National Emergency Medical Services Education Standards

Emergency Medical Responder Instructional Guidelines

EMS NHTSA
National Highway Traffic Safety Administration

Preparatory

EMS Systems

EMR Education Standard

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

EMR-Level Instructional Guideline

I. The Emergency Medical Services (EMS) System
  A. The Current EMS Systems
    1. Types of systems in EMS
      a. Fire-based
      b. Third service
      c. Hospital-based
    2. Delivery may be different but the goal is the same – based upon community needs/resources
  B. National Highway Traffic Safety Administration (NHTSA) Is Lead Coordinating Agency
  C. Access to the Emergency Medical Services
    1. Public Safety Access Point (PSAP)
    2. Most communities access through 9-1-1
  D. Education
    1. National Scope of Practice Model
      a. Description of the profession
      b. Prehospital personnel levels
    2. National EMS Education Standards
  E. Authorization to Practice
    1. State EMS office
      a. Determines scope of practice
      b. Licenses prehospital personnel
    2. Medical oversight
      a. Protocols
      b. Quality improvement
      c. Administrative
    3. Local credentialing
    4. Employer policies and procedures

II. Roles, Responsibilities, and Professionalism of EMS Personnel
  A. Roles and Responsibilities
    1. Maintain equipment readiness

2. Safety
    a. Personal
    b. Patient
    c. Others on scene
3. Provide scene evaluation and summon additional resources as needed
4. Gain access to the patient
5. Perform patient assessment
6. Administer emergency medical care while awaiting arrival of additional medical resources
7. Provide emotional support
    a. Patient
    b. Patient family
    c. Other responders
8. Maintain continuity of care
    a. Definition
    b. EMR is the first step in the EMS care ladder
9. Maintain medical and legal standards and assure patient privacy
10. Maintain community relations

B. Professionalism
1. Characteristics of professional behavior
    a. Integrity
    b. Empathy
    c. Self-motivation
    d. Appearance and hygiene
    e. Self-confidence
    f. Knowledge of limitations
    g. Time management
    h. Communications
    i. Teamwork
    j. Respect
    k. Tact
    l. Patient advocacy
    m. Careful delivery of care
2. Maintaining certification
    a. Personal responsibility
    b. Continuing education
    c. Skill competency
    d. Criminal implications
    e. Fees

III. Quality Improvement
A. Dynamic System for Continually Evaluating and Improving Care
1. Patient safety
2. Significant – one of the most urgent health care challenges
3. How errors happen
    a. Skills-based failure

b. Rules-based failure
c. Knowledge-based failure

4. How you can help reduce errors
   a. Debrief calls
   b. Constantly question assumptions
   c. Use decision aids
   d. Ask for help

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Research

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Impact of Research on EMR Care
   - A. Research Findings Are Important to Identify What Should Be Changed in EMS Assessment and Management and to Improve Patient Care and Outcome (i.e. CPR guidelines change based on current research)
   - B. Quality Assurance Research For An EMS System Can Improve Service Delivery
   - C. Data Collection

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Workforce Safety and Wellness

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Standard Safety Precautions
   - A. Baseline Health Assessment
     1. Before working in health care, have a physical examination to determine baseline health status
     2. Immunizations should be current while practicing in health care
        - a. Tetanus
        - b. Hepatitis B
        - c. Measles/mumps/rubella (German measles)
        - d. Chicken pox (varicella)
        - e. Influenza
     3. Screening for tuberculosis recommended
   - B. Hand washing
   - C. Adherence to Standard Precautions/OSHA Regulation
   - D. Safe Operation of EMS/Patient Care Equipment
   - E. Environmental Control
   - F. Occupational Health and Blood borne Pathogens
     1. Immunizations
     2. Sharps

II. Personal Protective Equipment
   - A. Exposure to Diseases Spread Through Blood or Body Fluids or by Respiratory Droplets Are Best Prevented by the Use of Standard Precautions
   - B. Standard Precautions
     1. Hand hygiene
        - a. The most important measure to prevent the spread of infection
        - b. Wash your hands after gloves are removed
        - c. Hand cleansing
          - i. soap and water
          - ii. alcohol-based hand rub
        - d. Cleanse hands with soap, and dry hands thoroughly
        - e. Cleanse hands and other exposed skin immediately if they are exposed to contaminants, such as blood and body fluids or after use of the toilet

2. Gloves
    a. Wear gloves for patient contacts where there is a risk of exposure to blood or body fluids
    b. If EMR has a latex allergy use an alternative type of glove
3. Eye protection or face shield
    a. Goggles or full-face shield
    b. Use if there is a risk of splash or spray of body fluids
        i. reduces risk of contamination of eyes, nose, or mouth
        ii. examples include care of patients who are
            a) bleeding profusely
            b) delivering a baby
4. Masks
    a. High-efficiency particulate air (HEPA) or N95 mask on EMR
    b. Surgical mask on patient
5. Gown
    a. In situations with large amounts of blood or body fluids, disposable gown should be worn
    b. If clothing becomes contaminated
        i. remove as soon as possible
        ii. shower as soon as possible
        iii. wash clothes in a separate load
        iv. preferably at work
6. Sharps (needles)

C. If an exposure occurs
1. Clean the contaminated area thoroughly with soap and water
2. If eyes are involved, flush with water for 20 minutes
3. Report the exposure to the EMS providers who take over care of the patient
4. Report the exposure to the appropriate person identified in your department infection control plan
5. Seek immediate follow-up care as identified in your department infection control plan
6. Document
    a. Time and date of the exposure
    b. Circumstances of the exposure
    c. Actions taken after the exposure
    d. Other information required by your department

D. Soiled equipment or vehicles
1. Cleaning
2. Disinfection
3. Disposal

II. Stress Management
A. Many EMS Situations Can Be Stressful for EMS Personnel
1. Dangerous situations
2. Physical and psychological demands

3. Critically ill or injured patients
4. Dead and dying patients
5. Overpowering sights, smells, and sounds
6. Multiple-patient situations
7. Angry or upset patients, family, and bystanders

B. EMR Should Be Supportive

C. During and Immediately After a Stressful Incident
1. Administer appropriate medical care
2. Cooperate with other personnel
   a. Law enforcement
   b. Other EMS providers
3. Be calm, supportive, and nonjudgmental
4. Allow patients to express feelings, unless their behavior is harmful to themselves or others

D. Recognize the Warning Signs of Personal Stress
1. Difficulty sleeping and nightmares
2. Irritability with coworkers, family, and friends
3. Feelings of sadness, anxiety, or guilt
4. Indecisiveness
5. Loss of appetite
6. Loss of interest in sexual activity
7. Isolation
8. Loss of interest in work
9. Physical symptoms
10. Feelings of hopelessness
11. Alcohol or drug misuse or abuse
12. Inability to concentrate

E. Strategies to Manage Personal Stress
1. Talk about your feelings
2. See a professional counselor
3. Make lifestyle changes that can reduce stress, such as dietary changes, limiting caffeine and alcohol intake, exercise, and the use of relaxation techniques

F. Dealing With Death and Dying
1. Attempt to resuscitate patients without a pulse or not breathing unless:
   a. Do Not Resuscitate (DNR) order that meets local guidelines is present at scene
   b. Obvious signs of death
      i. tissue decay (putrefaction)
      ii. rigor mortis
         a) stiffening of joints that occurs after death
         b) assess two or more joints to verify
      iii. injuries not compatible with life
   c. Attempting resuscitation would endanger life of EMR
2. How to assist grieving patients or family members
   a. Responses to death and dying are very individual

b. People do not always experience them all or in any particular order
    i. denial
    ii. anger
        a) patient or family projects feelings of anger toward other people, especially those closest to them
        b) do not take anger personally, even though it may seem to be directed toward you
        c) be alert to anger that may become physical and endanger you or others
    iii. bargaining
        a) patient or family may attempt to negotiate with a spiritual being or even with EMS providers in an effort to extend life
        b) be non-judgmental at this time
    iv. depression
        a) patient or family exhibits sadness and grief
        b) affected person is usually withdrawn, sad, and may cry continually
        c) allow the affected person to express his feelings and to help him understand that these are normal feelings associated with death
    v. acceptance
        a) patient or family ultimately accepts the situation and incorporates the experience into the activities of daily living in an effort to survive
        b) use good listening skills and a non- judgmental attitude in this phase

III. Prevention of Response-Related Injuries
A. Exposure to Infectious Diseases
1. How infectious diseases are spread
    a. Through the air by coughing
    b. Direct contact with infected blood or body fluid
    c. Needle sticks
    d. Contaminated food
    e. Sexually transmitted
2. Exposure
    a. Contact with blood or body fluids of a person with an infectious disease
        i. patient's blood gets into a cut on your hand
        ii. you are stuck with a needle used by a patient
        iii. bloody saliva splashes into your eyes or mouth
    b. Close contact with a person with an airborne disease (e.g., influenza, tuberculosis, etc.)

B. Injury Prevention
    1. Good personal habits
        a. Sleep
        b. Nutrition
        c. Current immunization status
        d. Fitness
    2. Safe response to vehicle collisions
        a. Traffic hazards
        b. Deployment of air bags
        c. Power lines
        d. Vehicle stability
        e. Other hazards
            i. fire
            ii. leaking fluids
        f. Violent or potentially violent persons
        g. Risk factors for violence
        h. Safe response
            i. law enforcement
            ii. awareness
            iii. restraint
    3. Hazardous material
        a. Definition
        b. Assess the scene for signs of hazardous materials if suspected
            i. binoculars
            ii. look for placards
            iii. notify dispatch
        c. Do not approach the scene if you suspect a hazardous material release
            i. remain uphill and upwind a safe distance from the scene
            ii. await specialized resources

IV. Lifting and Moving Patients
A. Body Mechanics
    1. Keep back straight
    2. Maintain a firm grip on stretcher or patient
    3. Avoid twisting of the body
    4. Maintain firm footing
    5. Communicate next move clearly to partner or team
    6. Use good posture
B. Know Your Own Physical Limitations
    1. Safe lifting of cots and stretchers
        a. Power lift
        b. Squat lift
    2. Carrying
        a. Determine the weight to be lifted
        b. Know your own limitations

c. Communicate with partner or team
d. Keep the weight close to your body
e. Flex at hips and bend at knees, not waist

3. Reaching
   a. General guidelines
   b. Correct reaching for log rolling
4. Pushing and pulling techniques

C. Emergency Moves
1. Immediate danger to the patient
   a. Fire or danger of fire
   b. Close proximity of explosives or other imminent hazards
   c. To gain access to others who need lifesaving care
   d. Cardiac arrest patient
2. Types of emergency moves
   a. Pull toward the long axis of the body if possible
   b. Clothing drag
   c. Blanket drag
   d. Firefighter's drag
   e. Firefighter's carry
3. Urgent moves
   a. Patients with altered mental status
   b. Inadequate breathing or shock
   c. Other situations that are potentially dangerous to the patient
4. Techniques
   a. Direct ground lift
   b. Extremity lift
   c. Moving patients from a bed to stretcher
      i. direct carry
      ii. draw sheet

D. Positioning Patients
1. Position of comfort
   a. Indications for use
   b. Techniques
2. Recovery position
   a. Indications for use
   b. Techniques
3. Supine
   a. Indications for use
   b. Techniques

E. Restraint
1. Consider medical or trauma as cause for altered mental status
2. Restrain only if patient is a danger to self or others
   a. When using restraints have police present if possible
   b. Get approval from medical direction
   c. Follow local protocols

3. If restraints must be used:
    a. Have adequate help
    b. Plan your activities
    c. Use only the force necessary for restraint
    d. Estimate range of motion of patient's arms and legs and stay beyond range until ready
    e. Once decision has been made, act quickly
    f. Have one EMR talk to patient throughout restraining
    g. Approach with four persons, one assigned to each limb, all at the same time
    h. Secure limbs with equipment approved by medical direction
    i. Never secure a patient face down – have access to the airway at all times
    j. Consider the use of oxygen by non-rebreather mask
    k. Reassess airway, breathing, and circulation frequently
    l. Document indication for restraining patient and technique of restraint
    m. Avoid unnecessary force
4. Types of restraints

Preparatory
Documentation

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Recording Patient Findings
   - A. Prehospital Care Report
     1. Functions
     2. Continuity of care
     3. Administrative
     4. Legal
   - B. Document
     1. Time of events
     2. Assessment findings
     3. Emergency medical care provided
     4. Changes in the patient after treatment
     5. Observations at the scene
     6. Disposition
        - a. Refused care
        - b. Care turned over to

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EMS System Communication

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Communications
- A. Call for Resources
- B. Transfer Care of Patient
  1. When other EMS personnel arrive on scene, identify yourself and give a verbal report
     - a. Current patient condition
     - b. Patient's age and sex
     - c. Chief complaint
     - d. Brief, pertinent history of what happened
     - e. How you found the patient
     - f. Major past illnesses
     - g. Vital signs
     - h. Pertinent findings of the physical exam
     - i. Emergency medical care given and response to care
- C. Interact Within the Team Structure
  1. Communication concerning the patient and scene to
     - a. Law enforcement
     - b. Other responders

Preparatory
Therapeutic Communication

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Principles of Communicating With Patients in a Manner That Achieves a Positive Relationship
  A. Factors for Effective Communication
    1. Introduction
      a. Self
      b. Partners/team
      c. Patient introduction
    2. Privacy
    3. Interruptions
    4. Physical environment
      a. Lighting
      b. Noises and outside interference
      c. Distracting equipment
      d. Distance
      e. Equal seating, eye level
    5. Note-taking
  B. Interviewing Techniques
    1. Using questions
      a. Open-ended questions
      b. Closed or direct questions
      c. One question at a time
      d. Choose language the patient understands
    2. Hazards of interviewing
      a. Providing false assurance or reassurance
      b. Giving advice
      c. Leading or biased questions
      d. Talking too much
      e. Interrupting
      f. Using “why” questions

