together to make a substantial lather. The soap does not have to be antibacterial; regular soap is sufficient. Be sure to scrub all the surfaces, working the soap between the fingers and thumbs and clearing debris from under the nails. Keep rubbing your hands together for at least 20 seconds, about the time it takes to sing "Happy Birthday!" Thoroughly rinse your hands and dry them with a paper towel. When it is not possible to wash your hands, use an alcohol-based hand sanitizer to clean your hands until you can wash them.

Standard Precautions

Federal regulations require all health care workers, including EMRs, to assume that all patients are potentially infected with pathogens that can be spread by direct contact, airborne transmission, or blood. These regulations require that all health care workers use gloves and other protective equipment to prevent possible exposure to infectious agents.

Standard Precautions for Bloodborne Pathogens. You will not always be able to tell whether a patient's body fluids contain blood. Therefore, the CDC recommends that all health care workers use the following standard precautions:

1. Always wear approved latex or nitrile gloves when handling patients, and change gloves after contact with each patient. Wash your hands with soap and water immediately after removing gloves. If soap and water are not available, a hand sanitizer can be used as a temporary cleansing agent until soap and warm water are available. Note that leather gloves are not considered safe: leather is porous and traps fluids.
2. Always wear a protective mask, eyewear, and/or a face shield when you anticipate that blood or other body fluids may splatter. Wear a gown/apron, head covering, and shoe covers if you anticipate splashes of blood or other body fluids such as those that occur with childbirth and major trauma.
3. Wash your hands and other skin surfaces immediately and thoroughly with soap and water if they become contaminated with blood and other body fluids (**FIGURE 2-11**). Change contaminated clothes and wash exposed skin thoroughly.

FIGURE 2-11 Wash your hands thoroughly with soap and water if you are contaminated with blood or other body fluids.

4. Do not recap, cut, or bend used needles. Place them directly in a puncture-resistant container designed for sharps.

Precautions for Airborne Pathogens. When caring for patients who may have respiratory diseases, you need to take additional precautions to prevent the spread of infectious droplets. The exact steps recommended by CDC and the Occupational Safety and Health Administration (OSHA) vary with specific disease outbreaks. You need to stay current with these recommendations and follow your local protocols.

Precautions to prevent the spread of airborne diseases such as influenza or COVID-19 should include the previously discussed steps and the following steps provided by the US Department of Health and Human Services in its *EMS Infectious Disease Playbook*. The steps are designed to provide protection against the inhalation of larger infectious droplets during direct patient care activities.

1. Be aware of any community-based outbreaks of influenza, COVID-19, or other epidemic disease that requires droplet precautions.
2. Assess the patient on arrival from a distance of at least 6 feet, if possible.
3. Inquire specifically about influenza, COVID-19, or other specific exposures.
4. Perform hand hygiene before and after patient care activities.
5. A disposable surgical mask should be placed on the patient if the person shows signs of respiratory illness such as coughing, sneezing, or a fever.
6. Health care providers may need to don an N95 mask to protect themselves from exposure to infected droplets.
7. For eye protection, use cleanable goggles or disposable face shields to protect the eyes, nose, and mouth during procedures that are likely to generate splashes or sprays of blood or body secretions.

Personal Protective Equipment

The standard precautions listed previously can be effective in preventing the spread of diseases only if you follow proper procedures in donning and doffing needed protective equipment. The steps for removing gloves are listed in **SKILL DRILL 2-1**.

To don infectious disease PPE, follow these steps (**FIGURE 2-12**):

1. Select gloves, mask, and eye protection to ensure that it is not torn or ripped and that it is the correct size.
2. Put on gloves.
3. Put on a mask.
4. Put on eye protection.

To doff infectious disease PPE, follow these steps:

1. Remove and discard gloves using the steps listed in Skill Drill 2-1. Take care not to contaminate your hands. Dispose of the gloves in a biohazard bag.
2. Remove eye protection. Remove by the strap and avoid touching the front surface of the eye protection. Discard in a biohazard bag or prepare for reprocessing.

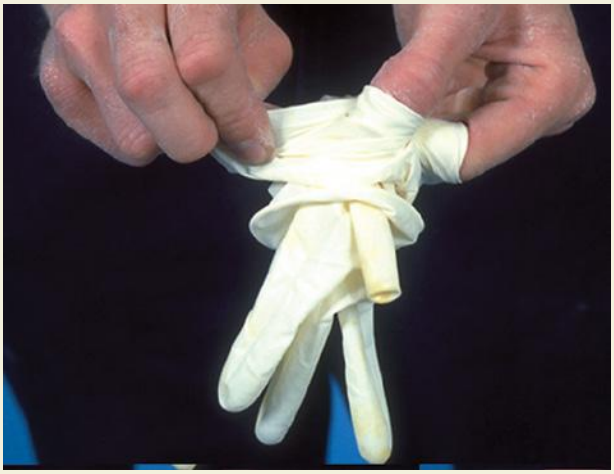
SKILL DRILL 2-1

Removing Medical Gloves

STEP 1 Begin by partially removing one glove. With the other gloved hand, pinch the first glove at the wrist, being careful to touch only the outside of the glove, and start to roll it back off the hand, inside out.

