Chapter 1

EMS Systems

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Introduction

- This textbook is the primary resource for the emergency medical technician (EMT) course.
- EMS is a *system*.
- **Chapter 1** discusses that system's key components.

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Course Description (1 of 8)

- EMS system
  - Team of health care professionals
  - Provides emergency care and transport
  - Governed by state laws

Source:© Corbis

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Course Description (2 of 8)

- This course trains for the state certification exam.
- After passing the exam, you are eligible to apply for licensure.

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Course Description (3 of 8)

- Most states have four training and licensure levels
  - EMR
  - EMT
  - Advanced EMT (AEMT)
  - Paramedic

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Course Description (4 of 8)

- EMR has very basic training.
  - Provides care before ambulance arrives
  - May assist within ambulance

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Course Description (5 of 8)

- EMT has training in basic life support (BLS), including:
  - Automated external defibrillation
  - Airway adjuncts
  - Medication assistance

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Course Description (6 of 8)

- AEMT has training in advanced life support (ALS), including:
  - Intravenous (IV) therapy
  - Administration of certain emergency medications

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Course Description (7 of 8)

- Paramedic has extensive ALS training, including:
  - Endotracheal intubation
  - Emergency pharmacology
  - Cardiac monitoring

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Course Description (8 of 8)

- EMT course includes four learning activities:
  1. Reading assignments, lectures, and discussions
  2. Step-by-step demonstrations
  3. Summary skills sheets
  4. Case presentations and scenarios

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EMT Training: Focus and Requirements (1 of 2)

- EMTs are the backbone of EMS system.
- They provide emergency care to the sick and injured.
  - Some patients are in life-threatening situations.
  - Others require only supportive care.

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EMT Training: Focus and Requirements (2 of 2)

- Some of the subjects discussed include:
  - Scene size-up
  - Patient assessment
  - Treatment
  - Packaging
  - EMS as a career

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Licensure Requirements (1 of 4)

*Requirements differ state to state; general requirements to be an EMT are:

- High school diploma or equivalent
- Proof of immunization against certain communicable diseases
- Valid driver's license

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Licensure Requirements (2 of 4)

- Successful completion of:
  - BLS/CPR course
  - state-approved EMT course
  - State-recognized written certification exam
  - State-recognized practical certification exam

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Licensure Requirements (3 of 4)

- Demonstration that you can meet mental and physical criteria necessary to perform the job
- Compliance with other state, local, and employer provisions

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Licensure Requirements (4 of 4)

- Americans With Disabilities Act (ADA)
  - Guarantees disabled individuals access to state and local government programs.
  - Prohibits employers from failing to provide full and equal employment to the disabled.

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Overview of the EMS System (1 of 3)

History of EMS

- Origins include:
  - Volunteer ambulances in World War I
  - Field care in World War II
  - Field medic and rapid helicopter evacuation in Korean conflict

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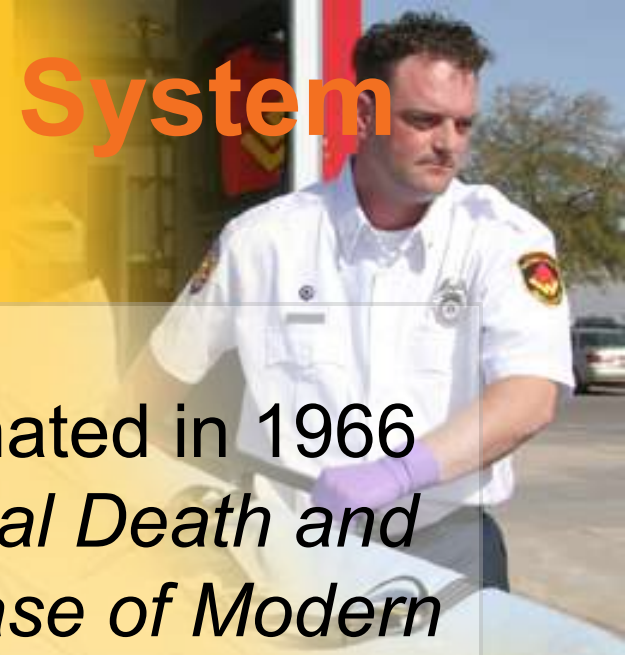
Overview of the EMS System (2 of 3)



- EMS as we know it today originated in 1966 with the publication of *Accidental Death and Disability: The Neglected Disease of Modern Society*
- DOT published first EMT training curriculum in early 1970s