Preparatory
Medical/Legal and Ethics

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Consent
- A. Conditions for Consent
  - 1. Decision-making capacity
    - a. Intellectual capacity
    - b. Age of majority (18 years old in most States)
    - c. Ability to make decisions
    - d. May be impaired in cases of
      - i. intoxication (alcohol/drugs)
      - ii. serious injury or illness
      - iii. mental incompetence
      - iv. legal incompetence
- B. Expressed
  - 1. Patient gives permission for care
    - a. Informed consent
    - b. Understanding implications of actions
- C. Implied
  - 1. Inability to consent arising from medical condition
  - 2. Pediatrics
- D. Emancipated Minor
  - 1. Civil rights obtained by person below age of majority (i.e. marriage)
  - 2. Economic self-sufficiency
  - 3. Military service
- E. Pediatrics
  - 1. Parental control
  - 2. Courts assume parental control
- F. Refusal of Care
  - 1. Patients with decision-making capacity of legal age have a right to refuse care
  - 2. Follow local policies related to refusal of care
  - 3. If care is refused, tell the patient
    - a. Treatment that is needed
      - i. why it is needed
      - ii. alternative treatments
    - b. Risks of refusing care

c. That he may call EMS again if he changes his mind
d. Follow local protocols related to refusal under supervision of EMR

4. Notify
   a. Responding EMS providers
   b. Medical direction (if required in your local policies)
5. Document the refusal according to local policy
   a. Have patient sign refusal documentation
   b. Have a witness to patient's signature

II. Confidentiality
- A. Obligation to Protect Patient Information
- B. Health Information Portability and Accountability Act (HIPAA)
  1. Description
  2. Protected health information (PHI)
     a. Identifies the patient
     b. Relates to physical health, mental health, and treatment
     c. Can be written or verbal
  3. Permitted disclosures of PHI without written patient consent
     a. Treatment, payment, and operations
     b. Special situations
        i. mandatory reporting
        ii. public health
        iii. law enforcement (specific situations only)
        iv. certain legal situations

III. Advanced Directives
- A. Do Not Attempt Resuscitation (DNAR) Order
  1. Terminal disease
  2. Medical futility (as discussed in the current International Liaison Committee on Resuscitation [ILCOR] consensus statement)
- B. Living Wills
  1. Advance directives indicating a patient's wishes
  2. May not address the EMR in your State
- C. Surrogate Decision-Makers
  1. Durable power of attorney for healthcare
  2. Healthcare proxy
  3. Next of kin

IV. Types of Court Cases
- A. Civil (Tort)
  1. Abandonment
  2. Negligence
     a. A failure to follow the standard of care causes or worsens the patient's injury or illness. Four elements needed to prove
        i. duty to act
        ii. breach of duty
            a) definition

b) failure to perform care needed
c) performing care incorrectly
iii. harm (damage to patient)
iv. proximate causation
3. Abandonment
B. Criminal
1. Assault
2. Battery

V. Evidence Preservation
A. Emergency medical care of the patient is the EMR's priority
B. Do not disturb any item at the scene unless emergency medical care requires it
C. Observe and document anything unusual at the scene
D. Do not cut through bullet or knife holes in clothing
E. Work closely with the appropriate law enforcement authorities

VI. Statutory Responsibilities
A. Scope of Practice
1. Definition
2. Authority to practice (Medical Practice Act as applicable)
3. Professional responsibility
4. Duties to patient, medical director, and public
5. Government and medical oversight
a. Intended to protect the public
b. Role of medical oversight
i. on-line medical direction
ii. off-line medical direction

VII. Mandatory reporting
A. Varies by State
B. Follow State requirements
C. Legally Compelled to Notify Authorities
1. Abuse or neglect (child, elder, domestic)
2. Some infectious diseases
3. Certain crimes
D. Legal Liability for Failure to Report
E. Fully Document Objective Findings

VIII. Ethical Principles
A. Defined
1. Morals – concept of right and wrong
2. Ethics – branch of philosophy or study of morality
3. Applied ethics – use of ethical values
B. Decision-Making Models
1. Do no harm
2. In good faith
3. Patient's best interest

Anatomy and Physiology

EMR Education Standard

Uses simple knowledge of the anatomy and function of the upper airway, heart, vessels, blood, lungs, skin, muscles, and bones as the foundation of emergency care.

EMR-Level Instructional Guideline

I. Anatomy and Body Functions
- A. Standard Anatomic Terms
  - 1. Patient-oriented directions (patient's left and patient's right)
  - 2. Anterior and posterior
  - 3. Midline, medial, lateral, inferior, superior
  - 4. Distal, proximal
- B. Skeletal System
  - 1. Components
    - a. Skull
    - b. Face
    - c. Vertebral column
    - d. Thorax
      - i. Ribs
      - ii. Breastbone
    - e. Pelvis
    - f. Upper extremities
    - g. Lower extremities
  - 2. Joints
- C. Muscular System
  - 1. Function
- D. Respiratory System
  - 1. Upper airway
    - a. Nose
    - b. Mouth/teeth
    - c. Tongue/jaw
    - d. Throat/pharynx
    - e. Voice box/larynx
    - f. Epiglottis
    - g. Lower airway
      - i. trachea/windpipe
      - ii. bronchi
      - iii. lungs and bronchioles
      - iv. alveoli
    - h. Structures that support ventilation
      - i. chest wall

ii. diaphragm
iii. intercostal muscles

i. Function
i. ventilation
ii. respiration
iii. alveolar/capillary gas exchange

2. Circulatory System
a. Heart
i. chambers
ii. coronary arteries

b. Blood vessels
i. arteries
ii. veins
iii. capillaries

c. Blood
i. red blood cells
ii. other blood cells
iii. plasma

d. Function
i. blood flow
ii. tissue/cell gas exchange
iii. blood clotting

3. Skin
a. Structures
i. epidermis
ii. dermis
iii. subcutaneous layer

b. Functions of the skin
i. protection
ii. temperature control

II. Life Support Chain
A. Fundamental Elements
1. Oxygenation
a. Alveolar/capillary gas exchange
b. Cell/capillary gas exchange

2. Perfusion
a. Oxygen
b. Glucose
c. Removal of carbon dioxide and other waste products

3. Cells need oxygen and glucose to make energy so they can perform their functions

B. Issues Impacting Fundamental Elements
1. Composition of ambient air
2. Patency of the airway
3. Mechanics of ventilation

4. Regulation of respiration
5. Transport of gases
6. Blood volume
7. Effectiveness of the heart as a pump
8. Blood vessel size and resistance

III. Age-Related Variations for Pediatrics and Geriatrics

Medical Terminology

EMR Education Standard

Uses simple medical and anatomical terms.

EMR-Level Instructional Guideline

I. Medical Terminology
   A. Recognizes Simple Medical Prefixes, Suffixes, and Combining Words Such As
      1. Cardio-
      2. Neuro-
      3. Hyper-
      4. Hypo-
      5. Naso-
      6. Oro-
      7. Arterio-
      8. Hemo-
      9. Therm-
      10. Vaso-
      11. Tachy-
      12. Brady-

Pathophysiology

EMR Education Standard

Uses simple knowledge of shock and respiratory compromise to respond to life threats.

EMR-Level Instructional Guideline

I. Respiratory Compromise
  A. Impaired Airway, Respiration, or Ventilation
    1. Airway
      a. Movement of oxygenated air into and out of lungs is blocked
      b. Possible causes
        i. foreign body airway obstruction
        ii. tongue blocks airway in unconscious patient
        iii. blood or secretions
        iv. swelling
        v. trauma to the neck
    2. Respiration
      a. Inadequate oxygen in air that is breathed in
      b. Possible causes
        i. low oxygen environment
        ii. poison gases
        iii. infection of the lungs
        iv. illness that narrow the airway and cause wheezing
        v. excess fluid in the lungs
        vi. excess fluid between the lungs and blood vessels
        vii. poor circulation
    3. Ventilation
      a. Rate or depth of breathing is not adequate
      b. Insufficient volume of air moved into and out of lungs
      c. Possible causes
        i. unconscious or altered level of consciousness
        ii. injury to the chest
        iii. poisoning or overdose
        iv. diseases

II. Shock
  A. Impaired Blood Flow to the Organs and Cells
    1. Heart
      a. Rate is too slow or very fast
      b. Contractions are too weak
      c. Related to heart disease, poisoning, excessive rate, or depth of artificial ventilation

2. Blood vessels
    a. Unable to constrict
    b. Related to neck fractures with spinal cord injury, infection, or anaphylaxis
3. Blood
    a. Decrease in the amount of blood or blood components in the blood vessels
    b. Related to bleeding, vomiting, diarrhea, or burns

Life Span Development

EMR Education Standard

Uses simple knowledge of age-related differences to assess and care for patients.

EMR-Level Instructional Guideline

I. Infancy (Birth to 1 Year)
- A. Physiology
  - 1. Vital signs
    - a. Normal heart rate in newborns is between 140 and 160
    - b. Normal respiratory rate in newborns is between 40 and 60 and drops to 30-40 after first few minutes of life
    - c. Average systolic blood pressure increases from 70 mmHg at birth to 90 mmHg at 1 year
  - 2. Weight
    - a. Normally 3.0-3.5 kg at birth
  - 3. Pulmonary system
    - a. Airways are more easily obstructed
    - b. Infants are primarily nose breathers until 4 weeks
    - c. Rapid respiratory rates lead to rapid heat and fluid loss
  - 4. Nervous system
    - a. Strong, coordinated suck and gag
    - b. Well flexed extremities
    - c. Extremities move equally when infant is stimulated

II. Toddler (12 to 36 Months) and Pre-School Age (3 to 5)
- A. Physiological
  - 1. Vital signs
    - a. Normal heart rate is between 80 and 130 beats per minute in toddlers and between 80 and 120 beats per minute in preschool-age children
    - b. Normal respiratory rate is between 20 and 30 breaths per minute in both toddlers and preschool-age children
    - c. Normal systolic blood pressure is between 70 and 100 mmHg in toddlers and between 80 and 110 mmHg in preschool-age children
    - d. Normal temperature is between 96.8 and 99.6 degrees Fahrenheit
  - 2. Nervous system

III. School-Age Children (6 to 12)
- A. Physiological
  - 1. Vital signs
    - a. Normal heart rate is between 70 and 110 beats per minute
    - b. Normal respiratory rate is between 20 and 30 breaths per minute

c. Normal systolic blood pressure is between 80 and 120 mmHg
d. Normal temperature is 98.6 degrees Fahrenheit

2. Bodily functions
a. Loss of primary teeth and replacement with permanent teeth begins

IV. Adolescence (13 to18)
A. Physiological
1. Normal heart rate is between 55 and 105 beats per minute
2. Normal respiratory rate is between 12 and 20 breaths per minute
3. Normal systolic blood pressure is between 80 and 120 mmHg

V. Early Adulthood (20 to 40)
A. Physiological

VI. Middle Adulthood (41 to 60)
A. Physiological
1. Normal heart rates average 70 beats per minute
2. Normal respiratory rate average 16 to 20 breaths per minute
3. Normal blood pressure average 120/80 mmHg
4. Vision and hearing become less effective
5. Cardiovascular health becomes a concern
6. Cancer strikes in this age group often
7. Weight control becomes more difficult
8. Menopause in women in late forties and early fifties

B. Psychological
1. Approach problems more as challenges than threats
2. Empty-nest syndrome
3. Often burdened by financial commitments to elderly parents as well as young adult children

VII. Late Adulthood (61 and Older)
A. Physiological
1. Normal vital signs are dependant on the patient's physical and health status
2. Cardiovascular function changes
a. Circulation efficiency decreases
b. Tachycardia not well tolerated
c. Functional blood volume decreases
3. Respiratory system
a. Chest wall weakens
b. Gas exchange through alveoli is diminished
c. Lung capacity is diminished

Public Health

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Basic Principles of Public Health
  A. EMS Interface With Public Health
    1. EMS is a public health system
      a. EMS provides a critical public health function
      b. Collaborations with other public health agencies
    2. Roles for EMS in public health
      a. Health prevention and promotion
        i. primary prevention—preventing disease development
          a) vaccination
          b) education
        ii. secondary prevention—preventing the complications and/or progression of disease
        iii. health screenings
      b. Disease surveillance
        i. EMS providers are first line care givers
        ii. patient care reports may provide information on epidemics of disease
    3. Injury prevention
      a. Safety equipment
      b. Education
        i. car seat safety
        ii. seat belt use
        iii. helmet use
        iv. driving under the influence
        v. falls
        vi. fire

Pharmacology

Principles of Pharmacology

EMR Education Standard

Uses simple knowledge of the medications that EMR may self-administer or administer to a peer in an emergency.

EMR-Level Instructional Guideline

No knowledge related to the competency is applicable at this level.

Pharmacology

Medication Administration

EMR Education Standard

Uses simple knowledge of the medications that EMR may self-administer or administer to a peer in an emergency.

EMR-Level Instructional Guideline

I. Self-Administration (Intramuscular Injection by Auto injector)
   - A. Advantages
   - B. Disadvantages
   - C. Techniques

II. Peer Administration (Intramuscular Injection by Auto injector)
   - A. Advantages
   - B. Disadvantages
   - C. Techniques

Pharmacology

Emergency Medications

EMR Education Standard

Uses simple knowledge of the medications that EMR may self-administer or administer to a peer in an emergency.

EMR-Level Instructional Guideline

The EMR must know the names, effects, indications, routes of administration, and dosages for all of the following emergency medications.

I. Specific Medications (i.e. Chemical Antidote Autoinjector Devices)

Airway Management, Respiration, and Artificial Ventilation
Airway Management

EMR Education Standard

Applies knowledge (fundamental depth, foundational breadth) of anatomy and physiology to assure a patent airway, adequate mechanical ventilation, and respiration while awaiting EMS response for patients of all ages.