STEP 2 Remove the second glove by pinching the exterior with the partially gloved hand.

STEP 3 Pull the second glove inside out toward the fingertips.



STEP 4 Grasp both gloves with your free hand, touching only the clean interior surfaces and gently remove the gloves.

FIGURE 2-12 EMRs must wear appropriate PPE to protect themselves from infectious disease.

3. Remove the mask by tilting the head slightly forward, grasping the elastic straps, and sliding them off your ears and head. Remove the mask without touching the front fabric. Discard the mask in a biohazard bag or in a receptacle for reprocessing.
4. Perform hand hygiene by washing with soap and warm water or by using alcohol-based hand sanitizer.

Federal agencies such as CDC and OSHA, and state agencies such as state public health departments, have regulations about standard precautions. Because these regulations are constantly changing, it is important for your department to stay updated on these regulations and provide continuing education to keep you current with the latest changes related to infectious disease precautions.

Immunizations

Certain immunizations are recommended for EMS providers. These include influenza, tetanus prophylaxis, and hepatitis B vaccines. You also should check the status of your varicella (chickenpox) vaccine and your measles, mumps, and rubella (German measles) vaccines. Tuberculin testing may also be recommended. Your medical director can determine which immunizations and tests are needed for members of your department. Being properly immunized protects you from contracting these diseases from patients. In certain cases such as influenza, it also helps to protect patients from contracting influenza from you.

Safety

Flu shots are required by many health care organizations and public safety agencies. Flu shots reduce your chance of contracting influenza. In addition, by getting a flu shot, you minimize the chance that you will pass the influenza virus to your patients or family. Getting a flu shot is of benefit to you and to others.

Responding to the Scene

Scene safety is a most important consideration to you as an EMR. You must consider your safety and the safety of all the other people at the scene of an emergency. An injured or dead EMR cannot help those in need. He or she becomes someone who needs help, increasing the difficulty of a rescue. Drive safely and always fasten your seat belt when you are in your vehicle. Paying close attention to safety factors can help prevent unnecessary illness, injuries, and death.

Safety

If your clothing comes in contact with body fluid from a patient, remove the clothing as soon as possible. If body fluids have contacted you through your clothing, take a shower, washing thoroughly with hot, soapy water. Your clothing should be placed in a marked plastic bag or handled so that the body fluids are contained. Clothing should be washed as soon as possible in hot, soapy water. Always follow the protocols of your department and the CDC's most recent recommendations for these situations.

Dispatch

Safety begins when you are dispatched to an emergency. Be sure you have correct dispatch information, including the address, before you begin your response. Use your dispatch information to anticipate hazards that may be present and to determine the best way to approach the scene of the emergency.

Response

Vehicle crashes are a major cause of death and disability in law enforcement officers, firefighters, and EMS providers. As you respond to the scene of an emergency, remember the

YOU are the Provider **CASE 3**

You are sent to the home of a 76-year-old man with an unknown medical illness. You walk in and identify yourself as an EMR. You notice that the man is sweating, even though the room temperature is cool. You start your assessment. Each time he starts to answer a question, you notice that he is stopped by a productive cough. He tells you that he has had a temperature of 104°F (40°C) for a few days.

1. Which route of disease transmission are you most concerned about with this patient?
2. What precautions should you take to protect yourself when caring for this patient?
3. What steps do you need to take to protect yourself and others after caring for this patient?

safety information that you learned in your driving courses. Drive safely and always fasten your seat belt when you are in your vehicle. Your seat belt can save your life only when it is fastened. Plan the best route and drive quickly but safely to the scene. Be especially careful during periods of rain, snow, or high wind. Slow down your response to make sure you arrive safely. All emergency responders who will be driving should complete an emergency vehicle operator's course.

Safety

Simple, portable safety equipment can help prevent injuries and illnesses:

- Medical gloves, masks, and eye protection prevent the spread of infectious diseases.
- Brightly colored clothing or reflective vests make you more visible to drivers in the daytime; reflective striping or vests make you more visible in the dark.
- Heavy gloves can help prevent cuts at a motor vehicle crash scene.
- A hard hat or helmet is needed when you are at an industrial or motor vehicle crash scene.

