Chapter 1 EMS Systems

Unit Summary

After students complete this chapter and the related course work, they will understand the origins and present-day structure of emergency medical care delivery systems. The paramedic’s roles and responsibilities and his or her relationship to the emergency medical services (EMS) system are explained, as well as the paramedic’s role in the quality-improvement process. Other EMS provider levels are described. The foundations necessary for being a competent, effective, caring, and ethical paramedic are presented. The interrelationships of the National Highway Traffic Safety Administration’s components of the EMS system are outlined. Also described is the paramedic’s impact on research, data collection, and evidence-based decision making, as well as the paramedic’s responsibilities as a student and a practitioner.

National EMS Education Standard Competencies

Preparatory

Integrates comprehensive knowledge of the EMS system, safety/well-being of the paramedic, and medical/legal and ethical issues, which is intended to improve the health of EMS personnel, patients, and the community.

Emergency Medical Services (EMS) Systems

• EMS systems (p 5)

• History of EMS (pp 5-6)

• Roles/responsibilities/professionalism of EMS personnel (pp 15-19)

• Quality improvement (pp 19-21)

• Patient safety (p 18)

Research

• Impact of research on emergency medical responder (EMR) care (p 21)

• Data collection (pp 22-23)

• Evidence-based decision making (p 25)

• Research principles to interpret literature and advocate evidence-based practice (pp 24-25)

Knowledge Objectives

1. List key developments in the history of EMS. (pp 5-8)
2. List the five main types of services that provide emergency care. (p 10)
3. Discuss the processes of licensure and certification. (pp 8-9)
4. Define reciprocity, and explain its relevance to the practice of emergency care. (pp 9-10)
5. Discuss the role of the National Scope of Practice and the *National EMS Education Standards* as they relate to the levels of EMS education. (pp 10-12)
6. Discuss the critical points, required components, and system elements of EMS. (p 7)
7. Describe the levels of EMS education in terms of skill sets needed for each of the following: EMR, EMT, AEMT, and paramedic. (pp 11-12)
8. Describe various types of transports the paramedic may perform, including transports to specialty centers and interfacility transports. (p 13)
9. Discuss the paramedic’s role in working with other health care providers and public safety agencies. (pp 13-14)
10. Discuss initial paramedic education and the importance of continuing education. (pp 12-13)
11. Describe the attributes that a paramedic is expected to possess. (pp 15-17)
12. Describe the roles and responsibilities of the paramedic. (pp 17-19)
13. Discuss issues relating to the appropriate method of transport, as well as nontransport situations. (pp 13, 18)
14. Describe how medical direction of an EMS system works and the paramedic’s role in the process. (p 19)
15. Characterize the EMS system’s role in prevention and public education in the community. (pp 16, 18-19, 23)
16. Discuss the purpose of the EMS continuous quality improvement (CQI) process. (pp 19-21)
17. Discuss examples of how errors can be prevented when providing EMS care. (p 21)
18. Discuss the importance of medical research and its role in refining EMS practices. (pp 21-22)
19. Define peer-reviewed literature, and describe how this relates to a practicing paramedic. (p 24)
20. List and define types of research and subtypes within each category. (pp 22-23)
21. Discuss ethical considerations relating to conducting medical research. (pp 23-24)
22. Discuss evidence-based medicine and how to incorporate this concept into everyday paramedic practice. (p 25)

Skills Objectives

There are no skills objectives for this chapter.

Readings and Preparation

• Review all instructional materials including Chapter 1 of *Nancy Caroline’s Emergency Care in the Streets*, Seventh Edition, and all related presentation support materials.

• Review local EMS system certification/licensing policies. Include an overview of the local EMS system when discussing components.

Support Materials

• Lecture PowerPoint presentation

• Case Study PowerPoint presentation

• Slides/overheads of local EMS delivery system organization

• Any written materials pertaining to:

* Course requirements, grading, institutional policies, etc.
* Local or state EMS agency requirements or certification/registration
* Local paramedic treatment guidelines or protocols
* Local skill evaluation tools

Enhancements

• Direct students to visit the companion website to *Nancy Caroline’s Emergency Care in the Streets*, Seventh Edition, at http://www.paramedic.emszone.com for online activities.

• Contact the local EMS agency for a guest speaker to present an overview of the local/regional system.

• Contact the public safety access point (PSAP) communication center to arrange a tour and presentation of the emergency services access system.

• Provide information about EMS publications (bring in samples) and membership in various local, state, and national EMS professional organizations.

**Content connections:** There remains some variation from state to state on the scope of paramedic practice, as well as training and recertification requirements. Encourage students to regularly review the scope of practice in your state. This will enable them to determine their role on the scene without losing valuable time.

**Cultural considerations:**  Culture is not restricted to different nationalities. Also consider age, disability, gender, sexual orientation, marital status, work experience, and education. In focusing on work experience and education, ask students to list examples of the skills each level of provider should be able to accomplish.

Teaching Tips

• This is your first contact with your students in this course. It is essential that you model the behavior expected of your students during the course, including professional demeanor, respectfulness, appropriate grooming, and punctuality.

• It is important to carefully consider the impact of your presentation on your students, especially in the first few class sessions. The seriousness of becoming a paramedic must be emphasized.

• Consider an icebreaker activity for your first session, such as student introductions.

• Be sure you are familiar with local requirements for initial certification and recertification, including continuing education and/or refresher courses.

• This is your first opportunity to present to your students a clear picture of what being a paramedic is and is not. Many students expect that their work will involve nonstop lifesaving.

• Discuss the realities of EMS with your students in a positive manner, and continue to reinforce this point throughout the course.

Unit Activities

**Writing activities:** Assign each student a research paper on the history of modern EMS.

**Student presentations:** Have each student give a brief presentation explaining his or her reason for taking the paramedic course and what his or her expectations are of the course.

**Group activities:** Form groups and ask each group to describe a component of the EMS system.

**Medical terminology review:** Ask each student to describe the four levels of paramedic training.

PreLecture

### You are the Provider

“You are the Provider” is a progressive case study that encourages critical-thinking skills.

### Instructor Directions

Direct students to read the “You Are the Provider” scenario found throughout chapter 1.

• You may wish to assign students to a partner or a group. Direct them to review the discussion questions at the end of the scenario and prepare a response to each question. Facilitate a class dialogue centered on the discussion questions and the Patient Care Report.

• You may also use this as an individual activity and ask students to turn in their comments on a separate piece of paper.

Lecture

I. Introduction

A. The emergency medical services (EMS) system is always evolving.

1. Originally, their primary role was transportation.

2. Since then, society’s expectations have changed significantly.

3. As a paramedic, you will encounter many different situations, including:

a. Caring for basic needs, such as listening

b. Assessing and treating life-threatening conditions

4. The public’s perception of you is based on:

a. What they have seen on television or read in articles

b. Your treatment of their loved ones

5. Continued education is a must.

a. What you learn today may not be the same expectation tomorrow.

6. Treat all people with respect and dignity.

a. Remember they may be in the worst situation of their lives.