EMR-Level Instructional Guideline

I. Airway Anatomy
- A. Upper Airway Tract
  - 1. Nose
  - 2. Mouth and oral cavity
    - a. Alternate airway, especially in emergency
    - b. Entrance to the digestive system
    - c. Also involved in the production of speech
    - d. Tongue
  - 3. Jaw
  - 4. Throat/pharynx
    - a. Oropharynx
    - b. Epiglottis
    - c. Larynx/voice box
      - i. vocal cords
      - ii. thyroid cartilage
      - iii. cricoid cartilage
- B. Lower Airway Tract
  - 1. Trachea/windpipe
    - a. Hollow tube which passes air to the lower airways
    - b. Supported by cartilage rings
  - 2. Bronchi
    - a. Hollow tubes which further divide into lower airways of the lungs
    - b. Supported by cartilage
  - 3. Lungs
    - a. Bronchioles
      - i. thin hollow tubes leading to the alveoli
      - ii. remain open through smooth muscle tone
    - b. Alveoli
      - i. the end of the airway
      - ii. millions of thin walled sacs
      - iii. each alveolus surrounded by capillary blood vessels
      - iv. site where oxygen and carbon dioxide (waste) are exchanged

II. Airway Assessment
    A. Signs of Adequate Airway
        1. Airway is open, can hear and feel air move in and out
        2. Patient is speaking in full sentences
        3. Sound of the voice is normal for the patient
    B. Signs of Inadequate Airway
        1. Unusual sounds are heard with breathing (i.e. stridor or snoring)
        2. Awake patient is unable to speak or voice sounds hoarse
        3. No air movement
        4. Apnea
        5. Airway obstruction
            a. Tongue
            b. Food
            c. Vomit
            d. Blood
            e. Teeth
            f. Foreign body
    C. Swelling Due to Trauma or Infection

III. Techniques of Assuring a Patent Airway (refer to current American Heart Association guidelines)
    A. Manual Airway Maneuvers
        1. Head tilt/chin lift
            a. Purpose
            b. Indications
            c. Contraindications
            d. Complications
            e. Procedure
            f. Limitation
        2. Jaw thrust maneuver
            a. To open airway when cervical spine injury is suspected
            b. Procedure
            c. If airway is not open and jaw thrust maneuver does not open it, use head tilt/chin lift maneuver
        3. Modified chin lift
            a. Purpose
            b. Indications
            c. Contraindications
            d. Complications
            e. Procedure
            f. Limitation
    B. Mechanical Airway Devices
        1. Oropharyngeal
            a. Purpose
            b. Indications

c. Contraindications
d. Complications
e. Procedure
f. Limitation

C. Relief of Foreign Body Airway Obstruction
D. Upper Airway Suctioning
1. Purpose
2. Indications
3. Contraindications
4. Complications
5. Procedure
a. mechanically powered suction devices
i. purpose
ii. indication
iii. contraindications
iv. complications
v. procedure
vi. limitation
b. hand-powered suction
i. purpose
ii. indication
iii. contraindications
iv. complications
v. procedure
vi. limitation
6. Limitation

IV. Consider Age-Related Variations in Pediatric and Geriatric Patients

Airway Management, Respiration, and Artificial Ventilation
Respiration

EMR Education Standard

Applies knowledge (fundamental depth, foundational breadth) of anatomy and physiology to assure a patent airway, adequate mechanical ventilation, and respiration while awaiting EMS response for patients of all ages.

EMR-Level Instructional Guideline

I. Anatomy of the Respiratory System
   - A. Includes All Airway Anatomy Covered in the Airway Management Section
   - B. Additional Respiratory System Anatomy
     1. Chest cage (includes ribs and muscles)
        - a. Intercostal muscles
        - b. Diaphragm
   - C. Vascular Structures That Support Respiration
     1. Pulmonary capillaries
        - a. Picks up oxygen from the alveoli
        - b. Releases carbon dioxide (waste) to the alveoli
     2. Heart and blood vessels
        - a. Circulates unoxygenated blood to lungs to pick up oxygen
        - b. Circulates oxygenated blood from lungs though heart to cells of the body

II. Physiology of Respiration
   - A. Pulmonary Ventilation
     1. Ventilation is defined as the movement of air into and out of the lungs
     2. Patients with adequate ventilation are moving normal or near-normal volumes of air into and out of the lungs
   - B. Oxygenation
     1. Refers to the amount of oxygen dissolved in blood and body fluids
     2. Blood that is almost fully saturated with oxygen might be described as well-oxygenated blood
   - C. Respiration
     1. The process by which the body captures and uses oxygen and disposes of carbon dioxide
     2. External respiration
     3. Internal respiration
     4. Cellular respiration
        - a. Each cell of the body performs a specific function

b. Oxygen and sugar are essential to produce energy for cells to perform their function
c. Produce carbon dioxide as a waste product

III. Pathophysiology of Respiration
A. Pulmonary Ventilation
1. Interruption of nervous control
a. Drugs
b. Trauma
c. Muscular dystrophy
2. Structural damage to the thorax
3. Bronchoconstriction
4. Disruption of airway patency
a. Infection
b. Trauma/burns
c. Foreign body obstruction
d. Allergic reactions
e. Unconsciousness (loss of muscle tone)
B. Oxygenation
C. Respiration
1. External respiration
a. Deficiencies due to closed environments
b. Deficiencies due to toxic or poisonous environments
2. Internal respiration
3. Cellular respiration
a. Ineffective Circulation
i. shock
ii. cardiac arrest

IV. Assessment of Adequate and Inadequate Respiration (refer to current American Heart Association Guidelines)
A. Unresponsive Patient
1. Medical patients
a. Open and maintain the airway using head-tilt, chin-lift technique
2. Trauma patients
a. Open and maintain the airway using modified jaw thrust technique while maintaining manual cervical stabilization
B. Responsive Patient
1. If the patient speaks, the airway is functional but may still be at risk
a. Foreign body or substances in the mouth may impair the airway and must be removed
i. finger sweep (solid objects)
ii. suction (liquids)
2. If the upper airway becomes narrowed, inspiration may produce a high-pitched whistling sound known as stridor
a. Foreign body

b. Swelling
c. Trauma

3. Airway patency must be continually reassessed
4. Breathing status
   a. Normal adult breathing
   b. Abnormal adult breathing
      i. characteristics
         a) the respiratory rate is too fast or too slow for the age of the patient
      ii. management
         a) administer oxygen to all patients with abnormal breathing
         b) consider assisting breathing with a bag-mask with supplemental oxygen if
            i) unresponsive
            ii) skin is blue (cyanotic) in color
         c) rate issues
            i) breathing is too fast for the age of the patient
            ii) breathing is too slow for the age of the patient
               (a) does verbal or painful stimulus increase the rate to normal?
               (b) assist breathing with a bag-mask with supplemental oxygen
               (c) treat patients who are occasionally gasping as if they were not breathing at all
            iii) breathing is absent
            iv) assist ventilation with a pocket mask or bag-mask with supplemental oxygen
      iii. chest rise and fall is shallow
      iv. breathing is noisy
         a) gurgling noise without secretions in the mouth
         b) wheezing
      v. effort of breathing
         a) accessory muscles
            i) neck
            ii) between ribs
            iii) abdomen
         b) nasal flaring
         c) tripod position

V. Management of Adequate and Inadequate Respiration
   A. Assure Patent Airway (techniques described in Airway Management section)
   B. Techniques for Assuring Adequate Respirations

VI. Supplemental Oxygen Therapy
- A. Portable Oxygen Cylinder
  - 1. Cylinder size
    - a. D – 350 liters
    - b. E – 625 liters
  - 2. Regulators
  - 3. Assembly and use of cylinders
  - 4. Changing a cylinder
    - a. Safe residual for operation is 200 psi
  - 5. Securing and handling cylinders
- B. Oxygen Delivery Devices
  - 1. Nasal cannula
    - a. Purpose
    - b. Indications
    - c. Procedure
    - d. Limitation
  - 2. Non-Rebreather (NRB) Mask
    - a. Purpose
    - b. Indications
    - c. Procedure
    - d. Limitation

VII. Consider Age-Related Variations in Pediatric and Geriatric Patients

Airway Management, Respiration, and Artificial Ventilation
Artificial Ventilation

EMR Education Standard

Applies knowledge (fundamental depth, foundational breadth) of anatomy and physiology to assure a patent airway, adequate mechanical ventilation, and respiration while awaiting EMS response for patients of all ages.

EMR-Level Instructional Guideline

I. Assessment of Adequate and Inadequate Ventilation
   - A. Adequate
     1. Respiratory rate is normal
     2. Respiration depth is normal
     3. Effort of breathing is normal
   - B. Inadequate
     1. Abnormal work (effort) of breathing
        - a. Muscles between ribs pull in on inhalation
        - b. Nasal flaring
        - c. Excessive use of abdominal muscles to breath
        - d. Sweating
        - e. Sitting upright and leaning forward (tripod position)
        - f. Fatigue from work of breathing
     2. Abnormal breathing sounds
        - a. Stridor
        - b. Wheezing heard when patient breathes
     3. Depth of breathing
        - a. Shallow
        - b. Markedly increased
     4. Rate of breathing
        - a. Very slow
        - b. Very fast
     5. Chest wall movement or damage
        - a. Paradoxical
        - b. Splinting
        - c. Penetrating
        - d. Asymmetric
     6. Irregular respiratory pattern

II. Oxygenation
   - A. Adequate
     1. Mental status considered normal for patient
     2. Skin color normal

B. Inadequate
    1. Ambient air is abnormal
        a. Enclosed space
        b. High altitude
        c. Poison gas
    2. Mental status considered abnormal or altered for patient
    3. Skin color/mucosa is not normal
        a. Cyanosis
        b. Pallor
        c. Mottling

III. Management of Adequate and Inadequate Ventilation
A. Patients With Adequate Ventilation
B. Patients With Inadequate Ventilation
    1. May be conscious or unconscious
    2. EMR must assist ventilation during respiratory distress/failure
        a. Pocket mask
            i. purpose
            ii. indications
            iii. procedure
            iv. limitation
            v. pocket mask with oxygen outlet
                a) advantages
                b) oxygen flow rate
        b. Bag-valve-mask with reservoir
            i. purpose
            ii. indications
            iii. procedure
            iv. limitation
            v. indications
                a) apnea
                b) cardiac arrest
            vi. procedure
                a) see manufacturer's instructions for the specific device
                b) explain the procedure to the patient
                c) place the mask over the patient's nose and mouth
                d) initially assist at the rate at which the patient has been breathing
                e) squeeze the bag each time the patient begins to inhale
                f) adjust the rate and the delivered tidal volume
            vii. limitations
                a) requires oxygen
                b) difficult to maintain adequate mask seal with one-rescuer operation

c) must have bag-valve-mask device available
d) may interfere with timing of chest compressions during CPR
e) must monitor to assure full exhalation
f) inadequate mask seal
g) difficult to accomplish in combative/hypoxic patients

c. Sellick's maneuver (cricoid pressure)
i. use during positive pressure ventilation
ii. reduces amount of air in stomach
iii. procedure
a) identify cricoid cartilage
b) apply firm backward pressure to cricoid cartilage with thumb and index finger
iv. do not use if
a) patient is vomiting or starts to vomit
b) patient is responsive
c) breathing tube has been placed by advanced level providers

IV. Ventilation of an Apneic Patient
A. To Oxygenate and Ventilate the Patient
B. Indications
1. No breathing is noted
2. Occasional gasping breathing is noted
C. Monitoring Patient
D. Limitation

V. Differentiate Normal Ventilation From Positive Pressure Ventilation
A. Air Movement
1. Normal ventilation
a. Creates negative pressure inside the chest
b. Air is sucked into lungs
2. Positive pressure ventilation with pocket mask or bag-mask
B. Blood Movement
1. Normal ventilation
a. Blood returns to the heart from the body
b. Blood is pulled back to the heart during normal breathing
2. Positive pressure ventilation
a. Blood return to the heart is decreased when lungs are inflated
b. Less blood is available for the heart to pump
c. Amount of blood pumped out of the heart is reduced
C. Esophageal Opening Pressure
1. Normal ventilation
a. Esophagus remains closed during normal breathing
b. No air enters the stomach

2. Positive pressure ventilation with a pocket mask or bag-mask
    a. Air is pushed into the stomach during ventilation
    b. Excess air in stomach may lead to vomiting

D. Excess Rate or Depth of Ventilation Using Pocket Mask or Bag-Mask Can Harm the Patient as ventilating too fast or too deep may cause low blood pressure, vomiting, or decreased blood flow when the chest is compressed during CPR

VI. Consider Age-Related Variations in Pediatric and Geriatric Patients

Patient Assessment
Scene Size-Up

EMR Education Standard

Use scene information and simple patient assessment findings to identify and manage immediate life threats and injuries within the scope of practice of the EMR.

EMR-Level Instructional Guideline

I. Scene Safety
- A. Common Scene Hazards
  - 1. Environmental
  - 2. Hazardous substances
    - a. Chemical
    - b. Biological
  - 3. Violence
    - a. Patient
    - b. Bystanders
    - c. Crime scenes
  - 4. Rescue
    - a. Motor-vehicle collisions
      - i. extrication hazards
      - ii. roadway operation dangers
    - b. Special situations
- B. Evaluation of the Scene
  - 1. Is the scene safe?
    - a. Yes -- establish patient contact and proceed with patient assessment.
    - b. No -- is it possible to quickly make the scene safe?
      - i. Yes – assess patient
      - ii. No -- do not enter any unsafe scene until minimizing hazards
    - c. Request specialized resources immediately

II. Scene Management
- A. Impact of the Environment on Patient Care
  - 1. Medical
    - a. Determine nature of illness
    - b. Hazards at medical emergencies
  - 2. Trauma
    - a. Determine mechanism of injury
    - b. Hazards at the trauma scene

3. Environmental considerations
    a. Weather or extreme temperatures
    b. Toxins and gases
    c. Secondary collapse and falls
    d. Unstable conditions

B. Addressing Hazards
1. Protect the patient
    a. After making the scene safe for the EMR, the safety of the patient becomes the next priority
    b. If the EMR cannot alleviate the conditions that represent a health or safety threat to the patient, move the patient to a safer environment
2. Protect the bystanders
    a. Minimize conditions that represent a hazard for bystanders
    b. If the EMR cannot minimize the hazards, remove the bystanders from the scene
3. Request resources
    a. Multiple patients need additional ambulances
    b. Fire hazard need fire department
    c. Traffic or violence issues need law enforcement
4. Scan the scene for information related to
    a. Mechanism of injury
    b. Nature of the illness

C. Violence
1. EMRs should not enter a scene or approach a patient if the threat of violence exits
2. Park away from the scene and wait for the appropriate law enforcement officials to minimize the danger

D. Need for Additional or Specialized Resources
1. A variety of specialized protective equipment and gear is available for specialized situations
    a. Chemical and biological suits can provide protection against hazardous materials and biological threats of varying degrees
    b. Specialized rescue equipment may be necessary for difficult or complicated extrications
    c. Ascent or descent gear may be necessary for specialized rescue situations
2. Only specially trained responders should wear or use the specialized equipment

E. Standard Precautions
1. Overview
    a. Based on the principle that all blood, body fluids, secretions, excretions (except sweat), non-intact skin, and mucous membranes may contain transmissible infectious agents

b. Includes a group of infection prevention practices that apply to all patients, regardless of suspected or confirmed infection status, in any healthcare delivery setting
c. Universal precautions were developed for protection of healthcare personnel
d. Standard precautions focus on protection of patients

2. Implementation
   a. The extent of standard precautions used is determined by the anticipated blood, body fluid, or pathogen exposure
      i. hand washing
      ii. gloves
      iii. gowns
      iv. masks
      v. protective eyewear

3. Personal protective equipment
   a. Personal protective equipment includes clothing or specialized equipment that provides some protection to the wearer from substances that may pose a health or safety risk
   b. Wear PPE appropriate for the potential hazard
      i. steel-toe boots
      ii. helmets
      iii. heat-resistant outerwear
      iv. self-contained breathing apparatus
      v. leather gloves

Patient Assessment
Primary Assessment

EMR Education Standard

Use scene information and simple patient assessment findings to identify and manage immediate life threats and injuries within the scope of practice of the EMR.