Some situations require additional safety equipment. Do not hesitate to call for additional equipment as needed.

Parking Your Vehicle

When you arrive at the emergency scene, park your vehicle so that it protects the area from traffic hazards. Check to be sure that the emergency warning lights are operating correctly. Be careful when getting out of your vehicle, especially if you must step into a traffic area.

Federal safety standards require approved safety vests any time you are working on an active highway. These vests enhance your visibility in the daytime, and the reflective material on your safety vest helps make you more visible in the dark (**FIGURE 2-13**). If your vehicle is not needed to protect the incident scene, park it out of the way of traffic. Leave room for other arriving vehicles such as ambulances to be positioned near the patient. Above all else, make sure that you have protected the emergency scene from further incidents.

Safety

Unless your headlights are needed to light up the scene, turn them off when parked at the scene. Your headlights can blind approaching vehicles, making it difficult for the drivers to see rescue personnel walking around the scene.

Assessing the Scene

As you approach the emergency scene, scan the entire area carefully to determine what hazards are present. Consider the following hazards based on the type of emergency; address them in the most appropriate order. For example, assess the scene of a motor vehicle crash for downed electrical wires before you check for broken glass.

FIGURE 2-13 Reflective clothing helps make you more visible.

Traffic

Consider whether traffic is a problem. Sometimes the most important first step you need to take at a motor vehicle crash scene is to control traffic to prevent further collisions. If you need more help to handle traffic, call for assistance before you get out of your vehicle.

Crime or Violence

If your dispatch information leads you to believe that the incident involves violence or a crime, follow your department's protocols for approaching the scene. If you are trained in law enforcement procedures, follow your local protocols. If you are not a law enforcement official, proceed very carefully. If you have any doubts about the safety of the scene, it is better to wait at a safe distance and request help from law enforcement officers. If the scene involves a crime, remember to take a mental picture of the scene and avoid disturbing anything at the scene unless it is absolutely necessary to move objects to provide patient care.

Crowds

Crowds may range in size from a few neighbors or bystanders to a huge mass gathering at a large parade or sporting event. The mood of a crowd may range from friendly and helpful to hostile. Friendly neighborhood crowds may interfere very little with your duties. Unfriendly, unruly, or hostile crowds may require a police presence before you are able to begin assessing and treating patients. Assess the crowd's mood before you get in a position from which there is no exit. Request help from law enforcement officers before the crowd is out of control. Safety considerations may require you to wait for the arrival of police before you approach the patient.

Electrical Hazards

Electrical hazards can be present at many types of emergency scenes. Patients located inside buildings may be in contact with a wide variety of electrical hazards. These can range from a faulty extension cord in a house to high-voltage

FIGURE 2-14 **A.** *Emergency Response Guidebook*. **B.** Hazardous materials placards.
A: Courtesy of the U.S. Department of Transportation. **B:** Data from the U.S. Department of Transportation. "Table of Marketings, Labels, and Placards" from the *2020 Emergency Response Guidebook*, similar to page 8 of 2016 edition. https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/ERG2016.pdf

machinery in an industrial setting. Patients located outside may be in contact with high-voltage electrical power lines that have fallen because of a motor vehicle crash or a storm. Assess the emergency scene for any indications of electrical problems. Inside a building, look for cords, electrical wires, or electrical appliances near or in contact with the patient. When you are outside, look for damaged electrical poles and downed electrical wires. Do not approach an emergency scene if there are indications of electrical problems. Keep all other people away from the source of the hazard. Because electricity is invisible, make sure that the electrical current has been turned off by a qualified person before you get close to the source of the current. Always wear a helmet with a chin strap and face shield in situations that may involve electrical hazards. Remember, contact with a power source can result in severe injury or death.

Fire

Fire is a hazard to both you and the patient. Anytime there appears to be a fire, immediately call for fire department assistance. If you are a trained firefighter, follow rescue and firefighting procedures for your department. If you are not a trained firefighter, do not exceed the limits of your training because any attempt to rescue a person from a burning building is a high-risk undertaking. Do not enter a burning building without proper PPE, including self-contained breathing apparatus (SCBA). Recent fire research has shown that, during a fire, keeping doors and windows closed until hose streams are in place will slow the growth and spread of fire. Do not open doors and windows before the firefighters arrive. Vehicles that have been involved in collisions also may present a fire hazard from fuel or other spilled fluids. Keep all ignition sources such as cigarettes and road flares away. Carefully assess the fire hazard before you determine your course of action.