II. EMS System Development

A. The history of EMS

1. 1485, Siege of Malaga: First use of an ambulance

a. No medical care provided, simply a transport

2. 1800s: Napoleon designated a vehicle and attendant to care for battlefield injuries

3. 1860: First recorded use of a medic/ambulance combination in the United States

4. 1865: First civilian ambulance used at the Commercial Hospital in Cincinnati, Ohio

5. 1869: First ambulance service started at the Bellevue Hospital in New York City

6. 1899: First operated automobile-type ambulance used at the Michael Reese Hospital in Chicago, Illinois

7. A major shift occurred between WWI and WWII.

a. Many hospital-based ambulance services shut down from lack of manpower.

8. 1926: The Phoenix fire department started service similar to present-day EMS.

9. 1928: Julien Stanley Wise launched the first rescue squad in Roanoke, Virginia.

10. 1940s: EMS was turned over to fire and police departments due to lack of personnel.

a. No minimum standard of training was set.

b. Care was not always welcomed.

B. The 20th Century and modern technology

1. EMS made major strides following WWII.

2. Military medical researchers recognized bringing the hospital to the field gave patients a better chance of survival.

a. Helicopters were first used in 1951 during the Korean War.

i. Brought patients to Mobile Army Surgical Hospitals (M\*A\*S\*H units)

ii. Helped thousands survive

3. 1956: Mouth-to-mouth resuscitation was developed by Drs. Elan and Safar.

a. The portable defibrillator was also developed by Johns Hopkins Hospital around this time.

4. Late 1950s/early 1960s

a. Focus moved back to bringing the hospital to the patient

b. Mobile intensive care units (MICUs) were developed.

i. Staffed by specially trained physicians

ii. Shortage of physicians led to training of nonphysicians

5. 1965: National Academy of Science and the National Research Council released “The White Paper”

a. Also called “Accidental Death and Disability: The Neglected Disease of Modern Society”

b. Findings included:

i. A lack of uniform laws and standards

ii. Ambulances and equipment were of poor quality.

iii. Lack of communication between EMS and hospitals

iv. Lack of personnel training

v. Hospitals only had part-time staff.

vi. More people died in motor vehicle accidents than the Vietnam War.

6. Findings outlined 10 critical points for a functioning system

a. Led to the National Highway Safety Act

i. Instituted in 1966

ii. Act created US Department of Transportation (US DOT)

(a). US DOT provided authority and finances for the development of life support programs.

7. 1968: Task Force of the Committee of EMS created basic training standards and 9-1-1.

a. Refer to Table 1 for the critical points, required components, and system elements of EMS developed as a result of “The White Paper.”

8. 1969: Dr. Eugene Nagel of Miami, Florida, created the first true paramedic programs.

a. Trained fire fighters with advanced emergency skills

b. Developed a telemetry system

i. Fire fighters transmitted patients’ electrocardiograms to physicians.

ii. Received medical instructions from physicians

c. Often called the Father of Paramedicine

d. Standards for ambulance design and equipment were published this year.

9. 1970s

a. More helicopters became available.

b. National Registry of Emergency Medical Technicians (NREMT) began

10. 1971

a. *Emergency Care and Transportation of the Sick and Injured*

i. First EMT textbook

ii. Published by the American Academy of Orthopaedic Surgeons (AAOS)

b. AAOS began training EMTs through a national workshop

c. *Emergency*, the first television program focused on EMS, began an 8-year run.

11. 1973: Emergency Medical Services System Act

a. Defined 15 required components of an EMS system

i. Refer to Table 1.

b. Emphasis on regional development and trauma care

c. Provided a structure and uniformity to the EMS system that came out of pioneering programs in Miami, Seattle, and Pittsburgh, and the Illinois Trauma System (Dr. David Boyd)

12. 1974

a. Federal report disclosed fewer than half of ambulance personnel completed training

b. Guidelines published for development and implementation of EMS systems

13. 1975

a. American Medical Association recognized emergency medicine as its own branch

b. Many cities set up individual advanced EMS training

14. 1977: First National Standard Curriculum for Paramedics developed by US DOT

a. First paramedic curriculum was based on Nancy Caroline’s work.

15. 1980s/1990s

a. Number of trained personnel grew

b. The National Highway Traffic Safety Administration (NHTSA) developed 10 system elements to help sustain EMS system.

i. Refer to Table 1.

c. Federal funding and staff for EMS cut

d. Responsibility for EMS transferred to the states

e. Funding continues to be a major roadblock for states and local governments.

f. Major legislative initiatives:

i. EMS for Children (EMS-C) program implemented in 1984

ii. Amendment to the Public Safety Ofﬁcers Beneﬁt Act in 1986

(a) Families of Fire and EMS providers are now compensated if a provider is killed in line of duty.

g. Trauma systems started making headway in the 1990s.

i. Some of these secondary programs received federal funding.

ii. Some advances are held back due to lack of funding.

III. Licensure, Certification, and Registration

A. A certiﬁcation examination is used to ensure that all health care providers have the same basic level of knowledge and skill.

1. Once you pass certification, you are eligible to apply for state licensure.

B. Licensure is how states control who is allowed to practice as a health care provider.

1. Depending on the state, may be known as *licensure*, *certification*, or *credentialing*

a. This text uses the term *licensure*.

2. Performing functions as a paramedic before licensure is unlawful.

a. Must be directly supervised by a paramedic program internship preceptor as a part of your training program

3. Holding a license:

a. Shows you completed initial education

b. Shows you met the requirements to achieve the license

c. Does not mean you can perform as a paramedic without the supervision of your service’s physician medical director

4. State, local, and national agencies require that paramedics receive medical direction.

a. Direction can be online or off-line.

C. You may be required to be registered as well as licensed.

1. Registration means that a recognized board of registration holds your:

a. Education records

b. State or local licensure

c. Recertification

2. Some states require that paramedics graduate from an accredited paramedic program.

a. The Committee on Accreditation of Educational Programs for EMS Professions (CoAEMSP) is the only accrediting agency for paramedic programs.

i. Their mission is to continuously improve the quality of EMS education through accreditation and recognition services.

D. Reciprocity

1. Each state has different licensing or certification requirements and procedures.

2. Reciprocity: when certification is granted to a provider from another state or agency.

a. More than 40 states recognize National Registry certification as part of their reciprocity process.

b. For reciprocity, most states require you:

i. Hold a current state certification.

ii. Are in good standing

iii. Have National Registry certification

c. Individual states may require you to:

i. Undergo the state’s written and/or practical evaluations.

ii. Provide your education transcript and continuing education hours.

iii. Provide information for a background check.

iv. Pay a fee to process your reciprocity application and provide a license.

IV. The EMS System

A. The EMS system is a complex network of coordinated services that provides various levels of care to the community.

1. These services work in unison to meet the needs of the community.

2. Service types include:

a. Fire based

b. Third service (municipalities)

c. Private (for-profit and nonprofit)

d. Hospital-based

e. Hybrid or other

3. The EMS system begins with citizen involvement.

a. The public needs to be taught how to:

i. Recognize what is an emergency and what is not.

ii. Activate the EMS system.

iii. Provide basic care before EMS arrives.

b. The public usually does not have medical training or knowledge.

i. A simple cut may be an emergency to them.

ii. Do not become angry if a patient calls for a nonemergency.

iii. Instead, use nonemergency situations to educate the public on what is an emergency.