EMR-Level Instructional Guideline

I. Primary Survey/Primary Assessment
  A. The Primary Survey Quickly Attempts to Identify Those Conditions That Represent an Immediate Threat to the Patient's Life
  B. Level of Consciousness
    1. While approaching the patient or immediately upon patient contact, attempt to establish level of consciousness
      a. Speak to the patient and determine the level of response
      b. EMR should identify himself or herself
      c. EMR should explain that he or she is there to help
    2. Patient response
      a. Alert
        i. the patient appears to be awake
        ii. the patient acknowledges the presence of the EMR
      b. Responds to verbal stimuli
        i. the patient opens his/her eyes in respond to the EMR's voice
        ii. the patient responds appropriately to a simple command
      c. Responds to painful stimuli
        i. the patient neither acknowledges the presence of the EMR nor responds to loud voice
        ii. patient responds only when the EMR applies some form of irritating stimulus
          a) pinch the patient's ear
          b) trapezius squeeze
          c) others
      d. Unresponsive (patient does not respond to any stimulus)
  C. Airway Status (refer to the current American Heart Association Guidelines)
    1. Unresponsive medical patient open and maintain the airway with head-tilt, chin-lift technique
    2. Unresponsive trauma patient open and maintain the airway with modified jaw thrust technique while maintaining manual cervical stabilization
    3. Responsive patient
      a. Foreign body or substances in the mouth may impair the airway and must be removed

i. finger sweep (solid objects)
ii. suction (liquids)

b. If the upper airway becomes narrowed, inspiration may produce a high-pitched whistling sound known as stridor
i. foreign body
ii. swelling
iii. trauma

c. Airway patency must be continually reassessed

D. Breathing Status

1. Normal adult breathing
a. Characteristics
i. the respiratory rate will not be too fast or too slow
ii. breathing will produce a visible chest rise and fall
iii. breathing will be quiet
iv. the adult will not be expending much energy to breath

b. Continue maintaining airway, if needed

2. Abnormal adult breathing
a. Characteristics
b. Management
i. administer oxygen to all patients with abnormal breathing
ii. consider assisting breathing with a bag-mask with supplemental oxygen if
a) unresponsive
b) skin is blue (cyanotic) in color

iii. rate issues
a) breathing is too fast for the age of the patient
b) breathing is too slow for the age of the patient
i) does verbal or painful stimulus increase the rate to normal?
ii) assist breathing with a bag-mask with supplemental oxygen
iii) treat patients who are occasionally gasping as if they were not breathing at all

c) breathing is absent
d) assist ventilation with a pocket mask or bag-mask with supplemental oxygen

c. Chest rise and fall is shallow
d. Breathing is noisy
i. gurgling noise without secretions in the mouth
ii. wheezing

e. Effort of breathing
i. accessory muscles
a) neck
b) between ribs
c) abdomen

ii. nasal flaring
iii. tripod position

E. Circulatory Status
1. Is a radial pulse present?
   a. Yes
      i. normal
      ii. adult heart rate 60-100/min
      iii. fast
      iv. adult heart rate greater than 100/min
      v. slow
      vi. adult heart rate less than 60/min
      vii. irregular pulse
      viii. may be normal or abnormal
   b. No radial pulse – assess for carotid pulse
      i. if carotid pulse present,
      ii. lay patient flat and elevate feet 8-12 inches
      iii. no carotid pulse,
      iv. begin CPR
2. Is any major bleeding present?
   a. Yes –
   b. control the bleeding
   c. No
3. Is the patient maintaining adequate blood flow
   a. Skin color
      i. pink
      ii. assess palms of hands in dark-skinned patients
      iii. pale skin may indicate
         a) low body temperature
         b) blood loss
         c) shock (poor blood flow)
         d) poor blood flow to a body part
      iv. blue (cyanotic skin) may indicate
         a) problem with airway, ventilation, respiration
         b) poor blood flow
   b. Skin temperature
      i. cool skin may indicate
         a) low body temperature
         b) shock
   c. Skin moisture
      i. dry or slightly moist
      ii. wet or sweaty skin may indicate
         a) physical exertion
         b) severe pain
         c) shock
   d. Capillary refill (children)
      i. press on the skin and release
      ii. color should return to area depressed within two seconds
      iii. color return in more than two seconds may indicate shock

4. Treat for shock in primary survey if
    a. Unresponsive to verbal
    b. Heart rate too fast or too slow
    c. Skin signs of shock are present
5. Management of shock
    a. Administer oxygen by non-rebreather mask at 15 liters per minute (if available)
    b. Lay patient flat

F. Identifying Life Threats
1. Assess patient and determine if the patient has a life-threatening condition
    a. Unstable: treat life-threatening conditions as soon as they are discovered
    b. Stable: assess nature of illness or mechanism of injury

G. Assessment of Vital Functions

II. Begin Interventions Needed to Preserve Life

Patient Assessment
History-Taking

EMR Education Standard

Use scene information and simple patient assessment findings to identify and manage immediate life threats and injuries within the scope of practice of the EMR.

EMR-Level Instructional Guideline

I. Determining the Chief Complaint
  A. The Chief Complaint Is a Very Brief Description of the Reason for Summoning EMS to the Scene
    1. In the best of circumstances, the patient will be able to answer all questions about his or her own chief complaint and medical history
    2. In other cases, this information may be obtained from
      a. Family
      b. Friends
      c. Bystander
      d. Public safety personnel
      e. Medical identification jewelry or other medical information sources

II. Mechanism of Injury or Nature of Illness
  A. Mechanism of Injury
    1. Forces that caused an injury
    2. May help predict presence of injuries
  B. Nature of Illness
    1. Ask patient, family, or bystanders why EMS was called
    2. Look for clues in environment
      a. Hot or cold environment
      b. Presence of drugs or poisons

III. Associated Signs and Symptoms
  A. Ask the Patient to Describe the Current Problem
    1. Sign – any medical or trauma assessment finding that can be seen, felt, or heard by the EMR
      a. Listening to blood pressure
      b. Seeing an open wound
      c. Feeling skin temperature
    2. Symptom – any medical or trauma condition that is described to the EMR by the patient
      a. "I'm having trouble breathing"

b. “I have a headache”
c. “My chest hurts”

B. Events Leading to the Illness or Injury

IV. Age-Related Variations for Pediatric and Geriatric Assessment and Management

A. Pediatric
1. Assess infant pulse at brachial artery
2. Capillary refill is a reliable assessment of adequate blood flow in infants and children six and younger
3. Use distracting measures to gain trust
4. See Special Patient Population section (Pediatrics)

B. Geriatric
1. Obtain eye glasses and hearing aids
2. Expect history to take more time
3. See Special Patient Population section (Geriatrics)

Patient Assessment
Secondary Assessment

EMR Education Standard

Use scene information and simple patient assessment findings to identify and manage immediate life threats and injuries within the scope of practice of the EMR.

EMR-Level Instructional Guideline

I. Performing a Rapid Full-Body Scan
  A. General Approach to the Secondary Assessment
    1. Examine the patient systematically
    2. Place special emphasis on areas suggested by the chief complaint
    3. Many patients view a physical exam with apprehension and anxiety—they feel vulnerable and exposed
      a. Maintain professionalism throughout the physical exam
      b. Display compassion towards your patient and family members

II. Focused Assessment of Pain
  A. The EMR Should Complete a Secondary Assessment on All Patients Following the Primary Assessment
  B. Exam May Focus on Specific Area Based on Patient Complaint (i.e. injury or illness)
  C. As the EMR Discovers Specific Signs and Symptoms, There May Be Specific Relevant Questions That the EMR Should Ask. This Material Is Described in Specific Lessons in the Medical and Trauma Sections
  D. Perform a Physical Examination to Gather Additional Information
    1. Compare one side of the body to the other
    2. Inspect (look) and palpate (feel) for the following signs of injury
      a. Deformities
      b. Open injuries
      c. Tenderness
      d. Swelling
    3. Briefly assess the body from head to toe
      a. Head
        i. facial symmetry
        ii. drainage or bleeding
          a) nose
          b) ears
        iii. objects or swelling in mouth
          a) vomit, blood
          b) teeth

b. Neck
    i. stoma
    ii. open wounds
    iii. accessory muscles of breathing
c. Chest
    i. rise and fall
    ii. effort of breathing
    iii. accessory muscles of breathing
    iv. open wounds
    v. symmetry
d. Abdomen
    i. pain
    ii. scars
    iii. protruding organs
    iv. pregnancy
e. Pelvis
f. All four extremities
    i. symmetry
    ii. circulation
        a) pulses
        b) color
        c) capillary refill
    iii. sensation
    iv. movement

4. Immediately treat life-threatening problems found in secondary survey

III. Assessment of Vital Signs

A. Obtain a Complete Set of Vital Signs After Managing Life-Threatening Problems Found in Primary Survey

B. Vital Signs Provide a Starting Point for Judging the Effectiveness of Prehospital Therapy.

1. Respiratory rate
2. Pulse
    a. Rate - calculation method
    b. Rhythm
    c. Strength
    d. Location
        i. common locations
        ii. relationship of pulse to perfusion
3. Blood pressure
    a. Measures force of blood against the walls of the artery
    b. Reported as systolic blood pressure over diastolic blood pressure in mmHg
        i. systolic blood pressure
            a) force exerted against the arteries when the heart is contracting

b) normal adult systolic blood pressure
ii. diastolic blood pressure
a) force exerted against the arteries when the heart is between contractions
b) normal adult diastolic blood pressure
c. Technique
i. equipment
a) blood pressure cuff sizes
b) stethoscope
ii. positioning
a) position of the patient
b) position of the arm
iii. measurement
a) auscultation
b) palpation
d. Relationship of blood pressure to perfusion

IV. Special Considerations for Pediatric and Geriatric Patients
A. Normal Vital Signs by Age
B. See Special Patient Populations Section

Patient Assessment

Monitoring Devices

EMR Education Standard

No standard exists at this level for this information.

EMR-Level Instructional Guideline

Patient Assessment
Reassessment

EMR Education Standard

Use scene information and simple patient assessment findings to identify and manage immediate life threats and injuries within the scope of practice of the EMR.

EMR-Level Instructional Guideline

I. How and When to Reassess
- A. Identify and Treat Changes in the Patient's Condition in a Timely Manner
  1. Monitor the patient's condition
  2. Monitor the effectiveness of interventions
- B. Reassess at Regular Intervals
  1. Unstable patient every 5 minutes, but more often if indicated by patient condition
  2. Stable patient every 15 minutes or as deemed appropriate by the patient's condition
- C. Reassessment includes
  1. Primary assessment
  2. Vital signs
  3. Chief complaint
  4. Interventions
- D. Compare to the Baseline Status of That Assessment Component
  1. Level of consciousness
  2. Airway
  3. Breathing
     a. Reassess the adequacy of breathing
     b. Monitor breathing rate, depth, and effort
  4. Circulation adequacy
     a. Checking both carotid and radial pulses
     b. Skin color, temperature, and moisture
- E. Vital Signs
  1. Repeat vital signs as necessary
     a. Blood pressure, pulse, and respiration
- F. Chief Complaint
  1. Constantly reassess the patient's chief complaint or major injury(s)
     a. Pain remains the same
     b. Pain getting worse
     c. Pain getting better
  2. Ask if there are new or previously undisclosed complaints

G. Interventions
    1. Reassess the effectiveness of each intervention performed
    2. Consider the need for new interventions or modifications to care already being provided

II. Age-Related Considerations for Pediatric and Geriatric Assessment

Medicine
Medical Overview

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Overview of Medical Complaints
   - A. Assessment
     1. Follow a systematic assessment approach
        - a. Scene size-up
        - b. Primary assessment
        - c. History-taking
        - d. Secondary assessment
        - e. Reassessment
   - B. Manage life-threatening problems as they are discovered

Medicine
Neurology

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Review of Anatomy and Functions of the Brain, Spinal Cord, and Cerebral Blood Vessels

II. Altered Mental Status
- A. Inadequate oxygenation or ventilation
- B. Poisoning or overdose
- C. Infection
- D. Head injury
- E. Behavioral illness
- F. Diabetic conditions

III. Seizures
- A. Causes
- B. Assessment Findings
  1. Spasms, muscle contractions
  2. Bite tongue, increased secretions
  3. Sweating
  4. Cyanosis
  5. Unconscious gradually increasing level of consciousness
  6. Shaking or tremors and no loss of consciousness
  7. Incontinent
  8. Amnesia of event
- C. Management
  1. Safety of patient/position
  2. ABCs, consider nasopharyngeal airway
  3. Oxygen/suction
  4. Assist ventilation if indicated
  5. Emotional support

IV. Stroke
- A. Causes
  1. Hemorrhage
  2. Clot
- B. Assessment Findings and Symptoms
  1. Confused, dizzy, weak

2. Decreasing or increasing level of consciousness
3. Combative, uncooperative, or restless
4. Facial droop, inability to swallow, tongue deviation
5. Double vision or blurred vision
6. Difficulty speaking or absence of speech
7. Decreased or absent movement of one or more extremities
8. Headache
9. Decreased or absent sensation in one or more extremities or other areas of body
10. Coma