Hazardous Materials

Hazardous materials (hazmat) may be found almost anywhere. Motor vehicle crashes with large trucks may involve hazardous materials. Hazardous materials may also be found in homes, businesses, and industries. Federal regulations require vehicles that are transporting a certain quantity of hazardous materials to be marked with specific placards (**FIGURE 2-14**). Be aware that small quantities of certain hazardous materials may be transported without displaying placards. If you believe that a crash may involve hazardous materials, stop uphill and upwind at some distance from the crash. Then determine whether the vehicle is marked with a placard. A pair of binoculars in the life support kit is helpful for this. The placard indicates the class of material being transported. You should carry an *Emergency Response Guidebook* to assist you in determining the hazard involved and follow

your department protocols. Also note the presence of leaking fluids. The presence of odors or fumes may be the first indication of hazardous materials located in buildings. If you believe that a hazardous material is present, call for assistance from the agency that handles hazardous materials in your community. Remain far away from any suspected hazardous materials incident so you do not become an additional casualty. (See Chapter 20, *Vehicle Extrication and Special Rescue*, for more information on handling hazardous materials incidents.)

Unstable Objects

Unstable objects may include vehicles, trees, poles, buildings, cliffs, and piles of materials. Motor vehicle collisions, wind storms, ice storms, explosions, fires, building collapses, and earthquakes may result in unstable objects. After a crash, a motor vehicle may be located in an unstable position. You may need to stabilize the vehicle before you assess the patient or begin patient extrication. Do not attempt to enter or get under an unstable vehicle. Motor vehicle collisions may result in other unstable objects, including trees or poles that were hit in the collision. Fires and explosions can result in unstable buildings. Assess a building for stability before attempting to enter it. If you are in doubt about the safety of the building, follow your local protocols and call for trained personnel rather than attempting to enter an unsafe building alone.

Safety

Other hazards after a motor vehicle crash include undeployed airbags and the high-voltage batteries found in hybrid or electric vehicles. Rescuers need to be careful around these hazards as they stabilize a vehicle. These topics are covered more fully in Chapter 20, *Vehicle Extrication and Special Rescue*.

Sharp Objects

Sharp objects are frequently present at an emergency scene. These objects range from broken glass at the scene of a motor vehicle crash to hypodermic needles in the pocket of an intravenous drug user. Being aware of sharp objects can reduce the chance of injury to you and to your patients. Latex and nitrile medical gloves can help prevent the spread of disease from blood contamination, but they provide no protection against sharp objects. When glass or other sharp objects are present, wear heavy leather or firefighting gloves over your medical gloves to prevent injuries.

Safety

After working at a scene that involves potential infectious exposure, you should clean and disinfect your equipment. Cleaning refers to the removal of dirt, dust, blood, or other visible contaminants. Disinfection requires special chemicals that kill pathogenic agents when applied directly to a surface. Disposable equipment and supplies should be disposed of in a manner that prevents contamination of other objects. Follow your local protocols and the latest recommendations of the CDC and OSHA. It is also important to complete the appropriate documentation of the exposure.

Animals

Animals, whether they are house pets, farm stock, or wild, are found indoors and outdoors. Pets can become very upset in the confusion of a medical emergency. When you need to enter a house to take care of a patient, be sure excited pets have been secured in another part of the house away from the patient. People often travel with their pets, so pets can be part of the scene of a motor vehicle crash. Service dogs may be possessive of their owners. Farm animals, too, can be a safety hazard; be careful when entering a field that may contain livestock. Animals may present hazards such as bites, kicking, or even trampling. Careful assessment of the incident scene can prevent unnecessary injuries.

Environmental Conditions

Weather cannot be changed or controlled; therefore, you should consider the effect weather will have on rescue operations. Dress appropriately for the expected weather and be prepared for precipitation and temperature extremes for you and your patients. Be alert for possible damage from high winds. Keep your patients dry and comfortable. Darkness makes it hard to see all the hazards that may be present, so use any emergency lighting that is available. A bright flashlight is a valuable tool in many rescue situations.

Special Rescue Situations

Special safety considerations are required in situations involving water rescue, ice rescue, confined space or below-grade rescue, terrorism, and mass-casualty incidents. These situations are covered in Chapter 20, *Vehicle Extrication and Special Rescue*. Do not enter an emergency situation that is unsafe unless you have the proper training and equipment.

YOU are the Provider — CASE 4

You and your partner are returning to headquarters after lunch when dispatch sends you to the scene of a rented box truck that has rolled over. Injuries are reported, but dispatch is unable to tell you the extent of the injuries or the number of people involved. As you pull up to the scene, you spot a hazardous materials placard.

1. Where should you park your vehicle?
2. What other issues should you consider before leaving your vehicle?
3. Why is your safety a concern?