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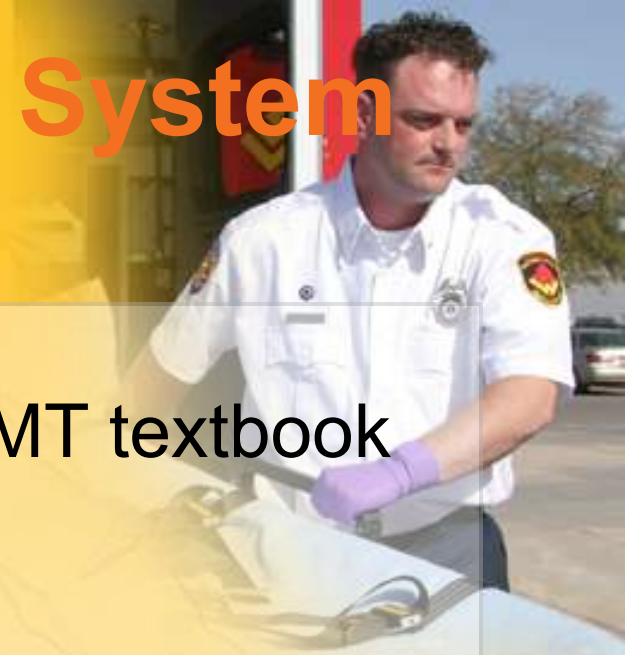
Overview of the EMS System (3 of 3)



- The AAOS prepared the first EMT textbook in 1971
  - "The Orange Book"
  - Your textbook is the tenth edition of that book.
- Efforts are underway to standardize levels of EMS education nationally.

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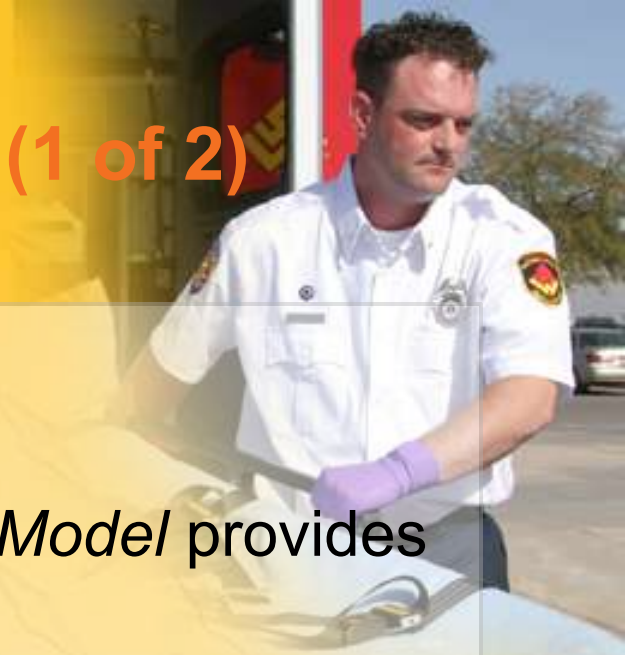
Levels of Training (1 of 2)



- Federal level:
  - *National EMS Scope of Practice Model* provides guidelines for EMS skills.
- State level:
  - Laws regulate EMS provider operations.
- Local level:
  - Medical director decides day-to-day limits of EMS personnel.

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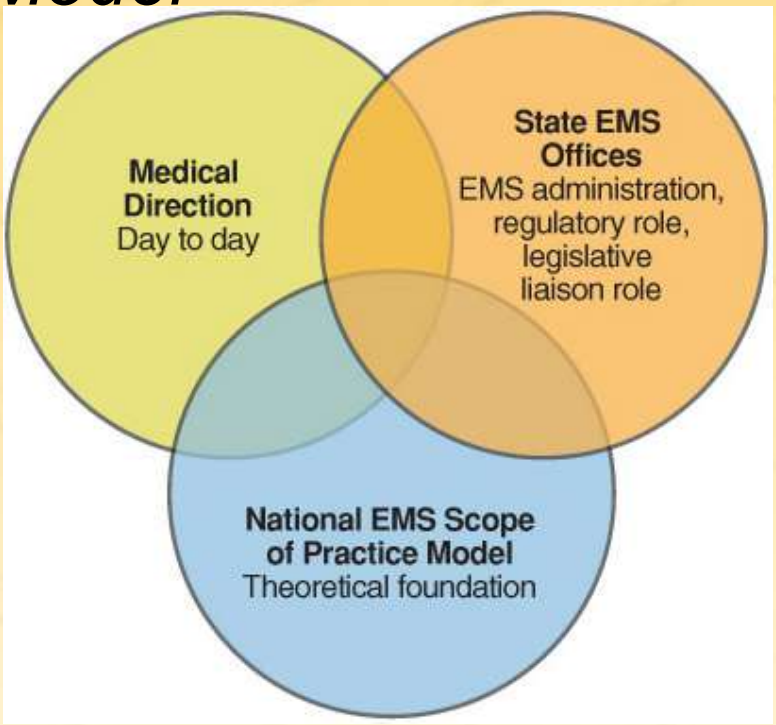
Levels of Training (2 of 2)

- Hierarchies of the *National EMS Scope of Practice Model*



Source: Based on the Emergency Medical Services System from the office of EMS.