4. Factors that play a role in determining the outcome or likelihood of your patient’s survival include:

a. Bystander care

b. Dispatch (including prearrival directions)

c. Response (both mode and distance)

d. Prehospital care provided (level of EMS-trained personnel)

e. Transportation (ground ambulances, critical care units, air transport)

f. Emergency department care (on-duty trained emergency physicians and staff)

g. Deﬁnitive care (including trauma, pediatric, and neurologic specialists)

h. Rehabilitation

5. The public’s first contact is usually a dispatcher.

a. Requirements for dispatcher training vary greatly from state to state.

i. They often have to cover police and fire communications as well.

b. Dispatchers must:

i. Interpret the caller’s needs.

ii. Determine if it is an emergency.

iii. Decide what resources need to be sent.

c. The scene may be different from what was relayed by the dispatcher.

i. Dispatch is only able to provide information from what is told to them.

ii. Never under- or overestimate that information.

6. As a paramedic you must:

a. Develop a care plan.

b. Decide on the appropriate transport method.

c. Determine the appropriate receiving facility.

d. Be active in your community to stay on top of the best local resources.

e. Ask yourself:

i. “Does the receiving facility have the resources needed for this patient?”

ii. If not, “Is there an appropriate facility within a reasonable distance?”

f. In some regions, competent adult patients may be able to request a certain facility.

V. Levels of Education

A. The EMS system functions from a federal to a local level.

1. Federal level

a. NHTSA created the National EMS Scope of Practice Model

i. Provides overarching guidelines as to what skills each level of EMS provider should be able to accomplish

2. State level

a. Licensure is a state function.

b. Laws regulate how EMS operators providers will operate.

c. Licensure controlled by state-level EMS administrative offices

3. Local level

a. Local medical director decides the day-to-day limits of EMS, such as:

i. What medications will be carried on the ambulance

ii. Where patients are transported

4. The national guidelines are intended to create more consistent delivery of EMS across the country.

a. Medical director can only allow a paramedic to perform a skill if the state has approved performance of that skill

i. Medical director can limit the scope of practice

ii. Expanding the scope of practice requires state approval.

5. 2009: The National Standard Curricula for all levels was revised to the *National EMS Education Standards*.

a. NHTSA is the federal administrative source.

b. Covers four levels of EMS providers

c. Can be downloaded at http://www.ems.gov.

6. NREMT provides a national standard for testing and certification.

a. Many states use the National Registry testing process for licensing and grant reciprocity to NREMT-certified personnel.

b. However, remember that EMS is regulated entirely by the state in which you are licensed.

B. The dispatcher

1. Pays a critical role. He or she must:

a. Receive and enter all information on the call.

b. Interpret the information.

c. Relay it to the appropriate resources.

2. In some locations a dispatcher may be trained as an emergency medical dispatcher (EMD).

3. Beyond regular dispatcher duties, an EMD has the added task of giving simple prearrival instructions (i.e., CPR, bleeding control) to a caller.

a. Goal is to benefit patient until EMS personnel arrive

C. Emergency medical responder (EMR)

1. Until recently known as the “first responder”

2. Not all states have this as a certification and/or licensing level.

a. Considerable variation between requirements and allowed skills depending on the state

3. An EMR is usually trained in CPR and/or first aid.

4. You should familiarize yourself with the level of training of the EMRs in your system.

5. EMRs should be able to:

a. Recognize the seriousness of a patient’s condition.

b. Administer appropriate basic care.

c. Relay information to the paramedic.

6. EMRs are an essential level of provider to the EMS system, especially in rural areas.

D. EMT

1. Formerly called EMT-Basic (EMT-B)

2. Backbone and primary provider level in many EMS systems

3. Providers must be EMT-certified before entering a paramedic education program.

a. Much lifesaving care is provided by EMTs.

4. In some states, EMTs may be trained in:

a. Advanced airway intervention

b. Limited medication administrations

c. Intravenous (IV) fluid therapy

5. Even if they have an expanded scope of practice, EMTs are not recognized with a different certification level per the national standards.

6. More providers are trained and certified at this level than at any other level in the EMS system.

E. Advanced EMT (AEMT)

1. Formerly called EMT-Intermediate (EMT-I)

2. Initially developed in 1985

a. Major revision took place in 1999

b. Recent changes to National Scope of Practice replace EMT-I with AEMT level.

3. Trained in:

a. More advanced pathophysiology

b. Some advanced procedures, such as:

i. Establishing IV access

ii. Administering IV fluids

iii. Performing blood glucose monitoring

iv. Performing some advanced airway management

F. Paramedic

1. Highest EMS level to be certified or licensed at the national level

a. Major revisions to the curriculum in 1998 increased level of training and skills greatly.

b. To test through NREMT, a paramedic student must have attended an accredited institution.

i. States that do not employ NREMT may not require institutions be accredited.

2. Even if you hold a license or are certified independently, states still require paramedics to:

a. Function directly under the guidance of a licensed physician

b. Be affiliated with a paramedic-level service

VI. Paramedic Education

A. Initial education

1. Most states base paramedic education programs on the *National EMS Education Standards*.

a. As part of the 2009 revisions to the standards, inclusion of a college-level anatomy and physiology course was recommended as part of the training program.

b. The standards outline the minimum of what a paramedic must know to practice.

c. States require varying hours of education.

i. National average falls between 1,000 and 1,500 hours of combined classroom, clinical, and field education.

ii. Some levels want to structure paramedic education so it is achieved through an accredited associate or bachelor’s degree program.

B. Continuing education

1. Most states require paramedics show proof of hours spent in continuing education or refresher programs.

a. Keeps you up to date on new research findings and new techniques and skills

b. Helps prevent degradation of skills used less frequently

c. Showcases current issues in your state that affect you and your system’s ability to provide quality emergency medical care

2. Attend conferences and seminars whenever possible.

a. Ideally, some should be outside of your region and/or state.

b. Attending conferences targeted to nurses or physicians can be useful.

3. Keep up with reading EMS journals.

a. Make sure Internet-based continuing education programs meet your state or national requirements.

4. Get everyone in your service involved in postrun critiques.

a. May help identify problem areas in your practice

b. Can be considered a form of continuing education in some states

5. Responsibility for continuing education ultimately rests with each individual paramedic

a. You know which areas of your knowledge have diminished.

b. Continuing education helps ensure problems do not occur in the field.

c. “Along with the privilege of being a paramedic comes a responsibility to continually educate and train oneself. You would expect no less from someone responding to you or your family.” —Dr. Rob Puls, DC, CCEMT-P

VII. Additional Types of Transports

A. Transport to specialty centers

1. Many EMS systems include specialty centers focusing on specific types of care or specific types of patients.

a. Examples: Trauma, burns, poisoning, psychiatric conditions; pediatric patients

2. Specialty centers require in-house staffs of surgeons and other specialists.

a. Other facilities must page surgeons, specialists, etc. from outside the hospital.

b. Typically, only a few specialty hospitals are in a region.