C. Management of Patient With Stroke Assessment Findings or Symptoms
1. Scene safety and PPE
2. ABCs/position
3. Oxygen/suction
4. Emotional support

Medicine

Abdominal and Gastrointestinal Disorders

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Define Acute Abdomen

II. Organs of the Abdominopelvic Cavity
- A. Stomach
- B. Intestines
- C. Esophagus
- D. Spleen
- E. Urinary bladder
- F. Liver
- G. Gall bladder
- H. Pancreas
- I. Kidneys
- J. Reproductive organs

III. Assessment and Symptoms
- A. Techniques
  1. Inspection
  2. Palpation
- B. Normal findings
  1. Soft
  2. Non-tender
- C. Abnormal findings
  1. Nausea, vomiting, diarrhea
     - a. Excessive
     - b. Blood in emesis or stool
  2. Pain
  3. Signs of shock
  4. Fever

IV. General Management for Patients With Abdominal Pain
- A. Scene safety and PPE
- B. Airway, ventilatory, and circulation
- C. Position of comfort
- D. Emotional support

V. Specific Acute Abdominal Conditions
    A. Gastrointestinal Bleeding
        1. Causes
        2. Assessment findings and symptoms
            a. Bloody vomit (color is red or looks like coffee grounds)
            b. Blood in stool (color is red or black)
            c. Signs of shock
        3. Management
            a. Standard precautions
            b. Airway –
            c. suction if needed
            d. Oxygenation/ventilation
                i. administer oxygen
                ii. assist with ventilation if indicated
            e. Position

VI. Consider Age-Related Variations for Pediatric and Geriatric Assessment and Management
    A. Pediatrics -- vomiting/diarrhea can cause shock
    B. Geriatric -- abdominal pain may be related to heart attack

Medicine
Immunology

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Introduction
   - A. Anaphylaxis Definition (Allergy versus anaphylaxis)
   - B. Common Substances That Cause Anaphylaxis

II. Assessment Findings
   - A. Respiratory system -- severe respiratory distress, wheezing
   - B. Cardiovascular -- rapid pulse, low blood pressure
   - C. Skin -- pale, red, or cyanotic; hives, itching, swelling around eyes, mouth, tongue
   - D. Other -- altered mental status, nausea, vomiting

III. Management
   - A. Maintain Airway
   - B. Administer Oxygen
   - C. Position
   - D. Vitals
   - E. Remove Allergen If Possible
   - F. Ask If Patient Has Used His/Her Epinephrine Auto injector

IV. Consider Age-Related Variations for Pediatric and Geriatric Assessment and Management

Medicine
Infectious Diseases

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Infectious Disease Awareness
   - A. Definitions
     1. Infectious disease
     2. Communicable disease
   - B. Transmission Routes
     1. Direct contact
     2. Coughing and sneezing
     3. Blood borne
     4. Other body fluids
   - C. Standard Precautions (Review content in Preparatory: Workforce Safety)

II. Equipment Decontamination (Review Content in Preparatory: Workforce Safety)

Medicine
Endocrine Disorders

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Diabetic Conditions
  A. Introduction
    1. Definition of terms
      a. Diabetes
      b. Low blood glucose
      c. High blood glucose
    2. Role of glucose – fuel for body cells to produce energy
    3. High blood glucose
      a. History and Assessment findings
        i. Onset—slow changes in mental status
        ii. Rapid breathing, sweet smell on breath
        iii. Dehydration, skin pale, warm and dry
        iv. Weakness, nausea, and vomiting
        v. Weak and rapid pulse
        vi. Increased urination, appetite, thirst
        vii. Medical alert identification
      b. Management
        i. ABCs
        ii. position
        iii. oxygen
        iv. emotional support
    4. Low blood glucose
      a. History and assessment findings
        i. onset—rapid changes in mental status
        ii. bizarre behavior, tremors, shaking
        iii. sweating, hunger
        iv. rapid full pulse, rapid shallow respirations
        v. seizures, coma late
        vi. medical identification jewelry or information
      b. Management
        i. ABCs
        ii. oxygen
      c. Emotional support

II. Age-Related Variations for Pediatric and Geriatric Assessment and Management
   A. Pediatrics – seizures
   B. Geriatrics -- strokes

Medicine
Psychiatric

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Define

II. Assessment
- A. General Appearance
- B. Speech
- C. Skin
- D. Posture/Gait
- E. Mental Status
- F. Mood, Thought, Perception, Judgment, Memory, and Attention

III. Behavioral Change
- A. Factors That May Alter a Patient's Behavior—May Include Situational Stresses, Medical Illnesses, History, Psychiatric Problems, Alcohol or Drugs, Patient Not Taking Psychiatric Medication
- B. Common Causes of Behavioral Alteration
  1. Low blood sugar
  2. Lack of oxygen
  3. Shock
  4. Head trauma
  5. Mind altering substances
  6. Psychiatric
  7. Excessive cold
  8. Excessive heat
  9. Brain infection
  10. Seizure disorders
  11. Poisoning or overdose
  12. Withdrawal from drugs or alcohol
- C. Behavioral Emergencies That Can Be a Danger to the EMR, Patient or Others
  1. Agitation
  2. Bizarre thinking and behavior (i.e. hallucinations, paranoia)
  3. Danger to self—self-destructive behavior, suicide attempt
  4. Danger to others—threatening behavior, violence, weapons
- D. Assessment for Suicide Risk
  1. Depression

2. Risk factors/signs or symptoms
    a. Has the patient said or done anything that would indicate the possible risk of suicide or violence to self or others?
    b. Certain cultural and religious beliefs
3. Important questions
    a. How does the patient feel?
    b. Are you thinking about hurting or killing yourself or anyone else?
    c. Is patient a threat to self or others?
    d. Is there a medical problem?
    e. Is there trauma involved?
    f. Does the patient have any weapons on self or in purse?
    g. Interventions?

IV. Methods to Calm Behavioral Emergency Patients
- A. Acknowledge That the Person Seems Upset. Restate That You Are There to Help
- B. Inform the Patient About What You Are Doing
- C. Ask Questions in a Calm, Reassuring Voice
- D. Maintain a Comfortable Distance
- E. Encourage the Patient to State What Is Troubling Him
- F. Do Not Make Quick Moves
- G. Respond Honestly to Patient's Questions
- H. Do Not Threaten, Challenge, or Argue With Disturbed Patients
- I. Tell the Truth; Do Not Lie to the Patient
- J. Do Not "Play Along" With Visual or Auditory Disturbances of the Patient
- K. Involve Trusted Family Members or Friends
- L. Be Prepared to Stay at Scene for a Long Time; Always Remain With the Patient
- M. Avoid Unnecessary Physical Contact; Call Additional Help if Needed
- N. Use Good Eye Contact
- O. Avoid Threatening Postures
- P. Other Assessment Techniques to Keep in Mind
    1. Always try to talk patient into cooperation
    2. Do not belittle or threaten patients
    3. Be calm and patient
    4. Reassure the patient
    5. Lower distressing stimuli, if possible
    6. Avoid restraints unless necessary
    7. Treat the patient with respect
    8. Protect the patient and yourself

V. Emergency Medical Care
- A. Scene Size-Up, Personal Safety
- B. Establish Rapport
    1. Interviewing techniques
        a. Acknowledge that you are listening by
            i. nodding
            ii. stating phrases such as, "go on" or "I understand"

b. Be supportive and empathetic
i. "I understand that made you angry, sad, upset, etc."
c. Limit interruptions
d. Respect patient's territory, limit physical touch
2. Avoid threatening actions, statements, and questions
3. Approach slowly and purposefully

C. Patient Assessment
1. Ability to make decisions
2. Delusions, hallucinations
3. Unusual worries, fears
4. Anxiety, depression, elation, agitation

D. Calm the Patient—Do Not Leave the Patient Alone, Unless Unsafe Situation; Consider Need for Law Enforcement

E. Assist Other EMS Responders With Restraint If Necessary

VI. Consider Age-Related Variations for Pediatric and Geriatric Assessment and Management

A. Pediatric Behavioral Emergencies -- teenage suicide concerns

B. Geriatrics -- suicide issues/depression common

Medicine
Cardiovascular

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Chest Pain
- A. Causes
  - 1. Decrease in blood supply to part of the heart muscle
    - a. Heart attack -- death of heart muscle
    - b. Angina -- temporary or incomplete interruption of blood supply to heart muscle
  - 2. Assessment and management of both conditions is the same for EMR
- B. Assessment
  - 1. Chest discomfort/pain
  - 2. Pain
    - a. Character and location of discomfort
      - i. Quality -- what does the discomfort feel like?
      - ii. Location -- where is the discomfort?
      - iii. Severity -- consider pain scale
    - b. Does the discomfort go anywhere else (radiate) in your body?
      - i. Arms
      - ii. Back
      - iii. Neck
      - iv. Jaw
      - v. Stomach
  - 3. Shortness of breath may occur
    - a. During activity/exercise
    - b. At rest
    - c. Worse when lying flat
  - 4. Skin
    - a. Cold
    - b. Wet/sweaty
  - 5. Other findings
    - a. Nausea or vomiting
    - b. Lightheadedness
  - 6. Vital signs
    - a. Blood pressure
    - b. Pulse
    - c. Respirations (rate of breathing)

C. Management
    1. High-concentration oxygen
    2. Place in position of comfort
    3. Encourage the patient to rest
    4. Ask if patient has taken any medicine for pain
        a. Aspirin
        b. Nitroglycerin

II. Consider Age-Related Variations for Pediatric and Geriatric Patients for Assessment and Management of Cardiac Compromise
    A. Pediatric
        1. Heart problems often related to congenital heart condition
        2. Cardiac arrest is often caused by a primary respiratory problem
    B. Geriatric -- may not have chest discomfort with heart attack

III. Cardiac Arrest (Refer to Shock and Resuscitation section)

Medicine
Toxicology

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Introduction
   - A. Define Poisoning
   - B. National Poison Control Center
     1. Role
     2. When to call
     3. National Telephone Number 1-800-222-1222

II. Carbon Monoxide Poisoning

III. Poisoning by Nerve Agents
   - A. Define Nerve Agents
   - B. Exposure Routes
     1. Inhaled gas
     2. Absorbed through skin
     3. Ingested from liquid or food
   - C. Onset of Signs and Symptoms
   - D. Assessment Findings
     1. Salivation, lacrimation (tearing), urination, defecation, emesis, pupil constriction
     2. Blurred or dim vision
     3. Difficulty breathing
     4. Slow or fast heart rate
     5. Muscle twitching, weakness or paralysis
     6. Slurred speech
     7. Sweating
     8. Seizures
     9. Loss of consciousness
     10. Death
   - E. General Management Considerations
     1. Scene safety/special resources
     2. Remove patient from contaminated environment as soon as safely possible
     3. PPE
     4. Decontamination by appropriately trained personnel if indicated
     5. Remove clothing

6. Airway control
7. Oxygenate and ventilate
8. Position
9. Administer nerve agent antidote auto injector kit to self or other rescuer if indicated and available

IV. Nerve Agent Antidote Autoinjector Kit
- A. Types
  1. Mark I -- two autoinjector syringes each contain a separate drug
     a. Atropine
     b. Pralidoxime chloride
  2. DuoDote
     a. One autoinjector syringe that contains both atropine and pralidoxime chloride
     b. FDA-approved 2007
- B. Administer a Nerve Agent Autoinjector Kit If
  1. You or a peer has serious signs or symptoms that indicate the presence of nerve agent poisoning
  2. You are authorized to do so by medical direction
- C. Do Not Give the Nerve Agent Autoinjector Kit If
  1. Mild signs and symptoms such as tearing or runny nose are the only signs of nerve agent poisoning present
  2. Drugs in the nerve agent autoinjector kit
     a. Atropine
        i. Increases heart rate
        ii. Dries secretions
        iii. Decreases gastric upset
        iv. Dilates pupils
     b. 2-PAM Chloride (pralidoxime chloride)
        i. Muscle twitching
        ii. Difficulty breathing
- D. Administration of MARK I ™ Kit
  1. Wear appropriate PPE
  2. Confirm that serious signs and symptoms of nerve agent poisoning are present
  3. Confirm correct drug
  4. Check expiration date
  5. Grasp the atropine syringe
  6. Remove the protective yellow cap
  7. Press the green end of the injector very firmly against the outer aspect of the patient's upper leg (thigh) at a 90 degree angle
  8. Hold for 10 seconds
  9. Check for the presence of a needle at the tip to ensure the drug was injected
  10. Dispose of syringe appropriately
  11. Grasp the pralidoxime chloride syringe

12. Remove the gray protective cap
13. Press the black end of the injector firmly against the outer aspect of the patient's upper leg (thigh) at a 90 degree angle
14. Hold for 10 seconds
15. Check for the presence of a needle at the tip to ensure the drug was injected
16. Dispose of syringe appropriately
17. Reassess the patient's signs and symptoms

E. Administration of the DuoDote™ Kit
1. Wear appropriate PPE
2. Confirm that serious signs and symptoms of nerve agent poisoning are present
3. Confirm correct drug
4. Check expiration date
5. Grasp the syringe with your dominant hand
6. Remove the gray protective cap
7. Press the green (needle) end of the injector very firmly against the outer aspect of the patient's upper leg (thigh) at a 90 degree angle
8. Hold for 10 seconds
9. Check for the presence of a needle at the green tip to ensure the drug was injected
10. Dispose of syringe appropriately
11. Reassess the patient's signs and symptoms

V. Consider Age-Related Variations for Pediatric and Geriatric Assessment and Management

A. Pediatric
1. Toddler-aged prone to ingestion of toxic substances
2. Adolescent prone to experimentation with drugs of abuse

B. Geriatric
1. Medication errors are common for many reasons
2. May cause life threatening conditions

Medicine
Respiratory

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Anatomy of the Respiratory System
   - A. Upper Airway
   - B. Lower Airway
   - C. Lungs and Accessory Structures

II. Normal Respiratory Effort
   - A. Assessment Findings and Symptoms and Management for Respiratory Conditions
     1. Respiratory distress
     2. Shortness of breath
     3. Restlessness
     4. Increased pulse rate
     5. Changes in respiratory rate or rhythm
     6. Skin color changes
     7. Abnormal sounds of breathing (i.e. wheezing)
     8. Inability to speak
     9. Accessory muscle use
     10. Altered mental status
     11. Abdominal breathing
     12. Coughing
     13. Tripod position
   - B. Management of Respiratory Distress
     1. ABCs, position
     2. Oxygen/suction
     3. Emotional support

III. Consider Age-Related Variations for Pediatric and Geriatric Assessment and Management
   - A. Pediatric
     1. Upper airway obstruction may be caused by respiratory infections
     2. Lower airway disease may be caused by birth problems or infections
   - B. Geriatrics—Pneumonia and Chronic Conditions

Medicine
Hematology

EMR Education Standard

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

EMR-Level Instructional Guideline

No knowledge related to the competency is applicable at this level.