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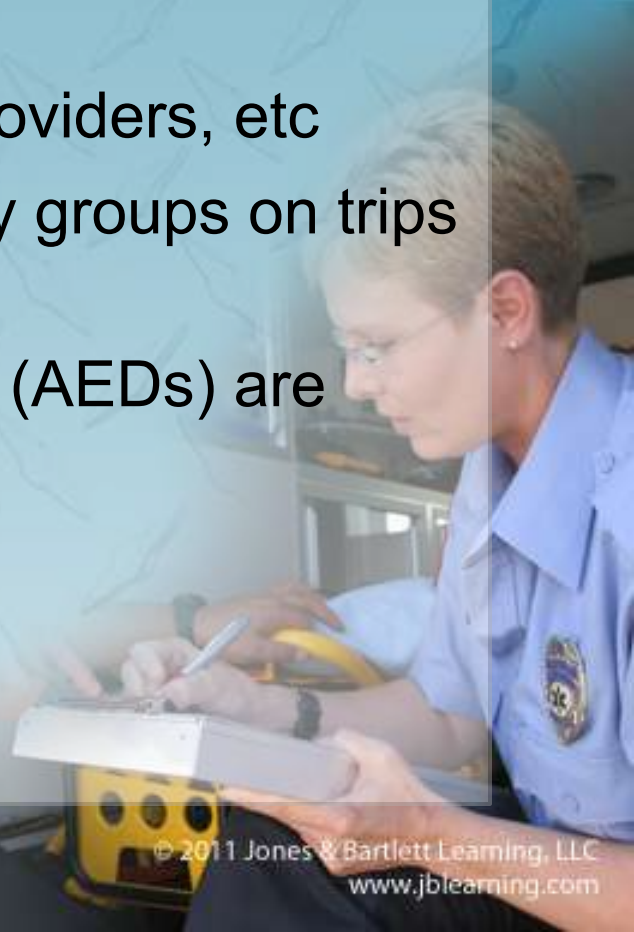
Public BLS and Immediate Aid

- Millions of laypeople are trained in BLS/CPR.
  - Teachers, coaches, child care providers, etc
  - People who regularly accompany groups on trips to remote locations
  - Automated external defibrillators (AEDs) are used by laypeople.



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Emergency Medical Responders (1 of 2)

- Law enforcement officers
- Fire fighters
- Park rangers
- Ski patrollers
- Initiate immediate care and assist EMTs on their arrival

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Emergency Medical Responders (2 of 2)

- Good Samaritans trained in first aid and CPR often show up at a scene.
  - They can provide valuable assistance.
  - They can also interfere with operations and endanger themselves and others.

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Emergency Medical Technicians

- EMT course requires about 150 hours.
- EMT has knowledge and skills to provide basic emergency care.
- Upon arrival at scene, EMT assumes responsibility for assessment, care, package, and transport of the patient.

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Advanced Emergency Medical Technicians

- AEMT course adds knowledge and skills in specific aspects of ALS.
  - IV therapy
  - Advanced airway adjuncts
  - Medication administration

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Paramedics

- Extensive course of training
  - 800 to 1500 hours or more
  - May be offered within context of associate's or bachelor's degree program
- Wide range of ALS skills

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14 Components of the EMS System (1 of 4)

1. Public access
2. Communication systems
3. Clinical care
4. Human resources
5. Medical direction

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14 Components of the EMS System (2 of 4)

6. Legislation and regulation
7. Integration of health services
8. Evaluation
9. Information systems
10. System finance

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14 Components of the EMS System (3 of 4)