3. Transport time to a specialty center may be slightly longer than the time to an emergency department, but patients will receive definitive care more quickly.

4. Know the location of the centers in your area and the protocol for transporting a patient directly to one.

a. Sometimes air medical transport will be necessary.

b. Local, regional, and state protocols will guide your decision.

B. Interfacility transports

1. Used for nonambulatory patients or patients with acute and chronic medical conditions requiring medical monitoring

2. May include transferring patients to and from:

a. Hospitals

b. Skilled nursing facilities

c. Board and care homes

d. Home residence

3. The patient’s health and well-being is your responsibility during ambulance transportation.

4. You should obtain the patient’s:

a. Medical history

b. Chief complaint

c. Latest vital signs

i. You should also provide ongoing patient assessment.

5. Depending on protocol, a nurse, physician, respiratory therapist, or medical team may accompany the patient.

a. Especially if the care needed extends beyond the scope of paramedic practice

VIII. Working With Other Professionals

A. Working with hospital staff

1. Become familiar with the hospital by observing:

a. Hospital equipment and how it is used

b. The functions of staff members

c. The policies and procedures in all emergency areas of the hospital

2. You may consult with appropriate medical staff by using the radio through established medical control procedures.

3. Through these experiences, you will become more comfortable:

a. Using medical terms

b. Interpreting patient signs and symptoms

c. Developing patient management skills

4. The best patient care occurs when all emergency care providers have close rapport.

B. Working with public safety agencies

1. Some public safety personnel have EMS training and are better prepared than you to perform certain functions. For example:

a. Employees of a utility company can better control downed power lines.

b. Law enforcement personnel are better able to handle violent scenes and traffic control.

2. The best, most efficient patient care is achieved through cooperation between agencies.

C. Continuity of care

1. The community has expectations of EMS providers.

a. You must project confidence to the community you serve.

2. If you are in the public sector, encourage people in the community to become involved in your service to some level.

3. Focus on prevention.

a. Take a look at your community and the most frequent type of calls.

b. Develop prevention strategies or activities to reduce those calls.

i. Accidental falls: Training programs available to identify causes of falls, visit homes to offer suggestions for prevention

4. You will work side by side with other professional groups:

a. Other medical professionals

b. Law enforcement

c. Emergency management and disaster services

d. Home health groups

i. Hospice

e. Emergency responders

5. It is vital that you understand your role and the roles of those with whom you interact

a. Be prepared for different situations, and establish expectations for each role.

D. National EMS group involvement

1. Many national and state organizations exist and invite paramedic membership.

a. Have an impact on the future of EMS

b. Provide access to valuable resources for developing:

i. Yourself

ii. Your service area

iii. Your problem-solving skills

c. Promote uniformity of EMS standards and practices

d. Refer to Table 2 for a list of some of these organizations.

E. Professionalism

1. Profession: A field of endeavor that requires a specialized set of knowledge, skills, and expertise

a. Often gained after lengthy education

2. Health care professional:

a. Conforms to the same standards of other health care professions

b. Provides quality patient care

c. Instills pride in the profession

d. Strives continuously for high standards

e. Earns respect from others in the profession

f. Meets high societal expectations of the profession whether on or off duty

3. As a paramedic, you will be measured by:

a. Standards, competencies, and continuing education requirements

b. Performance parameters

c. Code of ethics

4. It is imperative that you remember you are in a highly visible role in your community.

a. Professional image and behavior must always be a top priority.

b. You represent the agency, city, county, district, or state you work in.

c. It is said people make an initial judgment within 10 seconds of meeting you.

5. To provide the best possible care, you must:

a. Instill confidence.

b. Establish and maintain credibility.

c. Continually show concern for the well-being of your patients and their families

6. Your appearance is of utmost importance and has more impact than you may think.

a. Do not arrive at a call in dirty clothes, with dirty hands, or smelling offensively.

b. Look and act like a professional at all times.

7. You must present a professional image and treat others in the profession with the respect you would want to be treated with.

8. It is inappropriate to argue with other health care providers or hospital staff.

a. You are a patient advocate, but raise patient care issues professionally at appropriate times and locations.

b. Differences of opinion should be addressed by contacting a supervisor.

i. These conversations may identify different practices by branches other than EMS due to different expectations or requirements.

9. Attributes of professionalism include:

a. Integrity

i. The single most important attribute

ii. Be open, honest, and truthful with your patients.

b. Empathy

i. Show your patients, their families, and other health care professionals that you identified and understand their feelings.

ii. Okay to show emotions to some extent

c. Self-motivation

i. Have an internal drive for excellence

ii. Continuously educate yourself.

iii. Accept negative or constructive feedback.

iv. Perform with minimal supervision.

d. Confidence

i. Show you are confident in your skills and abilities.

ii. Strive to be the best paramedic you can.

iii. Build confidence by attending educational sessions and performing self-critiques.

e. Communications

i. Express and exchange ideas, thoughts, and findings with colleagues.

ii. Listen well.

iii. Speak directly, and do not use confusing medical terms.

iv. Clear, professional written documentation is important.

v. Record keeping and reporting is your responsibility.

f. Teamwork and respect

i. Everyone must work together to provide the best possible prehospital care and ensure the overall well-being of your patient.

ii. The paramedic is often the team leader.

iii. Never undermine your team, but help guide and support them.

iv. Remain flexible and open to change.

v. Communicate at the appropriate place and time with other team members to resolve problems.

g. Patient advocacy

i. Always act in the best interests of the patient.

ii. Respect his or her wishes and beliefs, regardless of your own.

iii. Never allow your personal feelings to affect the care you provide.

iv. Maintain a high level of confidentiality.

v. Be on the lookout for spousal abuse, child abuse or neglect, and elder abuse or neglect.

vi. Communicate your findings to the appropriate authorities.

h. Injury prevention

i. If you spot a potential hazard in the patient’s surroundings, diplomatically talk about it with the patient or a family member.

ii. Encourage use of bike helmets, safety belts, and child car seats whenever you can.

i. Careful delivery of service

i. Deliver the highest-quality patient care.

ii. Pay careful attention to detail.

iii. Continuously evaluate and reevaluate your performance.

iv. Use other medical professionals as resources.

v. Follow policies, protocols, procedures, and the orders of your superiors.

j. Time management

i. Prioritize your patient’s needs.

ii. Keep your ambulance always ready to go.

iii. Document each emergency call as soon as it has concluded.

k. Administration

i. You may be asked to take on special projects or station duties.

ii. You may play a role in working with other agencies and forging partnerships with other public safety resources.

10. More health care locations are using paramedic services within their organizations.

a. Hospital emergency departments and clinics

b. Physician offices

c. Local public health departments

d. Services include:

i. Administering vaccines

ii. Serving as home health nurses

iii. Performing special transports

IX. Roles and Responsibilities

A. Refer to Figure 10 to learn some of your primary responsibilities. These include:

1. Preparation:

a. Be prepared physically, mentally, and emotionally.

b. Keep up your knowledge and skill abilities.

c. Have the appropriate equipment for your call.

i. Make sure it is in good working order.