Medicine
Genitourinary/Renal

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Hemodialysis
   A. Hemodialysis
      1. Used to eliminate water and wastes from the body when the kidneys fail
      2. Dialysis machine is connected to an access site at fistula, shunt, or access port
   B. Special Considerations for Hemodialysis Patients
      1. Do not obtain BP in the arm with the dialysis fistula or shunt
   C. Life-Threatening Emergencies Associated With Dialysis Patients
      1. Low blood pressure
      2. Nausea/vomiting
      3. Irregular pulse, cardiac arrest
      4. Bleeding from the access site
      5. Difficulty breathing
   D. Management of a Patient with a Dialysis Emergency
      1. Maintain airway
      2. Administer oxygen
      3. Assist ventilation if indicated
      4. Stop bleeding from shunt if present
      5. Position
         a. Flat if signs of shock
         b. Upright if difficulty breathing

Medicine
Gynecology

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Vaginal bleeding
   - A. Causes
   - B. Assess for signs of shock
   - C. Presence of pain
   - D. Management
     1. Standard precautions
     2. Administer oxygen
     3. Position

Medicine

Non-Traumatic Musculoskeletal Disorders

EMR Education Standard

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

EMR-Level Instructional Guideline

No knowledge related to the competency is applicable at this level.

Medicine

Diseases of the Eyes, Ears, Nose, and Throat

EMR Education Standard

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

EMR-Level Instructional Guideline

I. Nosebleed
   - A. Causes
     1. Trauma
     2. Medical
        - a. Dryness
        - b. High blood pressure
   - B. General Assessment Findings and Symptoms
     1. Pain or tenderness
     2. Bleeding from nose
     3. Vomits swallowed blood
     4. Can block airway if patient is unresponsive
   - C. Techniques to Stop Bleeding in Conscious Patient If No Risk of Spine Injury
     1. Sit patient up and lean forward
     2. Pinch the nostrils together firmly
     3. Tell patient not to sniffle or blow nose

Shock and Resuscitation

EMR Education Standard

Uses assessment information to recognize shock, respiratory failure or arrest, and cardiac arrest based on assessment findings and manages the emergency while awaiting additional emergency response.

EMR-Level Instructional Guideline

I. Ethical Issues in Resuscitation
  A. Withholding Resuscitation Attempts
    1. Irreversible death
    2. Do Not Resuscitate (DNR) orders

II. Anatomy and Physiology Review
  A. Respiratory System
    1. Fresh oxygen to enter the lungs and blood supply
    2. Respiratory waste products to leave the blood and lungs
  B. Cardiovascular System
    1. Heart – four chambers
      a. When the heart contracts, a wave of blood is sent through the arteries
      b. Pumps blood to the lungs to pick up oxygen
      c. Pumps blood around the body
        i. to deliver oxygen and nutrients to the tissues
        ii. to remove waste products from the tissues
    2. Vascular System
      a. Arteries carry blood to tissues
      b. Veins carry blood to heart
      c. Heart contraction can be felt as a pulse.
        i. carotid
        ii. femoral
        iii. radial
        iv. brachial
      d. Veins

III. Respiratory Failure
  A. Many Causes
    1. Respiratory infection
    2. Heart failure
    3. Chronic respiratory illness
    4. Trauma
  B. If Untreated, Can Lead to Respiratory Arrest
    1. No spontaneous respiration
    2. If not treated, quickly leads to cardiac arrest

C. Signs and Symptoms
    1. Altered mental status
    2. Cyanosis
    3. Inadequate depth and rate of breathing

IV. Cardiac Arrest
A. If the Heart Stops Contracting, No Blood Will Flow
B. The Body Cannot Survive When the Heart Stops
    1. Brain damage begins 4-6 minutes after the patient suffers cardiac arrest
    2. Damage becomes irreversible in 8-10 minutes
C. Cardio-pulmonary resuscitation (CPR)
    1. Artificial ventilation oxygenates the blood
    2. External chest compressions squeezes the heart and simulates a contraction
    3. Oxygenated blood is circulated to the brain and other vital organs

V. Resuscitation
A. System Components to Maximize Survival
    1. Early access
        a. Public education and awareness
            i. rapid recognition of a cardiac emergency
            ii. rapid notification before CPR starts – "phone first"
        b. 911-pre-arrival instructions and dispatcher directed CPR
    2. Early CPR
        a. Lay public
            i. family
            ii. bystanders
        b. Emergency Medical Responders
    3. Early Defibrillation
    4. Early Advanced Care
B. Basic Cardiac Life Support (refer to the current American Heart Association guidelines)
    1. Adult CPR and foreign body airway obstruction
    2. Child CPR and foreign body airway obstruction
    3. Infant CPR and foreign body airway obstruction
C. Airway Control and Ventilation
    1. Basic airway adjuncts
    2. Ventilation
        a. Delivery of excessive rate or depth of ventilation reduces blood return to the right side of the heart
        b. educes the overall blood flow that can be generated with CPR
D. Chest Compressions
    1. Factors which decrease effectiveness
        a. Compression that are too shallow
        b. Slow compression rate
        c. Sub-maximum recoil
        d. Frequent interruptions

VI. Automated External Defibrillation (AED) (refer to the current American Heart Association guidelines)
- A. Adult
- B. Child
- C. Infant
- D. Special AED Situations
  1. Pacemaker
  2. Wet patients
  3. Transdermal medication patches

VII. Shock (Poor Perfusion)
- A. Results From Inadequate Delivery of Oxygenated Blood to Body Tissues
- B. Can Be a Result of
  1. Severe bleeding or loss of fluid from the body
  2. Failure of the heart to pump enough oxygenated blood
  3. Abnormal dilation of the blood vessels
- C. Signs and Symptoms
  1. Extreme thirst
  2. Restlessness, anxiety
  3. Rapid, weak pulse
  4. Rapid, shallow respirations
  5. Mental status changes
  6. Pale, cool, moist skin
  7. Decreased blood pressure (late sign)
- D. Patient Assessment
  1. Complete a scene size-up
  2. Perform a primary assessment
  3. Obtains a relevant history
  4. Perform secondary assessment
  5. Perform a reassessment
- E. Management
  1. Manual in-line spinal stabilization, as needed
  2. Comfort, calm, and reassure the patient while awaiting additional EMS resources
  3. Do not give food or drink
  4. Airway control (i.e. adjuncts)
  5. Breathing
     a. Oxygen administration (high concentration)
     b. Assist ventilation, as needed
  6. Circulation
     a. Attempt to control obvious uncontrolled external bleeding
     b. Position patient appropriately for all ages
     c. Keep patient warm - attempt to maintain normal body temperature
     d. Treat any additional injuries that may be present

Trauma
Trauma Overview

EMR Education Standard

Uses simple knowledge to recognize and manage life threats based on assessment findings for an acutely injured patient while awaiting additional emergency medical response. This level of provider does not transport patients, but should be able to identify and categorize trauma patients and activate the appropriate trauma system response.

EMR-Level Instructional Guideline

I. Identification and Categorization of Trauma Patients
  A. Entry-level students need to be familiar with:
    1. National Trauma Triage Protocol
      a. Centers for Disease Control and Prevention. Guidelines for Field Triage of Injured Patients: Recommendations of the National Expert Panel on Field Triage. MMWR 2008:58 RR-1:1-35.
      b. http://cdc.gov/fieldtriage contains the National Trauma Triage Protocols and additional instructional materials.

Trauma
Bleeding

EMR Education Standard

Uses simple knowledge to recognize and manage life threats based on assessment findings for an acutely injured patient while awaiting additional emergency medical response.

EMR-Level Instructional Guideline

I. Bleeding
  A. General Considerations
    1. Use standard precautions to reduce risk of exposure to blood or body fluids
    2. Estimation of severity of blood loss based on
      a. Signs and symptoms
      b. General impression of the amount of blood loss
      c. Usually unreliable
    3. Uncontrolled bleeding or significant blood loss leads to shock and possibly death
  B. Types of external bleeding
    1. Arterial
      a. Blood spurts from the wound
      b. Bright, red blood
      c. May be difficult to control because of high pressure in arteries
      d. As blood pressure drops, spurting may decrease
    2. Venous
      a. Blood flows as a steady stream
      b. Darker red than arterial blood
      c. Bleeding from a vein can be severe
      d. In most cases it is easier to control than arterial bleeding due to the lower venous pressure
    3. Capillary
      a. Blood oozes from capillaries
      b. Bleeding often clots spontaneously
  C. Internal Bleeding
    1. Injured or damaged internal organs
      a. May lead to extensive, concealed bleeding
      b. May cause unexplained shock
    2. Injuries to the extremities may lead to serious internal blood loss from long bone fractures
    3. Signs and Symptoms
      a. Discolored, painful, tender, swollen, or firm tissue
      b. Increased respiratory rate

c. Increased pulse rate
d. Pale, cool skin
e. Nausea and vomiting
f. Thirst
g. Mental status changes

4. Specific Injuries (i.e. nosebleed)
   a. Causes
      i. trauma
      ii. medical
         a) dryness
         b) high blood pressure
   b. General assessment findings and symptoms
      i. pain or tenderness
      ii. bleeding from nose
      iii. vomit
      iv. swallowed blood
      v. can block airway if patient is unresponsive
   c. Techniques to stop bleeding in conscious patient if no risk of spine injury
      i. sit patient up and lean forward
      ii. pinch the nostrils together firmly
      iii. tell patient not to sniffle or blow nose
5. Management of bleeding soft tissue injuries
   a. Expose the wound
      i. control the bleeding
         a) apply fingertip pressure (use flat part of fingers) directly on the point of bleeding
         b) large wounds may require sterile gauze and direct hand pressure if fingertip pressure does not control bleeding
         c) if bleeding oozes through dressing, do not lift off; apply another gauze dressing on top of the first and continue to apply pressure
         d) consider other measures for bleeding control based on local guidelines
      ii. prevent further contamination
      iii. apply sterile dressing to the wound and bandage securely in place with tape or roller gauze
   b. Keep patient warm
   c. Position patient flat on back
   d. Do not give food or drink if shock is suspected
   e. Treat other injuries

Trauma

Chest Trauma

EMR Education Standard

Uses simple knowledge to recognize and manage life threats based on assessment findings for an acutely injured patient while awaiting additional emergency medical response.

EMR-Level Instructional Guideline

I. Chest Trauma
  A. Sucking Chest Wound
    1. Open wounds of the chest
      a. May hear gurgling sound from wound as patient breathes in
      b. Bubbling in blood around the wound
    2. Apply an air tight (occlusive dressing)
      a. Vaseline gauze
      b. Plastic wrap
      c. Foil
    3. Secure with tape on three sides
    4. Position of comfort if no spinal injury suspected
  B. Impaled Objects in Chest
    1. Do not remove the impaled object unless it interferes with chest compressions
    2. Manually secure the object
    3. Expose the wound area
    4. Control bleeding
    5. Use a bulky dressing to stabilize the object

Trauma

Abdominal and Genitourinary Trauma

EMR Education Standard

Uses simple knowledge to recognize and manage life threats based on assessment findings for an acutely injured patient while awaiting additional emergency medical response.

EMR-Level Instructional Guideline

I. Abdominal Trauma
   - A. Eviscerations – Open Injury With Organs Sticking Out of the Wound
     1. Do not replace organs
     2. Cover with thick moist dressing
   - B. Impaled Objects in Abdomen
     1. Do not remove the impaled object
     2. Manually secure the object
     3. Expose the wound
     4. Control bleeding
     5. Use bulky dressing to stabilize the object

Trauma
Orthopedic Trauma

EMR Education Standard

Uses simple knowledge to recognize and manage life threats based on assessment findings for an acutely injured patient while awaiting additional emergency medical response.