11. Education systems
12. Prevention
13. Public education
14. EMS research

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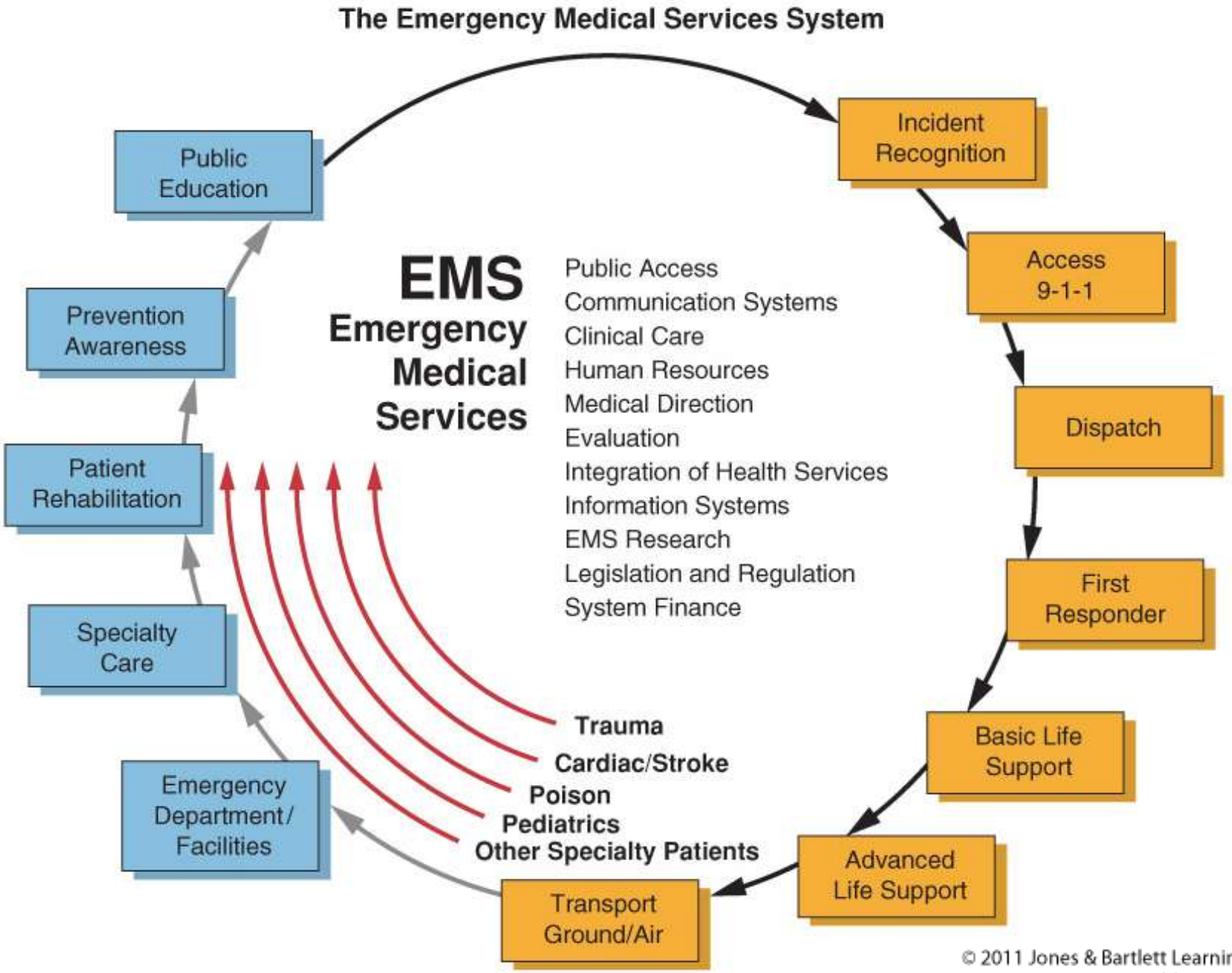

Source: www.ems.gov

Public Access (1 of 2)

- Easy access to help in an emergency is essential.
- 9-1-1 system is public safety access point.

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Public Access (2 of 2)

- Emergency medical dispatch (EMD) system gives callers medical instructions until EMS arrival.

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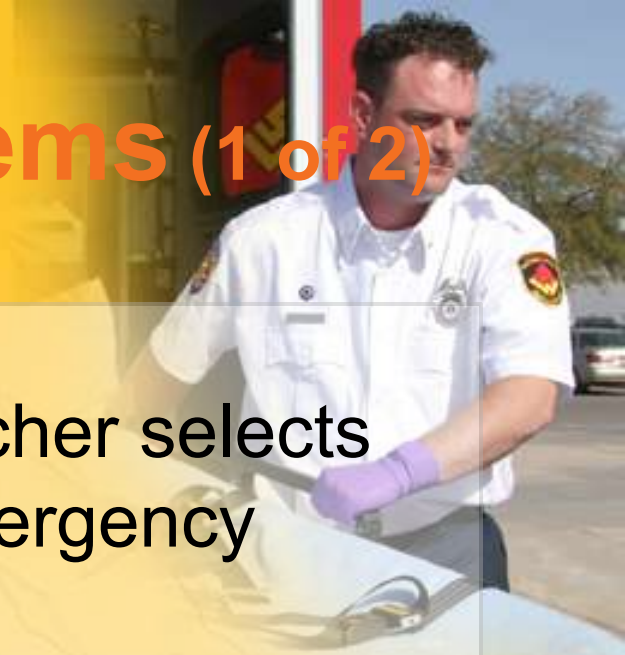
Communication Systems (1 of 2)



- From caller information, dispatcher selects the appropriate parts of the emergency system to activate.
- EMS may be:
  - Part of fire department
  - Part of police department
  - Independent