2. Response:

a. Respond to an event in a timely, safe manner.

b. Never run “hot” without regard to the safety of yourself, your partner, your patient, and other persons on the highway.

3. Scene management

a. Ensuring your own safety and the team’s safety is the first priority.

b. You must also ensure the patient’s safety and the safety of any bystanders.

c. Prior to the scene, consider all possibilities from the dispatch information.

d. Scene safety includes but is not limited to use of personal protective equipment:

i. Gloves

ii. Masks

iii. Goggles

e. The paramedic often sets the example for safety to the EMS team.

4. Patient assessment and care

a. Recognize and prioritize the patient’s needs on the basis of the:

i. Injuries sustained

ii. Illness that most urgently needs treatment

5. Management and disposition

a. Sometimes you will discover that protocols or guidelines might not cover the situation you are in.

i. Make radio contact with medical director.

ii. Use critical thinking skills.

b. If you are unable to make contact with your medical director:

i. Weigh your decisions closely before any intervention.

ii. Communicate with your medical director as soon as possible.

c. Be aware of other transport and destination decisions beyond transport to an emergency department.

i. Carbon monoxide poisoning: a hospital with a hyperbaric chamber

ii. Know the capabilities of all receiving facilities with which you may interact before a call.

6. Patient transfer and report

a. Once you arrive at the receiving facility:

i. Continue to act as a patient advocate.

ii. Give the appropriate facility staff a brief, concise hand-off report.

iii. Use discretion to protect your patient’s privacy.

7. Documentation

a. After you transfer the patient it is extremely important that a patient care report be filled out ASAP.

b. The report serves as a legal record of what you did in the field.

8. Return to service

a. Every person on the EMS team is responsible for restocking and preparing the unit as quickly as possible.

b. Serious legal consequences can result if another call comes in and the team is not ready to respond.

B. Never miss an opportunity to teach the community about prevention of injury and illness.

1. Explain to people how to appropriately use your services.

2. In areas where trained EMS staff are few and far between, promote programs that get the public involved in CPR training.

a. CPR training is one of the major determinants of whether or not a person in cardiac arrest will survive.

3. In some regions, paramedics may be responsible for working in clinics, free-standing emergency facilities, and hospitals.

a. Home visits by paramedics under medical control are being considered.

4. For influenza and possible pandemic issues, paramedics are now being used to:

a. Evaluate people at home.

b. Provide some immunization and medication administration.

5. Set out a well-thought campaign for EMS.

a. Research your community.

b. Look at strengths and weaknesses of the system.

c. Develop initiatives to improve the system.

6. Involve yourself in your community to educate the media and public, and advocate for EMS.

a. Continue your education.

b. Become a mentor for new EMS professionals.

X. Medical Direction

A. Paramedics carry out advanced cardiology and pharmacology skills.

1. They cannot act independently.

2. They must take direction from a medical director.

a. Medical directors are physicians who are educated about the levels and the extent of the education of EMS personnel.

B. EMS medical directors may:

1. Educate and train personnel.

2. Recommend or select new personnel or equipment.

3. Develop clinical protocols or guidelines with other EMS experts.

4. Develop or assist with a quality-improvement program.

5. Provide input into patient care.

6. Interface between EMS systems and other health care agencies.

7. Serve as an EMS advocate to the community.

8. Serve as the “medical conscience” of the EMS system.

9. Provide online and off-line medical control.

a. Online medical control: given in real time by radio or electronic communication

b. Off-line medical control: given through a set of protocols, policies, and/or standards

c. Online medical control:

i. Provides immediate and specific patient care resources

ii. Allows telemetry transmission

iii. Allows for continuous quality improvement

iv. Can render on-scene assistance

d. Offline medical control allows for the development of:

i. Protocols or guidelines

ii. Standing orders

iii. Procedures

iv. Training

e. Protocol or guideline: A treatment plan for a specific illness or injury

f. Standing order:

i. Type of protocol or guideline that is a written document signed by the EMS system’s medical director

ii. Outlines specific directions, permissions, and sometimes prohibitions regarding patient care

iii. Rendered prior to contacting medical control

(a) Example: Defibrillation

iv. Developed in conjunction with national standards

(a) Example: American Heart Association advanced cardiac life support algorithms are used as a protocol for cardiac patients.

v. Dictates what type of equipment and supplies are to be used

vi. Dictates minimum expectations of personnel

10. Perform or help with patient care report reviews.

XI. Improving System Quality

A. Continuous quality improvement (CQI)

1. Tool used to continually evaluate your care

2. Quality control: Another process that evaluates problems and finds solutions

3. CQI is a process of assessing current practices and looking for ways to improve

a. Reduces the chance problems will arise

4. CQI is a dynamic process.

a. Your EMS system should develop a structure before a CQI assessment program is launched.

5. A good CQI should include a way to:

a. Identify any departmental or system-wide issues.

b. Identify specific items that should be measured.

c. Conduct an in-depth review of the issue(s).

d. Evaluate the issue(s), and come up with possible solutions.

e. Develop an action plan for correction.

f. Enforce the action plan, and include time frames.

g. Reexamine the issue.

h. Identify and promote excellence found in patient care during the evaluation.

i. Identify modifications needed to protocols and standing orders.

j. Identify additional protocols or standing orders needed.

B. Whenever possible, all ambulance runs should be reviewed.

1. The focus of CQI should be improving patient care.

2. Use your CQI process as a constructive tool for continuous improvement.

a. Not a punitive tool

C. CQI can be in the form of a peer review.

1. A good learning experience if proper and consistent guidelines exist and you keep an open mind

2. Everyone makes mistakes from time to time.

a. Peer recommendations for improvement should be educational tools.

3. In an ideal situation, members of the peer review team rotate.

4. Always be professional, and make this a constructive process.

D. A CQI program can help to prevent problems by evaluating day-to-day operations and identifying possible stress points, including:

1. Medical direction issues

2. Education

3. Communications

4. Prehospital treatment

5. Transportation issues

6. Financial issues

7. Receiving facility review

8. Dispatch

9. Public information and education

10. Disaster planning

11. Mutual aid

E. Look for ways to eliminate human error.

1. Ensure adequate lighting when handling medications.

2. Limit interruptions.

3. Keep medications in a specific location and in their original packaging.

4. Handing patients off is a high-risk activity.

a. You must deal with physical transfer and communication with the next caregiver.

b. Provide a written and verbal report of the patient’s care and any changes that occurred.

c. Many states require documentation be left with the patient.

d. Other safety issues involve:

i. Advanced airway management

ii. Medication administration

iii. Safe transport of patients with potential traumatic injuries

5. Three main sources of errors:

a. Rules-based failure (example: legal right to administer medication)

b. Knowledge-based failure (example: knowing all pertinent information about a medication)

c. Skills-based failure (example: proper use of equipment)

d. Any combination of these

6. Agencies need clear protocols that are understood by everyone in the service.

7. The environment can be a reason for errors.

a. Limit distractions.

b. Ensure you can find what you need in a timely manner.

c. Make sure drugs and equipment are labeled and organized.