EMR-Level Instructional Guideline

I. Fractures and Dislocations
  A. Fractures
    1. Introduction
      a. Isolated fractures are not usually life-threatening; however, fractures of the pelvic bones or the femurs may result in serious blood loss
    2. Types
      a. Open – bone that is broken and a break in the continuity of the skin has occurred either as a result of the broken bone ends or by the forces which caused the fracture
      b. Closed – bone that is broken but does not produce a break in the continuity of the skin
  B. Dislocations
    1. Definition – a dislocation occurs when a separation occurs between two bones at their joint
    2. Can be extremely painful
  C. Signs and Symptoms -- may be extremely difficult to distinguish a fracture from a dislocation
    1. Deformity or angulation
    2. Pain and tenderness
    3. Grating
    4. Swelling
    5. Bruising (discoloration)
    6. Exposed bone ends
    7. Joint locked into position
    8. Impaired function or circulation
  D. Emergency Medical Care of Bone Injuries
    1. After life threats have been controlled, allow patient to remain in a position of comfort
    2. Apply cold pack to area of painful, swollen, deformed extremity to reduce swelling and pain
    3. Manual extremity stabilization
      a. Goal is to prevent movement of the extremity
      b. Support above and below an injury

c. Cover open wounds with a sterile dressing
d. Pad to prevent pressure and discomfort to the patient
e. When in doubt, manually stabilize the injury
f. Do not intentionally replace the protruding bones
g. Amputation
    i. limb or part of a limb is severed
    ii. bleeding may be controlled easily or be difficult to control
    iii. find the severed body part to send to the hospital
    iv. place in a sealed plastic bag
    v. place plastic bag in a bowl with ice and water
        a) do not allow the amputated part become saturated with water
        b) never place amputated part directly on ice

Trauma

Soft Tissue Trauma

EMR Education Standard

Uses simple knowledge to recognize and manage life threats based on assessment findings for an acutely injured patient while awaiting additional emergency medical response

EMR-Level Instructional Guideline

I. Abrasion
   - A. Outermost layer of skin is scraped off
   - B. Painful
   - C. Superficial
   - D. No bleeding or small amount of blood oozes from wound

II. Laceration
   - A. Cut or Break in Skin
   - B. May Occur Alone or With Other Soft Tissue Injuries
   - C. Caused by Forceful Impact With Sharp Object
   - D. Bleeding May Be Severe

III. Penetration/Puncture
   - A. Caused by Sharp Pointed Object
   - B. May Be Little or No External Bleeding
   - C. Internal Bleeding May Be Severe
   - D. Exit Wound May Be Present
   - E. Examples
     1. Gun shot wound
     2. Stab wound

IV. Impaled Object
   - A. Object That Creates the Puncture Wound Remains Embedded
   - B. Leave in Place Unless It Is in the Cheek With Uncontrolled Bleeding
   - C. Apply Pressure Around the Object and Secure in Place
   - D. Avoid Movement

V. Foreign Body in Eye
   - A. Dirt, Dust, or Chemical
   - B. Signs and Symptoms
     1. Pain, tearing, redness
     2. Vision may be blurred

C. Treatment
1. Standard precautions
2. Lay patient flat
3. Tilt head to affected side so debris or chemical does not flow into unaffected eye
4. Hold eye lid open with gloved hand
   a. Apply pressure to bones around the eye while holding lid open
   b. Never press on the eye itself
5. Flush for at least 15 minutes with water or normal saline

VI. Burns
A. Severity
1. Determined by several factors
   a. Depth of burn
   b. Extent of burn
   c. Respiratory involvement
   d. Part of body burned
   e. Cause of burn
      i. thermal
      ii. chemical
      iii. electrical
2. Depth
   a. Superficial involves only the outer layer of the skin
      i. pain
      ii. redness of the skin
      iii. swelling
   b. Partial thickness involves the outer and middle layer of the skin
      i. deep intense pain
      ii. reddening
      iii. blisters or moist appearance
   c. Full thickness extends through all layers of the skin
      i. white, yellow, tan, brown or charred appearance
      ii. leathery feel
      iii. no pain in those areas
         a) Usually there is pain in surrounding areas with other depth of burns
3. Extent of burn
   a. How much of the body surface is burned
   b. Has a large influence on whether the patient develops
      i. shock
      ii. other complications related to burns
   c. Rule of nines
4. Special management considerations
   a. Stop the burning process with brief application of clean room temperature water or saline

b. Remove smoldering clothing and jewelry
    i. some clothing may have melted to the skin
    ii. if you meet resistance when removing clothing, leave in place
c. Continually monitor the airway and breathing
d. Burned in an enclosed space or on the face could be high risk of swelling of the airway or other breathing problems
e. Cover the burned area with a dry, clean dressing
    i. do not apply any ointment, lotion, or antiseptic
    ii. do not break blisters
    iii. keep the patient warm
f. Chemical burns
    i. scene safety
    ii. gloves and eye protection
    iii. brush off dry powder
    iv. flush with copious amounts of water
    v. consider eye burns if splash injury and flush with water
g. Electrical burns
    i. scene safety -- never touch a patient in contact with an electric source
    ii. often internal damage more severe than external injuries appear
    iii. patient may be in cardiac arrest when EMR arrives
h. Infant and child considerations
    i. skin covers greater body surface area in relation to the total body size
    ii. greater fluid and heat loss
    iii. keep environment warm when possible
    iv. consider possibility of child abuse

VII. Dressings and Bandages
A. Function
    1. Control bleeding
    2. Absorb drainage
    3. Prevent contamination
B. Dressings
    1. Usually sterile
    2. Types
        a. Sterile gauze pads
        b. Non-stick gauze pads
        c. Occlusive dressings
        d. Trauma dressings
C. Bandages
    1. Hold dressings in place
    2. Types
        a. Adhesive bandages

b. Roller gauze
    i. elastic
    ii. non-elastic
c. Tape

D. Application
1. Dressings
2. Bandages

Trauma
Head, Facial, Neck, and Spine Trauma

EMR Education Standard

Uses simple knowledge to recognize and manage life threats based on assessment findings for an acutely injured patient while awaiting additional emergency medical response.

EMR-Level Instructional Guideline

I. Head, Face, Neck, and Spine Trauma
  A. Injuries to the Brain and Skull
    1. Head injuries
      a. Open injuries may present with bleeding
      b. Closed injury may present with swelling or depression of skull bones
      c. Brain injury may lead to altered consciousness with airway and breathing problems
    2. Scalp injuries
      a. May bleed more than expected because of the large number of blood vessels in the scalp
      b. Control bleeding with direct pressure
      c. Severe bleeding from the scalp can cause shock in infants and young children
    3. Injury to the brain
      a. Injury of brain tissue or bleeding inside the skull may increase pressure on the brain
      b. Altered mental status
    4. Special Management Considerations
      a. Maintain airway/ ventilation/oxygenation
      b. Primary assessment with manual in-line spinal stabilization should be done on scene
      c. Monitor the patient's mental status
      d. Dress and bandage open wound as indicated in the emergency medical care of soft tissue injuries
  B. Injuries to the Spine
    1. Mechanism of injury
      a. Motor vehicle crashes
      b. Pedestrian – vehicle collisions
      c. Falls
      d. Blunt trauma
      e. Penetrating trauma to head, neck, or torso
      f. Motorcycle crashes
      g. Hangings

h. Springboard or platform diving accidents
i. Unresponsive trauma patients

2. Signs and symptoms
   a. Tenderness in the area of injury
   b. Pain associated with moving
      i. do not ask the patient to move to try to find a pain response
      ii. do not move the patient to test for a pain response
   c. Pain independent of movement or palpation
   d. Numbness, weakness, or tingling in the arms or legs
   e. Unable to feel or move below the suspected level of injury
   f. Loss of feeling or movement in the upper or lower extremities
   g. Difficulty breathing or shallow breathing
   h. Loss of bladder and/or bowel control
   i. If the patient can walk, move, and feel arms and legs it does not rule out the possibility of injury to the bones of the spine or to the spinal cord
3. Assessing the patient with a possible spine injury
   a. Responsive patient
      i. manually stabilize head and neck in the position found
      ii. mechanism of injury
      iii. questions to ask
         a) does your neck or back hurt?
         b) what happened?
         c) where does it hurt?
         d) can you move your hands and feet?
         e) can you feel me touching your fingers?
         f) can you feel me touching your toes?
   b. Unresponsive patient
      i. maintain airway
      ii. assist ventilation if inadequate
      iii. administer oxygen
      iv. stabilize head and neck manually in the position found
      v. obtain information from others at the scene to determine mechanism of injury and patient's mental status before the Emergency Medical Responder's arrival
   c. Complications
      i. inadequate breathing effort
      ii. paralysis
4. Special management consideration
   a. Establish and maintain manual stabilization
      i. maintain constant manual stabilization
      ii. may be released when additional EMS resources have applied a cervical collar and properly secured the patient's torso and head to a backboard

b. Primary assessment
    i. whenever possible, airway control should be done without moving the patient's head
    ii. whenever possible, artificial ventilation should be done without moving the head
    iii. assess pulse, movement, and feeling in all extremities

Trauma

Nervous System Trauma

EMR Education Standard

Uses simple knowledge to recognize and manage life threats based on assessment findings for an acutely injured patient while awaiting additional emergency medical response.

EMR-Level Instructional Guideline

No knowledge related to the competency is applicable at this level.

Trauma

Special Considerations in Trauma

EMR Education Standard

Uses simple knowledge to recognize and manage life threats based on assessment findings for an acutely injured patient while awaiting additional emergency medical response.

EMR-Level Instructional Guideline

I. Pregnant Patient
   - A. Recognition
     1. Pregnant women who have suffered an injury should be evaluated by a physician in the emergency room
   - B. Management
     1. If the woman is having any symptoms related to shock, high-concentration oxygen should be administered
     2. Place pregnant patient in third trimester on her left side unless spinal injury suspected then tilt spine board to the left after patient is fully secured to the board

II. Pediatric Patient
   - A. Recognition
     1. Heavy head with weak neck muscles in children increase risk of cervical spine injury
     2. Accessory muscle use more prominent during respiratory distress
     3. Slow pulse rate indicates hypoxia
     4. Normal blood pressure may be present in compensated shock
     5. Shaken baby syndrome may cause brain trauma
   - B. Management
     1. Manage hypovolemia and shock as for adults
     2. Prevent hypothermia in shock
     3. Transport to appropriate facility
     4. Pad beneath child from shoulders to hips during cervical immobilization to prevent flexion of the neck
     5. Ventilate bradycardic pediatric patient

III. Elderly Patient
   - A. Recognition
     1. Changes in pulmonary, cardiovascular, neurologic, and musculoskeletal systems make older patients susceptible to trauma
     2. Circulation changes lead to inability to maintain normal vital signs during hemorrhage, blood pressure drops sooner

3. Multiple medications are more common and may affect:
    a. Assessment, especially vital signs
    b. Blood clotting
4. Skeletal changes cause curvature of the upper spine that may require padding during spinal immobilization
5. Dentures may cause airway obstruction
6. Falls are often the result of medical conditions

B. Management
1. Suctioning is important in elderly patients due to decreased cough reflex
2. Skeletal changes cause curvature of the upper spine that may require padding during spinal immobilization
3. Prevent hypothermia
4. Broken bones are common

Trauma
Environmental Emergencies

EMR Education Standard

Uses simple knowledge to recognize and manage life threats based on assessment findings for an acutely injured patient while awaiting additional emergency medical response.

EMR-Level Instructional Guideline

I. Environmental Emergencies
  A. Exposure to Cold
    1. Generalized cold emergency
      a. Contributing factors
        i. cold environment
        ii. wet environment
        iii. wind
        iv. age (very old/very young)
        v. medical conditions
        vi. alcohol/drugs/poisons
      b. Signs and symptoms of generalized hypothermia
        i. obvious exposure
        ii. subtle exposure
          a) underlying illness
          b) overdose/poisoning
          c) ambient temperature decreased (e.g., cool home of elderly patient)
        iii. cool/cold skin temperature
          a) place the back of your hand between the clothing and the patient's abdomen to assess the general temperature of the patient
          b) the patient experiencing a generalized cold emergency will present with cool or cold abdominal skin temperature
        iv. shivering
        v. decreasing mental status or motor function
          a) Depends on the degree of hypothermia
          b) Poor coordination
          c) Memory disturbances/confusion
          d) Reduced or loss of touch sensation
          e) Mood changes
          f) Less communicative
          g) Dizziness
          h) Speech difficulty

i) Stiff or rigid posture
j) Muscular rigidity
k) Poor judgment – patient may actually remove clothing
l) Complaints of joint/muscle stiffness

vi. Slow pulse

c. Management
i. move to a warm environment as soon as possible
ii. remove wet clothing
iii. wrap patient in warm blankets
iv. handle gently
v. assess pulses for 30-45 seconds to determine there is no pulse before starting CPR
vi. if AED states that shock is indicated, defibrillate

2. Local cold emergencies
a. Freezing or near freezing of a body part
b. Usually occurs in fingers, toes, face, ears, and nose
c. Signs and symptoms of local cold injuries
d. Local injury with clear demarcation
i. early or superficial injury
a) blanching of the skin – palpation of the skin in which normal color does not return
b) loss of feeling and sensation in the injured area
c) skin is soft
d) if rewarmed, tingling sensation

ii. late or deep injury
a) white, waxy skin
b) firm or frozen feeling when palpated
c) swelling may be present
d) blisters may be present
e) if thawed or partially thawed, the skin may appear flushed with areas of purple and blanching or may be mottled and cyanotic

e. Special management consideration
i. remove the patient from the cold environment.
a) handle the patient extremely gently
b) protect the patient from further heat loss
c) do not allow the patient to walk or exert himself
d) do not re-expose to the cold
e) remove any wet clothing and cover the patient with a blanket

ii. do not
a) break blisters
b) rub or massage affected area
c) apply heat
d) rewarm if any chance of refreezing

iii. the patient should not be given anything by mouth
a) coffee, tea, or smoking may worsen the condition
b) cover the patient with a blanket; keep the patient warm
iv. if early or superficial injury
a) manually stabilize the extremity.
b) cover the extremity
v. if late or deep cold injury
a) remove jewelry
b) cover with dry clothing or dressings

B. Exposure to Heat
1. Predisposing factors
a. Climate
i. high ambient temperature reduces body's ability to lose heat by radiation
ii. high relative humidity reduces the body's ability to lose heat through evaporation
b. Exercise and activity – can lose more than 1 liter of sweat per hour
c. Age (very old/very young)
d. Preexisting illness and/or conditions
e. Drugs/medications
2. Signs and symptoms
a. Muscular cramps
b. Weakness or exhaustion
c. Sweating or dry skin
d. Dizziness or faintness
e. Rapid heart rate
f. Altered mental status to unresponsive
3. Special management considerations
a. Administer oxygen by non-rebreather mask
b. Remove the patient from the hot environment
c. Remove excess clothing
d. Place in a cool environment (air conditioned)
e. Cool patient by fanning (may be ineffective in high humidity)
f. Cool with cool cloths or ice packs (wrapped so they are not placed in contact with the skin)
i. on neck
ii. under armpits
iii. on groin
g. If unconscious place in recovery position
i. maintain airway
ii. assist ventilation if breathing inadequate

C. Submersion
   1. Definitions
      a. drowning – occurs when the patient's airway is surrounded by a liquid that prevents her from breathing air; it may or may not cause death
   2. Contributing factors
   3. Severity
   4. Signs and symptoms
      a. Coughing
      b. Vomiting
      c. Difficulty breathing
      d. Respiratory arrest
      e. Cardiac arrest
   5. Special management considerations
      a. If patient is in water be aware of personal safety
      b. Consider possibility of spine injury
         i. if risk of spinal injury exists, manually stabilize the neck and spine
         ii. if no risk of spinal injury exists and patient is breathing
            a) place in recovery position
            b) administer oxygen
         iii. if no risk of spinal injury exists and patient is not breathing, follow American Heart Association guidelines for CPR
      c. Risk of vomiting is high and if patient vomits
         i. roll on side
         ii. suction mouth

Trauma

Multi-System Trauma

EMR Education Standard

Uses simple knowledge to recognize and manage life threats based on assessment findings for an acutely injured patient while awaiting additional emergency medical response.