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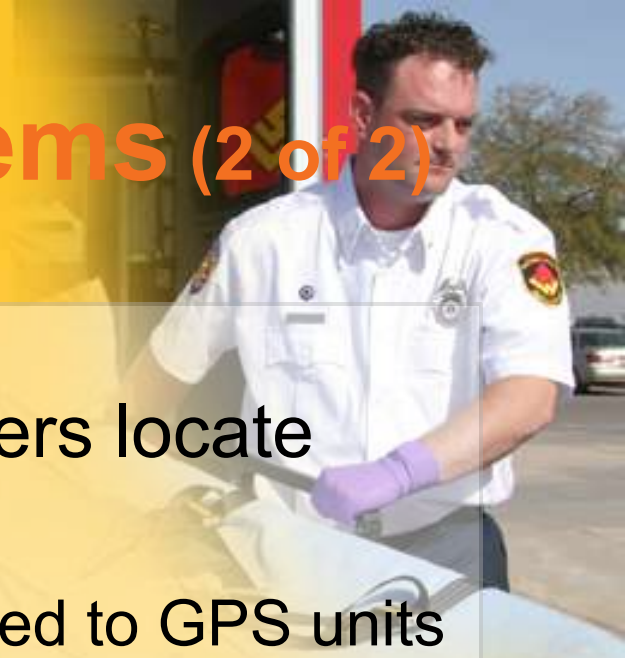
Communication Systems (2 of 2)



- New technology helps responders locate their patients.
  - *Example:* cellular telephones linked to GPS units

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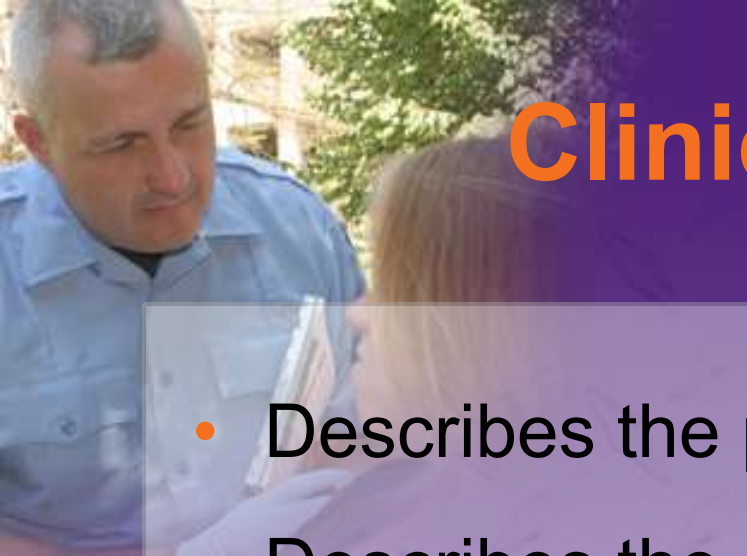

Clinical Care (1 of 2)

- Describes the pieces of equipment
- Describes the scope of practice for using that equipment

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Clinical Care (2 of 2)

- Familiarizes EMTs with ambulance controls and with their primary service area (PSA)

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Human Resources

- Focuses on people who deliver the care:
  - Compensation
  - Interaction with other members of medical community
  - Well-being
- Efforts are underway to allow EMS providers to move from state to state.

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Medical Direction (1 of 2)

- Physician medical director authorizes EMTs to provide medical care in field.
- Appropriate care is described in standing orders and protocols.

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Medical Direction (2 of 2)

- Medical control can be off-line or online.
  - Off-line (indirect)
    - Standing orders, training, supervision
  - Online (direct)
    - Physician directions given over the phone or radio

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Legislation and Regulation

- Training, protocols, and practice follow state legislation.
- Senior EMS official handles administrative tasks:
  - Scheduling
  - Personnel
  - Budgets
  - Purchasing
  - Vehicle maintenance

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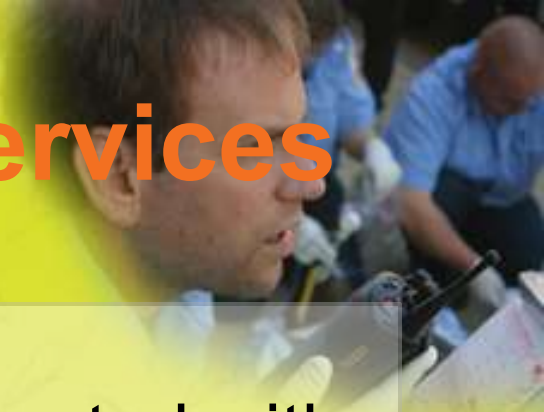
Integration of Health Services



- Prehospital care by EMT is coordinated with care administered by hospital.
- Care simply continues in the emergency department.
- This ensures patient receives comprehensive continuity of care.

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Evaluation

- Medical director maintains quality control.
- Continuous quality improvement (CQI) reviews and audits EMS system.
- Refresher training or continuing education are important.
- Minimizing errors is the goal.

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Information Systems

- Used to document care provided
- Once stored electronically, can be used to improve care
- Can help determine:
  - Average on-scene time for trauma patients
  - Need for educational sessions
  - National trends

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System Finance (1 of 2)

- Finance systems vary depending on organization involved.

Table 1-4 Types of EMS Services that Transport Patients Within the United States

Type of Organization Providing EMS Transport Services	
Private organization	34.2%
Fire department	34.2%
City or county third service	18.0%
Hospital	5.4%
Public utility	2.7%
Public safety (police/fire/EMS)	1.8%
Law enforcement	0%

Source: Williams DM. 2008 JEMS 200-city survey. *JEMS*. 2009;32:36-51.