8. When performing a skill, ask yourself, “Why am I doing this?”

a. Allows you to reflect and make informed decisions

b. If you cannot come up with a solution, ask for help from:

i. Your partner

ii. Medical control

iii. Your EMS supervisor

9. Use “cheat sheets.”

a. Carry a copy of your protocol book.

b. Use reference books or reliable Internet resources.

10. Be conscientious of protocols, and do not allow interruptions when providing care.

a. Use downtime to refresh skills you do not commonly use.

b. Use decision-making aids to reflect on what has been done as an informal critique.

c. Talk with your supervisor or partner after a troublesome call.

XII. EMS Research

A. Like the rest of the medical field, EMS has been drawn toward evidence-based practice.

1. Protocols should be based on scientific findings.

2. The Department of Transportation National EMS Research Agenda is developing processes and setting goals to optimize prehospital care.

3. Historically, EMS operations have been standardized and not evidence-based.

B. Research should be performed by properly educated researchers, typically those with a PhD or MD degree.

C. There has been an increase in the number of higher education centers that provide an EMS track for students.

1. Students can enter as a trained paramedic with a bachelor’s degree.

2. These institutes also produce high-quality research.

D. The research process

1. Identify the specific problem, procedure, or question to be investigated.

a. Generally, a topic arises when a practice is questioned.

b. Topics can be revisited even if they have been researched before.

i. A new process may identify flaws or enhance findings.

2. Once the question is determined, develop a research agenda by specifying:

a. Questions to be answered

b. Methods to gather data

3. Additional questions may result from the study, but the researcher must stick to the research agenda.

a. Other questions may become topics in a separate study.

4. Once a question has been decided, the researcher must determine the research domain.

a. Research domain: The area of research

b. Domains include:

i. Clinical (example: stroke research involving clinical trials that would lead to improved patient care)

ii. Systems or operations (example: the effects of 24-hour shifts on patient care)

iii. Education or how programs are taught (example: a study of the components that make up high-performing paramedic programs)

5. Research consortium: Group of agencies working together to study a topic

a. Paramedics may gather and report data within the study’s parameters.

E. Funding

1. Researchers should use an institutional review board (IRB) when a project begins.

a. An IRB is a group or institution that reviews research.

2. All research requires funding.

a. Large clinical trials or systems research can be expensive.

3. Funding can come from:

a. Local or federal government

b. Nonprofit foundation grants

c. Industry or corporate funding

4. Studies must go through an evaluation process to ensure they will answer a question in the domain covered by the grant.

a. The methods and results are subject to stipulations placed on them by the grantor.

5. Any type of support given to a research is considered funding.

a. Free lab space

b. Travel

c. Assistants to help with the research

6. To prevent bias or conflicts of interest, researchers must:

a. Disclose all sources of funding and support.

b. Maintain total transparency regarding research methods.

F. Types of research

1. The type of research that will yield the best results depends on the topic and what the researcher wants to learn.

2. Qualitative research

a. Focuses on questions within surrounding events and concurrent processes

b. Attempts to build a more complete picture

c. Takes into account real-world factors that may have influenced the study

d. Often used when answers cannot be identified in quantitative research

i. Usually involves the interpretation of previously published data and making a statement of the findings

e. Investigates the why and how of decision making

i. Not just what, where, and when

f. No set guidelines

i. Each study must have parameters specific to the question.

g. Makes up the majority of medical research

3. Quantitative research

a. Based on numeric data

b. Three types:

i. Experimental research

(a) Scientific approach

(b) Researcher controls, manipulates, and measures variables to determine how manipulating variables affects subjects.

(c) Concerned with cause-and-effect relationships

ii. Nonexperimental research

(a) Descriptive research

(b) Does not use patients and manipulating variables

(c) Example: for pain management studies data would be gathered through interviewing and watching vital signs

iii. Survey research

(a) Conclusions based on survey results

(b) Researchers must identify what is being measured and determine the appropriate sample size.

(c) Sample populations must reflect the composition of the population being researched.

4. Retrospective research

a. Examines available data to determine the types of calls that required transport and areas in which the department can improve

i. Examples: medical records or patient care reports

b. May be used to:

i. Develop educational sessions for EMS personnel.

ii. Plan public education and public prevention strategies.

c. Researchers may need to collaborate with a hospital or group of hospitals in gathering data.

i. To comply with laws such as the Healthcare Insurance Portability and Accountability Act (HIPAA), patient information may have to be deleted.

d. In large studies, data is often collected from widespread patient databases.

i. Links EMS, hospitals, and posthospitalization providers

ii. Allows for a broad picture of the patient population in question

iii. Typically overseen by a centralized agency

e. Techniques used by large studies to gather and analyzed data can be used at the local level.

i. Data from various hospitals and EMS agencies can be entered into a centralized database that can then be used to study specific patient populations.

ii. For accurate results, there must be clear-cut guidelines for data entry.

5. Prospective research

a. Gathers information as events occur in real time

6. Cohort research

a. Examines patterns of change, a sequence of events, or trends over time within a certain population

7. Case study

a. Investigation and documentation of a single case over a period of time

8. Cross-sectional design

a. “Snapshot” of all data at one point in time

9. Longitudinal design

a. Collects information at various set time intervals

10. Prospective studies must have a longitudinal data gathering method.

a. Retrospective, cohort, or case study research can use either a cross-sectional or longitudinal data collection technique.

11. Literature review

a. Analyzes existing literature to draw a conclusion

G. Research methods

1. The first step in research is to identify the group(s) necessary for the research.

a. Groups may be refined further (for example, by age or medical condition).

2. Once eligible subjects are identified, researchers randomly select who will be involved in the research.

3. There are many ways to select subjects to be part of the research.

a. Systematic sampling: When a group of research subjects or groups is computer generated

b. Alternative time frame sampling: Time frame parameters can be set.

c. Convenience sampling

i. Subjects are manually assigned to a specific researcher.

ii. Not random

iii. Least preferred method

4. Parameters should be identified.

a. Outline the type of people who are appropriate for the study.

5. Studies can be blinded or unblinded.

a. Blinded: Subjects are not told the specifics of the project.

i. Studies may be single-, double-, or triple-blinded.

b. Unblinded: Participants are advised of all aspects of the project.

6. Gathered research statistics can be in a descriptive or inferential format.

a. Descriptive: Observations are made, but no attempts are made to alter or change an event.

b. Inferential: A hypothesis is used to prove one finding over another.

c. Descriptive statistics can be performed in a qualitative or quantitative style.

i. The quantitative approach covers additional variables, such as the mean, median, and mode.

7. Standard deviation outlines how much the scores in each set differ from the mean.

H. Ethical considerations

1. The IRB monitors whether a study is conducted ethically.

a. Ensures the protection of study participants

b. Ensures appropriate conduct.

2. Benefits must outweigh risks.

3. All subjects must give consent and be certain their rights and welfare will be protected.

4. Potential conflicts of interest must be identified.

5. Subjects must participate voluntarily.

6. Subjects must be informed of all potential risks involved and be free to withdraw.

7. At minimum, subjects should be advised they are protected by the Office of Human Research Protection.

a. The Food and Drug Administration also offers guidance for researchers on a variety of topic areas.

8. To ensure accurate research, the potential for subject withdrawal or other variables that may affect the outcome should be identified before the study begins.