YOU are the Provider SUMMARY

You are the Provider: CASE 1

1. Why do you think crew members had different reactions to the events of the past week?

Calls that involve young children, older adults, or people your own age may be more difficult for many people. Because young children are not able to take care of themselves, these calls may be more stressful. Older patients may remind you of your parents, neighbors, or grandparents. Calls that involve someone your age may remind you of your own vulnerability. Certain calls will be more difficult for some team members than for others because each of us has different life experiences.

2. Which types of calls would be most stressful for you?

It is sometimes helpful to consider which types of calls may be most stressful for you. By engaging in this type of self-reflection, you may be able to reduce your stress on these calls. Talking about your concern with a close friend or supervisor may also be helpful.

3. What changes should you consider to reduce your stress level?

Consider your current lifestyle and the stressors in your life. Evaluate your diet, your type and amount of fluid intake, the amount and type of exercise you get, the quality and quantity of sleep you get, and how you deal with the stressors at work and away from work. Then consider how to make changes to reduce your stress level and improve your health.

You are the Provider: CASE 2

1. What may be causing the changes in your partner's behavior?

Your partner may be showing signs of job-related stress in connection with the emergency call that involved the death of an infant. Calls involving children are among the most stressful for many people. Among the signs of postevent stress problems are irritability directed at coworkers, family, and friends; a change in the person's normal disposition; and possibly a loss of appetite.

2. What can your partner do to alleviate the signs and symptoms?

There are many methods of handling stress, but it is important to first recognize the signs of job-related stress. EMS personnel experiencing stress also need to maintain proper nutrition when the body's resources are strained. Finally, EMS providers experiencing postevent stress should consider contacting their supervisor or their employee assistance program representative for help.

3. During the initial incident, the mother repeatedly asked rescuers, "Why me?" Which stage of grief was she experiencing?

The mother may have been in the second stage of the five stages of grief, which is anger. The other stages are denial, bargaining, depression, and acceptance.

You are the Provider: CASE 3

1. Which route of disease transmission are you most concerned about with this patient?

The primary means by which this patient could infect others is through airborne droplets of infected secretions. If this patient is coughing up secretions, you need to avoid contact with these also.

2. What precautions should you take to protect yourself when caring for this patient?

By placing a mask on this patient, you may prevent the spread of infectious airborne droplets. However, if the patient is coughing up secretions, this may not be a good option. A second option is for you and the other caregivers to put on masks. You should don gloves and consider donning gowns if available. It also might be helpful to supply the patient with tissues to cover his mouth when coughing.

3. What steps do you need to take to protect yourself and others after caring for this patient?

After caring for this patient, it is important to dispose of your masks, gloves, gowns, and any other objects that may have come in contact with the patient's airborne droplets or secretions. You need to learn your agency's policy for disposing of potentially infected materials. Do not forget to thoroughly wash your hands. Consider changing your uniform if it has come in contact with any infected secretions.

You are the Provider: CASE 4

1. Where should you park your vehicle?

The vehicle should be parked to protect the area from traffic hazards. However, because the truck is displaying a hazardous materials placard, you need to consider additional risks. The placard indicates the types of materials that may be carried on the truck. Before approaching the vehicle, check your *Emergency Response Guidebook* to determine the type of hazardous materials that may be involved. You should try to park your vehicle uphill and upwind from the crash site. Follow your local protocols.

YOU are the Provider SUMMARY

2. What other issues should you consider before leaving your vehicle?

Motor vehicle crashes present many potential hazards for EMRs. Broken glass presents an injury risk to rescuers. Likewise, leaking fluids and fumes from hazardous materials can also be considered potential hazards.

3. Why is your safety a concern?

An injured or dead EMR will not be able to help people in need. Furthermore, an injured EMR adds to the number of victims, increasing the difficulty of the situation for the other EMRs.

Prep Kit

Ready for Review

- EMRs should understand the role that stress plays in the lives of emergency care providers and patients who have experienced a sudden illness or injury. Stress is a normal part of an EMR's life.
- The five stages of the grieving process following different kinds of loss, including death and dying, are denial, anger, bargaining, depression, and acceptance. Patients and rescue personnel may experience some or all of these stages. People experience these stages in different orders and at different rates.
- Stress management consists of recognizing, preventing, and reducing critical incident stress.
- According to the concept of crew resource management, each member is responsible for maintaining awareness of the current patient situation and sharing any critical information with the team leader.
- Scene safety is an important part of your job. You should understand how airborne and bloodborne diseases are spread and how standard precautions prevent the spread of infection. You should also know the steps you can take to protect yourself from infectious diseases.
- As you arrive on the scene of a motor vehicle crash or illness, you must assess the scene for a wide variety of hazards. Potential hazards include traffic, crime, crowds, unstable objects, sharp objects, electrical problems, fire, hazardous materials, animals, environmental conditions, special rescue situations, and infectious disease exposure. You should understand the safety equipment and precautions needed for the various types of rescue situations.