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System Finance (2 of 2)

- Personnel may be paid, volunteer, or a mix.
- EMTs may be involved with:
  - Gathering insurance information
  - Attending fund-raisers
  - Other activities to secure finances

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Education Systems

- EMS instructors are licensed in most states.
- ALS training is provided in college, adult career center, or hospital settings.
- Continuing education is needed to update knowledge and refresh skills.

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Prevention and Public Education (1 of 2)

- Prevention and public education are two components of the EMS system with a focus on public health.

Table 1-5 Examples of Public Health Accomplishments

Vaccination programs	Clean drinking water
Fluoridation of water supplies	Seatbelt laws
Helmet laws	Tobacco use laws
Sewage systems	Restaurant inspections
Formation of the Food and Drug Administration	Prenatal screenings

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Prevention and Public Education (2 of 2)

- Emphasis is on prevention.
- EMS works with public health agencies on:
  - Primary prevention
  - Secondary prevention

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EMS Research

- Helps determine the shape and impact of EMS on community
- EMTs may be involved in research through gathering data.
- Evidence-based decision making is based on research.

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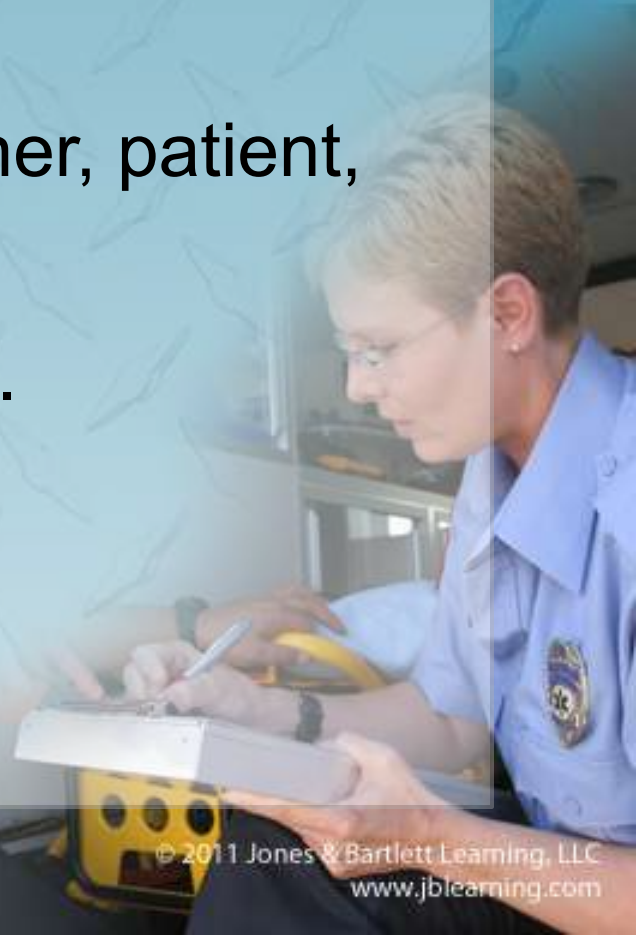
Roles and Responsibilities of the EMT (1 of 5)

- Keep vehicles and equipment ready for an emergency.
- Ensure safety of yourself, partner, patient, and bystanders.
- Operate an emergency vehicle.
- Be an on-scene leader.