9. Potential participants in a clinical domain research trial must be informed about the study protocols prior to participating.

I. Evaluating medical research

1. When evaluating an article, look for certain criteria to determine the research quality.

a. Refer to Table 3 for the questions you should answer.

2. When you review research, read every part of it, including the indexes.

3. Consider the type of journal in which the research is published when determining quality and validity.

4. One method for ensuring quality is through peer review.

a. Peer review: Studies are sent to subject matter experts for review of the content and research methods prior to publication.

b. The research and its conclusions are accepted, revised, or rejected based on the findings of the peer review.

c. Allows for greater checks and balances to ensure quality

5. Internet sites can be valid tools for accessing research, including:

a. Google Scholar

b. Medscape

c. PubMed

6. Research studies must follow a structured process.

a. Will define exactly what it is intended to be measured, the population affected, and the goal of the research

7. There will always be limitations to what can be measured and how accurate measurements can be.

a. If your review of a research article reveals that some people backed out, died, or were omitted for any reason not originally anticipated or outlined, the research is likely flawed.

J. Evidence-based practice

1. Becoming an integral part of functioning as an EMS provider

2. Patient care should be focused on the procedures that have proven useful in improving patient outcomes through sound research.

a. As EMS research continues, evidence-based practice will have a correspondingly greater role in EMS.

3. EMS providers should stay up to date on the latest advances in health care.

a. For example, every 3 to 5 years, the AHA releases revised guidelines based on large amounts of evidence.

b. When reading new research results, make sure you understand what they mean.

i. Ask questions, and conduct some of your own research.

ii. Conclusions that seem too good to be true usually are.

4. Studies are ranked from Level I to IV, with Level I considered the highest quality of evidence.

a. Level I research:

i. Consists of multiple studies

ii. Widespread, large sample size

iii. Employs randomization

iv. Uses multiple techniques to compare how results vary

v. Results in a significant positive effect or patient outcome

b. Level II research:

i. Results from a single, randomly controlled trial, or

ii. Multiple trials with small sample sizes, or

iii. Large, randomly controlled studies

iv. Resulted in a moderate effect on patient outcome

c. Level III research is divided into A, B, and C categories.

i. Level IIIA is from a well-designed trial without randomization.

ii. Level IIIB consists of evidence from causal comparison and case or cohort studies.

iii. Level IIIC studies have evidence gathered from single experiments.

d. Level IV evidence:

i. The lowest level

ii. Consists of reviews of descriptive studies, expert opinion, or uncontrolled studies

5. Research determines the effectiveness of treatment.

a. EMS must prove what it does to make a difference to help secure funding.

6. Research can help identify which procedures, medications, and treatments work and which do not.

7. When following a new study’s recommendation, your service should measure the results in your CQI program.

8. Combined research efforts eventually will lead to a higher professional image to the community of the services that you provide.

XIII. Summary

A. Ambulance corps were developed during World Wars I and II to transport and rapidly care for soldiers.

B. Helicopters were used to rapidly remove soldiers from the battlefield during the Korean and Vietnam Wars.

C. In 1966 the National Academy of Science and the National Research Council released “The White Paper” outlining 10 points. The National Highway Safety Act and the US Department of Transportation were created as a result.

D. Paramedics must be licensed (also known as certification or credentialing) before performing any functions.

E. Standards for prehospital emergency care, and the people who provide it, are regulated under state law by a state office of EMS.

F. There are four levels of training: emergency medical responders, emergency medical technicians, advanced emergency medical technicians, and paramedics, who may perform invasive procedures under medical control’s direction.

G. Paramedics may be involved in interfacility transports and transports to specialty centers.

H. Paramedics should be familiar with the roles and responsibilities of other health care providers and public safety agencies.

I. Continuing education programs expose paramedics to new research findings and refresh their skills and knowledge.

J. A physician medical director authorizes EMS providers to provide care in the field through off-line (indirect) or online (direct) medical direction.

K. There are expected standards and a code of ethics for all paramedics.

L. There are many professional attributes that a paramedic is expected to have, including, but not limited to, integrity, empathy, teamwork, patient advocacy, and time management skills.

M. Some of the primary paramedic responsibilities include preparation, response, scene management, patient assessment and care, management and disposition, patient transfer and report, documentation, and return to service.

N. Paramedics evaluate their care through quality control and continuous quality improvement.

O. Research establishes a consensus of what EMS personnel should or should not do. Types of research include quantitative and qualitative research.

P. There are many ethical considerations when conducting research. Researchers must obtain consent from subjects, inform them of the research parameters, and protect the patients’ rights and welfare.

Q. Paramedics should know how to evaluate the quality of research, including how to recognize peer-reviewed literature and how to find quality research on the Internet.

R. Evidence-based practice is becoming an integral part of functioning as an EMS provider. Review medical literature as it becomes available, and stay up to date on changing guidelines.

PostLecture

This section contains various student-centered end-of-chapter activities designed as enhancements to the instructor’s presentation. As time permits, these activities may be presented in class. They are also designed to be used as homework activities.

## Assessment in Action

This activity is designed to assist the student in gaining a further understanding of issues surrounding the provision of prehospital care. The activity incorporates both critical thinking and application of paramedic knowledge.

### Instructor Directions

**1.** Direct students to read the “Assessment in Action” scenario located in the Prep Kit at the end of Chapter 1.

**2.** Direct students to read and individually answer the quiz questions at the end of the scenario. Allow approximately 10 minutes for this part of the activity. Facilitate a class review and dialogue of the answers, allowing students to correct responses as may be needed. Use the quiz question answers noted below to assist in building this review. Allow approximately 10 minutes for this part of the activity.

**3.** You may wish to ask students to complete the activity on their own and turn in their answers on a separate piece of paper.

### Answers to Assessment in Action Questions

1. **Answer:** C. Cardiac monitoring

**Rationale:** Cardiac monitoring is a skill that is currently only allowed at the paramedic level. Paramedic is currently the highest skill level at which you can either be certified or licensed at the state or national level.

2. **Answer:** A. Approach your supervisor to discuss the study.

**Rationale:** Paramedics should review EMS research as part of their role to improve the care they provide to their patients, but you may not decide to perform a new skill during a call. All skills must be approved by your medical director even though they may be widely accepted in other parts of the country. Most experimental medications have an extensive list of questions/requirements to make sure the patient is an appropriate recipient. You should not offer any treatment unless you have received explicit training for that particular skill or treatment and have approval from your medical director.

3. **Answer:** A. reciprocity.

**Rationale:** Reciprocity is the granting of certification to a provider from another state or agency. For reciprocity to be granted, most states require you to hold current state certification and to be in good standing, as well as having National Registry certification. Some states require that you go through their own written and/or practical exams prior to reciprocity being granted. Others may request your training program transcript and continuing education hours.

4. **Answer:** D. All of the above

**Rationale:** There are many ways to earn continuing education credit. All of the listed methods are acceptable. There are also other ways to earn credit, such as postrun critiques. The purpose of continuing education is to keep you up to date on new research findings and new techniques and skills, as well as to refresh skills that are seldom used. Postrun critiques can be beneficial in identifying problem areas in your service. Continuing education can highlight current issues in your state that affect the ability of the EMS provider or department to provide quality emergency medical care. Regardless of the requirements by the state or licensing agency, the responsibility of continuing education falls on each paramedic. Continuing education helps make sure you are prepared for any situation.