Vital Vocabulary

crew resource management (CRM) A set of procedures for use in environments where human error can have disastrous consequences. It empowers people within a team to communicate effectively with one another with a goal of improving team situational awareness, patient and crew safety, and overall communication.

critical incident stress debriefing (CISD) A system of psychological support designed to reduce stress on emergency personnel after a major stress-producing incident.

critical incident stress management (CISM) A process that confronts the responses to critical incidents and defuses them, directing the emergency services personnel toward physical and emotional equilibrium.

on-scene peer support Stress counselors at the scene of stressful incidents who help emergency personnel deal with stress.

pathogens Microorganisms that are capable of causing disease.

preincident stress education Training about stress and stress reactions conducted for public safety personnel before they are exposed to stressful situations.

standard precautions An infection control concept that treats all body fluids as potentially infectious.

Assessment IN ACTION

You and your partner are dispatched to a motor vehicle crash on a secondary country road. When you arrive at the scene, you see a car sitting in the roadway with the driver's door open. A man is kneeling beside a 17-year-old boy who is lying in the road. A crumpled bicycle is positioned about 50 feet (15 m) from them. You note that the teenager is wearing a helmet. He is bleeding from a scrape on his forearm, and he complains of pain from his left leg, which is bent at an abnormal angle.

1. Which of the following hazards should you be most concerned about when attempting to help the patients?

   A. Vehicle instability
   B. Downed electrical lines
   C. Broken glass
   D. Uncontrolled traffic

2. What is another hazard you will need to consider when caring for these patients when arriving at the scene of a motor vehicle crash?

   A. Airborne pathogens
   B. Environmental conditions
   C. Bloodborne pathogens
   D. Traffic

3. Because the patient is bleeding, what are the minimum standard precautions you should take?

   A. Handwashing and a mask
   B. Gloves
   C. Shoe covers and a gown
   D. Leather gloves

4. All of the following are signs and symptoms of job-related stress EXCEPT:

   A. irritability.
   B. difficulty sleeping.
   C. alcohol or drug misuse or abuse.
   D. working too hard.

5. A stress-reducing diet includes all of the following EXCEPT:

   A. fruits.
   B. vegetables.
   C. low-fat milk, yogurt, and cheese.
   D. fried fast foods.

6. What PPE would you incorporate into your care of these patients?

7. How stressful do you think this call would be for you?

8. What should you do if your clothing comes in contact with body fluid from a patient?

9. What are some of the emotional aspects that could affect an EMR's reaction to this call?

10. If, on arrival, you find the patient is trapped by the car, what additional resources would you need to call?

CHAPTER 3

Lifting and Moving Patients

National EMS Education Standard Competencies

Preparatory

Uses simple knowledge of the EMS system, safety/well-being of the EMR, and medical/legal issues at the scene of an emergency while awaiting a higher level of care.

Workforce Safety and Wellness

- Standard safety precautions (p 40)
- Personal protective equipment (Chapter 2, *Workforce Safety and Wellness*)
- Stress management (Chapter 2, *Workforce Safety and Wellness*)
  - Dealing with death and dying (Chapter 2, *Workforce Safety and Wellness*)
- Prevention of response-related injuries (pp 40–41)
- Lifting and moving patients (pp 41–62)

EMS Operations

Knowledge of operational roles and responsibilities to ensure safe patient, public, and personnel safety

Knowledge Objectives

1. Describe the general guidelines for moving patients. (p 40)
2. Explain the purpose and indications for use of the recovery position. (pp 40–41)
3. Discuss the components of good body mechanics. (p 41)
4. Explain how emergency medical responders should decide when emergency movement of a patient is necessary. (p 41)
5. Describe the purpose of each of the following pieces of equipment:
   - Wheeled ambulance stretcher (pp 48–49)
   - Portable stretcher (p 49)
   - Stair chair (p 49)
   - Long backboard (p 50)
   - Short backboard (p 52)
   - Scoop stretcher (p 52)