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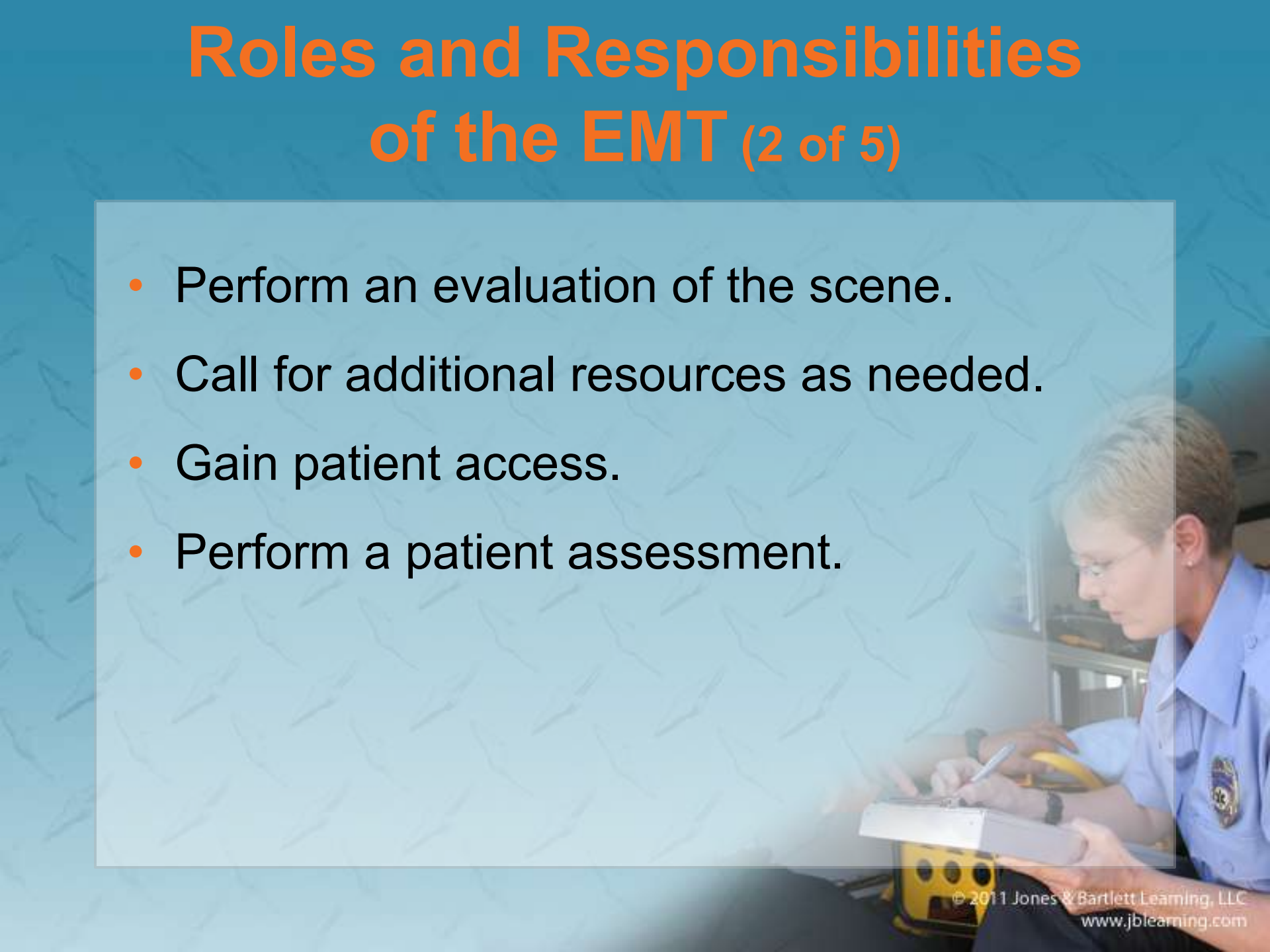
Roles and Responsibilities of the EMT (2 of 5)

- Perform an evaluation of the scene.
- Call for additional resources as needed.
- Gain patient access.
- Perform a patient assessment.



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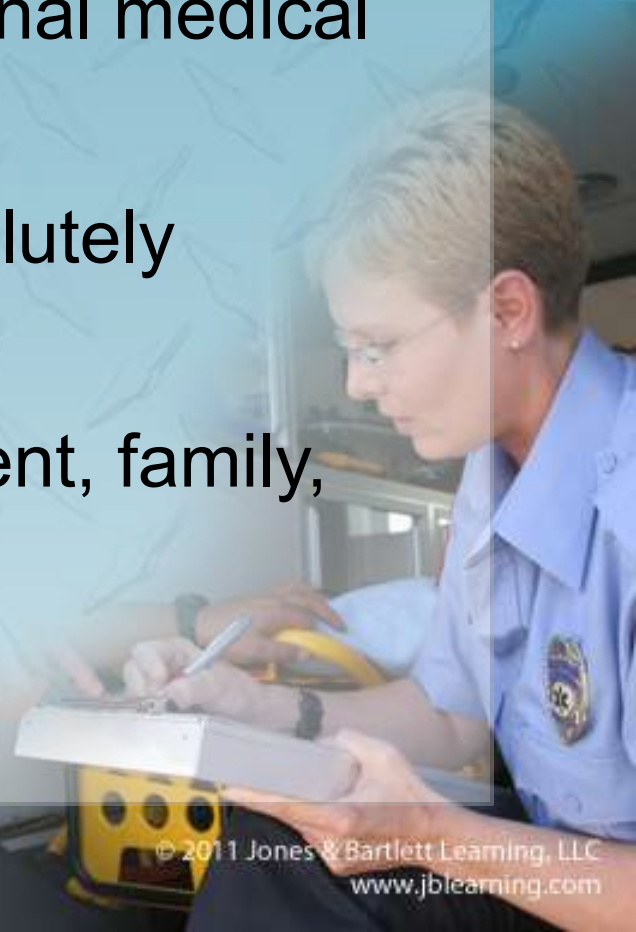
Roles and Responsibilities of the EMT (3 of 5)

- Give emergency medical care to patient while awaiting arrival of additional medical resources.
- Only move patients when absolutely necessary to preserve life.
- Give emotional support to patient, family, other responders.