5. **Answer:** A. A medical director

**Rationale:** The law does not give paramedics independent authority to act. They must work under the license of an EMS medical director who is educated about the levels and the extent of the training of EMS personnel. Although holding a license shows that you have successfully completed a training program and met the requirements to achieve that license, it does not mean that you can perform as a paramedic without the supervision of your service’s medical director. There are many roles that fall to the medical director, including educating and training personnel, providing input into patient care, serving as an EMS advocate to the community, providing online medical control, and developing protocols and standing orders, among others.

### Additional Questions

6. **Rationale:** You should explain to the physician that you are required to work under your local medical director and that you must adhere to the local protocols and standing orders. You can transfer care of the patient to him only if he is willing to assume full responsibility for the patient and will be present during transport as well as signing for any orders given. Only then can care be turned over to him. If there are any questions, you should immediately contact medical control. Patient care is top priority and should not be delayed.

7. **Rationale:** Research determines the effectiveness of treatment—what works and what does not. The first part of research is to identify a specific problem or question, even if it has been researched previously. The medical field is constantly changing, so something that may have been appropriate 10 years ago may not be appropriate today. Research provides the ability to introduce new ideas and treatments as well as keep existing ones up to date.

Some ways to ensure that a research article is of high quality include ensuring that it went through a peer-review process, considering whether the population sample studied was broad enough, reviewing the sources the author of the article used, and confirming that the author reported any sources of funding and that these did not present a conflict of interest.

## Assignments

A. Review all materials from this lesson and be prepared for a lesson quiz to be administered (date to be determined by instructor).

B. Read Chapter 2, *Workforce Safety and Wellness*, for the next class session.

## Unit Assessment Keyed for Instructors

1. In 1965, “The White Paper” or “Accidental Death and Disability: The Neglected Disease of Modern Society” was released. List two findings from this document.

**Answer:** Any two of the following: a lack of uniform laws and standards, ambulances and equipment were of poor quality, lack of communication between EMS and hospitals, lack of personnel training, hospitals only had part-time staff, more people died in motor vehicle accidents than in the Vietnam war

(p 6)

2. Define licensure, and explain how to obtain it.

**Answer:** Licensure is how states control who is allowed to practice as a health care provider. To obtain licensure, you must complete initial paramedic education and take a certification examination. Once you have certification, you can apply for licensure.

(p 8)

3. Describe the dispatcher’s role in the EMS system.

**Answer:** The dispatcher is usually the first contact for someone who activates the EMS system. He or she must receive and enter all information on the call, interpret the information, determine if it is an emergency, and relay it to the appropriate resources. Some locations have trained emergency medical dispatchers (EMDs) who give simple prearrival instructions to help the caller provide basic care until EMS personnel arrive.

(p 10, 11)

4. What is a specialty center, and what are the advantages and disadvantages of transporting a patient to a specialty center instead of an emergency department?

**Answer:** Speciality centers focus on specific types of care (such as trauma) or specific types of patients (such as children). Transport time to a specialty center may be slightly longer than the time to an emergency department, but patients will receive definitive care more quickly.

(p 13)

5. List four of the primary responsiblities of a paramedic, and give an example of how you perform each.

**Answer:** Any four of the following:

*Preparation*: Be prepared physically, mentally, and emotionally. Keep up your knowledge and skill abilities. Be sure you have the appropriate equipment and it is working properly.

*Response*: Respond to a call in a timely, safe manner.

*Scene management*: Ensure the safety of yourself, your team, your patient(s), and bystanders. Consider all possibilities from dispatch information. Assess the situation. Use personal protective equipment. Be a role model for the EMS team.

*Patient assessment and care*: Perform an appropriate organized assessment. Recognize and prioritize the patient’s needs on the basis of the injuries he or she has sustained or the illness that most urgently needs treatment.

*Management and disposition*: Follow approved medical guidelines or protocols. Contact your medical director when a situation is not covered by protocols. Maintain a good working relationship with your medical director. If he or she cannot be reached, use good critical-thinking skills. Be aware of your local area’s health care abilities and transport and destination options. Know what to do if a patient refuses care.

*Patient transfer and report*: Continue to act as a patient advocate at the receiving facility. Give the appropriate staff a brief, concise hand-off report. Use discretion.

*Documentation*: Fill out a patient care report as soon as possible after patient transfer.

*Return to service*: Restock and prepare the unit as quickly as possible for the next call.

(p 17-18)

6. What is the difference between online and off-line medical control?

**Answer:** Online medical control is medical direction given in real time to an EMS service or provider (either by radio or by electronic communication). Off-line medical control is medical direction given through a set of protocols, policies, and/or standards.

**(**p 19)

7. What is continuous quality improvement (CQI)?

**Answer:** CQI is a process of assessing current practices and looking for ways to create ongoing improvement, thus reducing the chance of a problem arising in the first place. The focus of CQI needs to be on improving patient care.

**(**p 19-20)

8. Explain qualitative research and why it is used.

**Answer:** Qualitative research focuses on questions within a context of surrounding events and concurrent processes and attempts to build a more complete, holistic picture. In other words, qualitative research takes into account the real-world factors that may have influenced the results of a study and may attempt to interpret the results to account for these factors. Qualitative research often involves the interpretation of previously published data by the researcher and making a statement of the findings. Most medical research falls into the qualitative category.

Qualitative research is usually used when specific answers cannot be identified in quantitative research. Qualitative methods investigate the why and how of decision making, not just what, where, and when.

(p 22)

9. Why do medical publications use the peer-review process?

**Answer:** The peer-review process is used by medical publications to ensure quality and validity of an article before publishing it; the process involves sending the article to subject matter experts for review of the content and research methods.

(p 24)

10. What is the highest-quality rating an evidenced-based study can receive? Provide at least three characteristics of a high-quality study.

**Answer:** Level I is the highest quality of evidence. It stems from research consisting of multiple studies on a widespread, large sample size. The study must have randomization and use the procedure in question, as well as other techniques, as a basis of comparison of how results vary. A study is considered high quality if the new technique or medication used results in a significant positive effect or outcome when weighed against other methods.

(p 25)

## Unit Assessment

1. In 1965, “The White Paper” or “Accidental Death and Disability: The Neglected Disease of Modern Society” was released. List two findings from this document.

2. Define licensure, and explain how to obtain it.

3. Describe the dispatcher’s role in the EMS system.

4. What is a specialty center, and what are the advantages and disadvantages of transporting a patient to a specialiy center instead of an emergency department?

5. List four of the primary responsiblities of a paramedic, and give an example of how you perform each.

6. What is the difference between online and off-line medical control?

7. What is continuous quality improvement (CQI)?

8. Explain qualitative research and why it is used.

9. Why do medical publications use the peer-review process?

10. What is the highest-quality rating an evidenced-based study can receive? Provide at least three characteristics of a high-quality study.