Skills Objectives

1. Demonstrate the components of good body mechanics. (pp 46–47) (Skill Drill 3-1)
2. Demonstrate proper use of immobilization devices. (pp 52–53) (Skill Drill 3-2)
3. Demonstrate the steps needed to perform the following emergency patient drags:
   - Clothes drag (p 42)
   - Blanket drag (p 42)
   - Arm-to-arm drag (p 42)
   - Firefighter drag (pp 42–43)
   - Emergency drag from a vehicle (p 43)
4. Demonstrate the steps needed to perform the following carries for nonambulatory patients:
   - Two-person extremity carry (p 44)
   - Two-person seat carry (p 44)
   - Cradle-in-arms carry (p 44)
   - Two-person chair carry (p 44)
   - Pack-strap carry (p 44)
   - Direct ground lift (pp 44–45)
   - Transfer from a bed to a stretcher (p 46)
5. Demonstrate the steps needed to perform the following walking assists for ambulatory patients:
   - One-person walking assist (p 48)
   - Two-person walking assist (p 48)
6. Demonstrate the steps in each of the following procedures for patients with suspected spinal injuries:
   - Applying a cervical collar (p 53)
   - Moving the patient using a long backboard (p 54)
   - Assisting with a short backboard device (p 55; pp 55–56) (Skill Drill 3-3)
   - Log rolling (pp 56–57) (Skill Drill 3-4)
   - Straddle lifting (p 57)
   - Straddle sliding (pp 57–58)
   - Strapping (pp 58–59)
   - Immobilizing the patient's head (pp 59–61) (Skill Drills 3-5 and 3-6)

Introduction

As an emergency medical responder (EMR), you must analyze a situation, quickly evaluate a patient's condition (under stressful circumstances and often by yourself), and carry out effective, life-saving emergency medical procedures. These procedures sometimes include lifting, moving, or positioning patients as well as assisting other emergency medical services (EMS) providers in moving patients and preparing them for transport.

Usually, you will not have to move patients. In most situations, you can treat the patient in the position found and later assist other EMS personnel in moving the patient. However, in some cases, the patient's survival may depend on your knowledge of emergency movement techniques. You may have to move patients for their own protection (for example, to remove a patient from a burning building), or you may have to move patients before you can provide needed emergency care (for example, to administer cardiopulmonary resuscitation [CPR] to a patient in cardiac arrest who was found in a bathroom). You can perform some of the techniques presented in this chapter with no equipment, whereas other techniques require simple objects that are often available at emergency scenes. With other techniques, you can assist other EMS providers in using the specialized equipment they bring to the emergency scene.

General Principles

Every time you move a patient, keep the following general guidelines in mind:

1. Do no further harm to the patient.
2. Move the patient only when necessary.
3. Move the patient as few times as possible.
4. Move the patient's body as a unit.
5. Use proper lifting and moving techniques to ensure your own safety.
6. Have one rescuer give commands when moving a patient (usually the rescuer at the patient's head).

Also consider the following recommendations:

- Delay moving the patient, if possible, until additional EMS personnel arrive.
- Treat the patient before moving him or her unless the patient is in an unsafe environment.
- Try not to step over the patient (your shoes may drop sand, dirt, or mud onto the patient or you might fall onto the patient).
- Explain to the patient what you are going to do and how. If the patient's condition permits, he or she may be able to assist you.

Unless you must move patients for treatment or protection, leave them in the position in which you found them. There is usually no reason to hurry the moving process. If you suspect the patient has sustained trauma to the head or spine, keep the patient's head and spine immobilized so he or she does not move (discussed later in the chapter).

Safety

Whatever technique you use for moving patients, keep these rules of good body mechanics in mind:

1. Know your own physical limitations and capabilities. Do not try to lift too heavy a load.
2. Keep yourself balanced when lifting or moving a patient.
3. Maintain a firm footing.
4. Lift and lower the patient by bending your legs, not your back. Maintain the natural curve of your spine; do not bend at the waist. Use your large leg muscles to do the work.
5. Try to keep your arms close to your body for strength and balance.
6. Move the patient as few times as possible.

Recovery Position

Place unconscious patients who have not sustained suspected trauma in the side-lying **recovery position** to help keep the airway open (**FIGURE 3-1**). The recovery position also allows secretions to drain from the mouth. The indications for the use of the recovery position are discussed in greater detail in other chapters.

FIGURE 3-1 A patient in the recovery position.

YOU are the Provider — CASE 1

At 1023 hours you and your partner are dispatched to a large discount supermarket for the report of a 74-year-old woman who has slipped and fallen after stepping on some grapes in the produce department. As you assess the patient, she tells you she has some tenderness in her right leg. Her right wrist is noticeably deformed and painful. You also note she has a large abrasion and some swelling on her forehead. The nearest ambulance is 8 to 10 minutes away.

1. Under what circumstances would it be necessary to move this patient before the EMS transport unit arrives?
2. Why is it often better for EMRs to delay moving a patient until the arrival of an EMS transport unit?