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Roles and Responsibilities of the EMT (4 of 5)

- Maintain continuity of care by working with other medical professionals.
- Resolve emergency incidents.
- Uphold medical and legal standards.
- Ensure and protect patient privacy.

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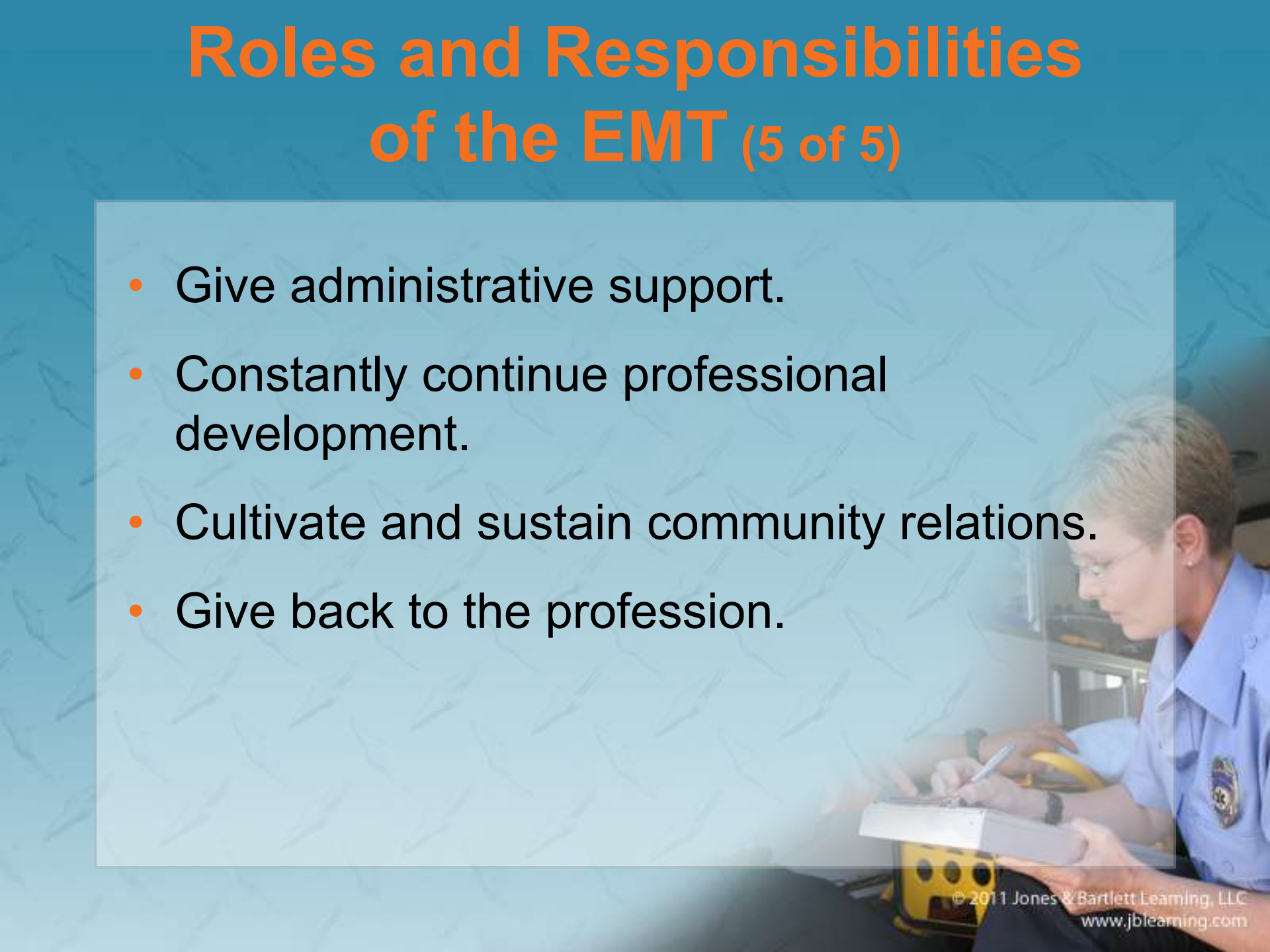
Roles and Responsibilities of the EMT (5 of 5)

- Give administrative support.
- Constantly continue professional development.
- Cultivate and sustain community relations.
- Give back to the profession.



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Professional Attributes (1 of 4)

- Integrity
- Empathy
- Self-motivation
- Appearance and hygiene

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Professional Attributes (2 of 4)

- Self-confidence
- Time management
- Communication skills
- Teamwork and diplomacy
- Respect

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Professional Attributes (3 of 4)

- Patient advocacy
- Careful delivery of care
- Every patient is entitled to compassion, respect, and the best care.

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Professional Attributes (4 of 4)

- As health care professionals, EMTs are bound by patient confidentiality.
- Be familiar with requirements of the Health Insurance Portability and Accountability Act (HIPAA).

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