Body Mechanics

Your top priority is to ensure your own safety. Improperly lifting or moving a patient can result in injury to you or to the patient. By exercising good body mechanics, you reduce the possibility of injuring yourself. **FIGURE 3-2** shows how to lift using good body mechanics.

Safety

Don't forget to breathe out when lifting!

Good body mechanics means using the strength of the large muscles in your legs to lift patients instead of using your back muscles. This practice prevents strains and injuries to weaker muscles, especially in your back. Get as close to the patient as possible so that your back is in a straight and upright position, and maintain the natural curve of your spine as you lift. Do not lift when your back is bent over a patient. Lift without twisting your body. Keep your feet in a secure position and be sure you have a firm footing before you start to lift or move a patient.

To lift safely, keep certain guidelines in mind. Before attempting to move a patient, assess the weight of the patient. Know your physical limitations, and do not attempt to lift or move a patient who is too heavy for you to handle safely. Call for additional personnel if needed for your safety and the safety of the patient. Discuss the route of travel prior to lifting. Because you will sometimes need to assist other EMS providers, practice with them so that lifts are handled in a coordinated and helpful manner.

As you lift, make sure you communicate with the other members of the lifting team. Failure to give clear commands or failure to lift at the same time can result in serious injuries to both rescuers and patients. You can never practice too much; perfect your lifts and moves until they become smooth for you and your partner and for the patient.

Emergency Movement of Patients

How do you decide when emergency movement of a patient is necessary? Immediately move a patient in the following situations:

- Danger of fire, explosion, or structural collapse exists.
- Hazardous materials are present.
- The emergency scene cannot be protected.
- It is otherwise impossible to gain access to other patients who need life-saving care.
- The patient has experienced cardiac arrest and must be moved so you can begin CPR.

FIGURE 3-2 Use good body mechanics when lifting a patient. **A.** Keep your head and neck in proper alignment with your spine, maintain the natural curve of your spine, and do not bend at the waist. **B.** Keep your feet shoulder width apart to maintain your balance. Keep the patient who is being lifted close to your body. Use the muscles in your legs to lift. Avoid twisting your body when carrying a patient.

Emergency Drags

If the patient is lying on the floor or ground during an emergency situation, you may have to drag the person away from the scene instead of trying to lift and carry the patient. Make every effort to pull the patient in the direction of the long axis of the body to protect the spine as much as possible.

Clothes Drag

The **clothes drag** is the simplest way to move the patient in an emergency (**FIGURE 3-3**). If the patient is too heavy for you to lift and carry, grasp the patient's clothing in the neck and shoulder area, rest the patient's head on your arms for protection, and drag the patient out of danger.

Cardiac Patients and the Clothes Drag. In most situations, you can easily determine whether emergency movement is necessary. Cases involving patients in cardiac arrest are the exception. Patients in cardiac arrest are often found in a bathroom or small bedroom. You will have to judge whether basic life support (BLS) or advanced life support (ALS) can be adequately provided in that space. If the room is not large enough, move the patient as soon as you have determined he or she has experienced cardiac arrest.

Drag the patient from the tight space to a larger room (such as a living or dining room) that has space to perform CPR and ALS procedures (**FIGURE 3-4**). Quickly move furniture out of the way so you and other EMS personnel have room to work. You will be able to provide care with increased efficiency, which will more than make up for the time it took to move the patient. Quickly make adequate room before you begin CPR!

Words of Wisdom

To eliminate distractions at the scene, take a second to turn off any televisions or audio devices. Emergency scenes are calmer and less stressful when you are not competing against a loud television program or music to be heard.

FIGURE 3-3 Clothes drag.

Blanket Drag

If the patient is not dressed or is dressed in clothing that could tear easily during the clothes drag (for example, a nightgown), move the patient by using a large sheet, blanket, or rug (**blanket drag**). Place the sheet, blanket, rug, or similar item on the floor and roll the patient onto it. Pull the patient to safety by dragging the sheet or blanket. You can also use the blanket drag to move a patient who weighs more than you do (**FIGURE 3-5**).

Arm-to-Arm Drag

If the patient is on the floor, you can place your hands under the patient's armpits from the back of the patient and grasp the patient's forearms. The **arm-to-arm drag** allows you to move the patient by carrying the weight of the upper part of the patient's body as the lower trunk and legs drag on the floor (**FIGURE 3-6**). This drag enables you to move a heavy patient and it offers some protection for the patient's head and neck.

Firefighter Drag

The **firefighter drag** enables you to move a patient who is heavier than you are because you do not have to lift or carry the patient. Tie the patient's wrists together with any material

FIGURE 3-4 Remove the patient from a tight space to administer CPR.

FIGURE 3-5 Blanket drag.