EMR-Level Instructional Guideline

I. Multi-System Trauma
   - A. Patients Subjected to Significant Forces Have an Increased Risk for Injuries to Multiple Organs Within the Body at the Same Time
   - B. Multi-Trauma Patients Are at a Greater Risk of Developing Shock
   - C. Suspect Multi-Systems Trauma in Any Patient Subjected to Significant External Forces

Special Patient Populations
Obstetrics

EMR Education Standard

Recognizes and manages life threats based on simple assessment findings for a patient with special needs while awaiting additional emergency response.

EMR-Level Instructional Guideline

I. Anatomy and Physiology of organs related to delivery
   - A. Uterus/Womb
   - B. Baby/Fetus
   - C. Placenta/Afterbirth
   - D. Amniotic Sac/Bag of Water
   - E. Vagina/Birth Canal

II. Vaginal Bleeding in the Pregnant Patient
   - A. Light Irregular Discharges of Small Amount of Blood "Spotting" May Be Normal
   - B. More Bleeding May Indicate a Problem That Needs Physician's Attention
   - C. Mucus With Small Amount of Blood Late in Pregnancy May Mean Delivery Is Near
   - D. Any Other Bleeding Late in Pregnancy Is a Serious Emergency
   - E. General Assessment
     1. ABCs
     2. Vital signs initially and repeated periodically
     3. SAMPLE history and obstetric history
   - F. General Management
     1. Standard precautions
     2. Place patient on left side
     3. Ensure the patient places a sanitary pad over the vaginal opening
     4. Provide shock care
     5. Monitor airway and administer oxygen
     6. Save blood soaked pads in a plastic bag for examination at the hospital
     7. Offer support for the patient while awaiting EMT response

III. General Assessment and Management of the Obstetrical Patient
   - A. Signs of Labor
     1. Braxton Hicks/false labor contractions
     2. Bloody show
     3. Ruptured membranes
     4. Contractions regular and at closer intervals
   - B. Stages of Labor and Delivery
     1. First stage: onset of contractions until fetus enters the birth canal

2. Second stage: fetus enters the birth canal until birth
3. Third stage: placenta delivery

C. Assessment During Labor and Delivery
1. Airway, breathing, circulation
2. SAMPLE and obstetric history
a. When is the baby due?
b. First or later pregnancy
c. Known complications (multiple births, etc.)
d. Has experienced bloody show, water broken
e. Contraction regularity, interval, and duration
f. Other medical history

IV. Vital Signs

V. Physical Examination
A. Evaluating Contractions
B. Inspect for Crowning
C. Preparation for Delivery
1. Standard precautions
a. Gloves
b. Gown
c. Eye protection and face shield
2. Collect supplies/OB kit
a. Towels
b. Sheets
c. Bulb syringe
d. Cord clamps
e. Sterile scissors or razor
f. Sanitary pads
g. Bag or basin for afterbirth
h. Medical hazard bag
3. Provide privacy for mother
4. Position mother on back, hips elevated, knees bent, legs apart
5. No internal vaginal examination
6. Wait for EMTs

VI. Steps If the EMR Needs to Deliver
A. If Baby's Head Is Seen at the Vaginal Opening (Crowning), Delivery Will Occur Soon
B. Someone by Mother's Head for Support
C. Wash Hands and Put on PPE
D. Support the Baby's Head As It Delivers
E. If Umbilical Cord Is Around the Baby's Neck, Slip It Gently Over the Head
F. Support the Baby As He or She Rotates
G. The Upper Shoulder Should Deliver Next as the Head Is Guided Downward
H. The Feet Should Deliver After That
I. Keep the Head Lowered So Fluids Can Drain; Suction Mouth and Nose

J. Make Note of the Birth Time
K. Keep the Baby at the Level of the Birth Canal
L. Clamp the Cord, Cut Only If Sterile Equipment Available
M. Monitor the ABC's
N. Wait for the Afterbirth Delivery

VII. Care for the Baby (see Neonatal Care)

VIII. Care for the Mother
A. Some Bleeding is Normal
B. Sanitary Pad Over Vaginal Opening
C. Massage the Uterus in a Circular Motion Continuously
D. Allow the Mother to Nurse
E. Provide Comfort, Warmth

Special Patient Populations

Neonatal Care

EMR Education Standard

Recognizes and manages life threats based on simple assessment findings for a patient with special needs while awaiting additional emergency response.

EMR-Level Instructional Guideline

I. Initial Care of the Neonate
   - A. Assessment
     1. Respirations
     2. Pulse
     3. Color
     4. Cry
     5. Movement
   - B. Routine Care
     1. Support
     2. Dry
     3. Warm
     4. Position
     5. Airway
     6. Stimulation

Special Patient Populations
Pediatrics

EMR Education Standard

Recognizes and manages life threats based on simple assessment findings for a patient with special needs while awaiting additional emergency response.

EMR-Level Instructional Guideline

I. General Considerations
- A. Many Components of the Initial Evaluation Can Be Done by Careful Observation Without Touching the Patient
- B. When Appropriate, Utilize the Parent/Guardian to Help the Infant or Child Be More Comfortable With Your Exam and Treatment
- C. Communicating With Scared, Concerned Parents and Family Is Important When Caring for an Ill Infant or Child
- D. Continue Assessment Until Care Is Transferred

II. Assessment Process
- A. Scene Survey
  1. Evaluate the scene for safety
  2. Evaluate the scene for clues related to the chief complaint
     - a. Ingestions or toxic exposures: pills, medicine bottles, chemicals, alcohol, drug paraphernalia, etc.
     - b. Child abuse: injury must be consistent with history given and physical/developmental capabilities of the patient
     - c. Note position and location in which patient is found
  3. Observe caregivers' interactions with the child
     - a. Are they appropriately concerned, angry or indifferent?
     - b. Does the child seem comforted by them or scared by them?
- B. Patient Assessment
  1. Pediatric assessment triangle -- 15- to 30-second assessment of the severity of the patient's illness or injury
     - a. Use prior to addressing "the ABCs"
     - b. Does not require touching the patient; just looking and listening
       - i. appearance
         - a) muscle tone
         - b) interactiveness
         - c) consolability
         - d) eye contact
         - e) speech or cry
       - ii. work of breathing
         - a) abnormal airway noise

i) wheezing
ii) stridor
iii) grunting
b) abnormal positioning (i.e. tripoding)
c) accessory muscle use
i) chest wall
ii) nasal flaring
iii. assess skin to see if it is
a) Pale
b) Mottled
c) Cyanotic
c. possible causes of abnormal findings above
i. respiratory distress of failure
ii. shock
iii. cardiopulmonary failure or arrest
iv. other abnormality
v. stable patient

2. Airway
   a. Obstructed
      i. open with airway maneuvers and airway adjuncts
      ii. if indicated suction or remove fluids, blood, or foreign objects
   b. Maintainable on its own
3. Ventilation/oxygenation
   a. Administer oxygen if inadequate
   b. Assist with ventilation if necessary
4. Circulation
   a. Signs of shock
      i. pulse quality: strong or weak
      ii. extremity skin temperature and active bleeding
   b. Position flat
   c. Maintain warmth
5. Determine level of consciousness
   a. AVPU scale
   b. Assess pupils: dilated, constricted, reactive, or fixed
   c. Moving all extremities equally
6. Exposure
   a. Examine for additional injuries
   b. Promptly cover to prevent hypothermia; cover head as well
7. Additional assessment
   a. History
      i. symptoms and duration
         a) fever
         b) activity level
         c) recent eating, drinking, and urine output history
         d) history of vomiting, diarrhea, or abdominal pain

ii. medications taking and medication allergies
iii. past medical problems or chronic illnesses
iv. key events leading to the injury or illness

b. Detailed physical exam—"Head to Toe"
i. head: bruising, swelling
ii. ears: drainage suggestive of trauma or infection
iii. mouth: loose teeth, identifiable odors, bleeding
iv. neck: abnormal bruising
v. chest and back: bruises, injuries, or rashes
vi. extremities: deformities, swellings, or pain on movement

I. Respiratory Distress/Failure/Arrest
A. Introduction
1. Tongue is larger
2. Airways are smaller
B. Pathophysiology
1. Respiratory distress
2. Respiratory failure
3. Respiratory arrest
C. Assessment
1. History
2. Physical findings
D. Upper Airway Obstruction
1. Swelling of tissue
2. Foreign body
3. Secretions
4. Other
E. Management
1. Airway positioning (chin lift, jaw thrust)
2. If upper airway is obstructed, use,
age- and situation-appropriate airway clearance measures (finger sweep, back blows, suctioning, abdominal thrusts)
3. Airway adjunct (oropharyngeal airways)
4. Oxygen
5. Assisted ventilation (bag valve mask)

II. Shock
A. Causes
1. Trauma
2. Infections
3. Vomiting or diarrhea
B. Assessment
1. History
2. Physical findings
a. Rapid heart rate and respiratory rate
b. Weak or absent pulse

c. Altered mental status
d. Pale, cool, clammy skin

C. Management
1. Scene safety and standard precautions
2. Open airway (protect spine if necessary)
3. Oxygen
4. Assist ventilations if necessary
5. Chest compressions if necessary
6. Control bleeding

III. Seizures
A. Description
B. Causes
1. Fever
2. Head trauma
3. Epilepsy
4. Low blood glucose
5. Poisoning

C. Assessment
D. Management
1. Scene safety and standard precautions
2. Place patient on the floor
3. Loosen restrictive clothing
4. Protect the patient from injury
5. Nothing in the mouth and do not hold the patient down
6. After seizure, place patient in recovery position

IV. Sudden Infant Death Syndrome (SIDS)
A. Introduction
1. Definition of SIDS
2. Definition of Apparent Life Threatening Event (ALTE)
3. Epidemiology and risk factors

B. Assessment
1. Airway, breathing, pulse
2. Signs of death
3. Begin resuscitation if no indication of futility

C. Management
1. Local EMS criteria for death in the field
2. Notification of appropriate authorities
3. Caregiver support

Special Patient Populations
Geriatrics

EMR Education Standard

Recognizes and manages life threats based on simple assessment findings for a patient with special needs while awaiting additional emergency response.

EMR-Level Instructional Guideline

I. Age-Associated Changes
- A. Age Dependent and Variable
- B. Sensory Changes in Older Patients
  1. Vision
     - a. Decreased vision
     - b. Inability to differentiate colors
     - c. Decreased night vision
     - d. Decreased ability to see close up
     - e. Decreased depth perception
  2. Hearing
     - a. Inability to hear high-frequency sounds
     - b. Use of hearing aids
  3. Sense of touch and pain
     - a. Decreased sense of balance
     - b. Diminished pain perception
     - c. Decreased ability to differentiate hot from cold
     - d. Decreased tolerance of hot and cold
- C. Heart/Blood Vessels
  1. High blood pressure
  2. Increased risk of heart and stroke
  3. Heart is less able to beat faster when needed
- D. Lungs and Breathing
  1. Diminished breathing capacity
  2. Increased risk of infection of the lungs
  3. Decreased cough
- E. Stomach and Intestines
  1. Difficulty with digestion
  2. Difficulty chewing –
  3. increased risk of foreign body airway obstruction
- F. Brain and Nervous System
  1. Slower reflexes
  2. Decreased recent memory

G. Muscles and Bones
    1. Decreased bone density—easier to break
    2. Loss of strength and size of bone and muscles
H. Other
    1. Increased risk of infections
    2. Decreased signs and symptoms of infection when present

II. Assessment and Care Implications
A. Assessment
    1. ABCs
        a. Airway may be difficult to assess and manage due to neck arthritis
        b. Dentures should not be removed unless they obstruct the airway or interfere with ventilation if rescue breathing is needed
        c. Increased risk of airway obstructions
        d. Pulse may be irregular due to heart rhythm problems that are common
    2. Speak slowly and distinctly at patient's eye level with good lighting
    3. Give the patient time to respond unless the condition appears urgent
    4. Elderly may not show severe symptoms even if very ill
    5. Use family members if available, especially for base line mental status
    6. Reassess often as condition may deteriorate quickly
B. Care
    1. Handle gently as skin is fragile and can easily tear
    2. Reassurance is important

Special Patient Populations
Patients With Special Challenges

EMR Education Standard

Recognizes and manages life threats based on simple assessment findings for a patient with special needs while awaiting additional emergency response.

EMR-Level Instructional Guideline

I. Recognizing and Reporting Abuse and Neglect
  A. Child Abuse
    1. Types of abuse
      a. Neglect
      b. Physical abuse
      c. Sexual abuse
      d. Emotional abuse
    2. Assessment
      a. History or scene findings to concern for abuse or neglect
      b. Caregiver's behavior
      c. Physical findings
    3. Management
      a. Reporting
      b. Safely transporting
      c. Role of child/adult protective services
    4. Legal aspects
    5. Documentation
  B. Elder Abuse
    1. Types of abuse
      a. Neglect
      b. Physical abuse
      c. Sexual abuse
      d. Emotional abuse
      e. Financial abuse
    2. Epidemiology
    3. Assessment
    4. Management
    5. Legal aspects
    6. Documentation

EMS Operations

Principles of Safely Operating a Ground Ambulance

EMR Education Standard

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

EMR-Level Instructional Guideline

The intent of this section is to give an overview of emergency response to ensure the safety of EMS personnel, patients, and others during EMS operations. This does not prepare the entry-level student to be an experienced and competent driver.

Information related to the clinical management of the patient during emergency response is found in the clinical sections of the National EMS Education Standards and Instructional Guidelines for each personnel level.

I. Risks and Responsibilities of Emergency Response
  A. Apparatus and Equipment Readiness
    1. Inspect and service vehicles regularly
      a. Tire inflation
      b. Engine fluid levels
      c. Warning devices in working order
    2. Appropriate safety equipment available and in working order
      a. Personal protective equipment
      b. Safety vests
  B. Pre-Arrival Considerations
    1. All personnel are properly seated and use seat belts
    2. All equipment is appropriately secured
      a. Cab area
      b. Rear of ambulances
      c. Compartment areas
    3. Consideration of use of lights and sirens
      a. Risk/benefit analysis
      b. Audible warning devices
        i. asking for right-of-way of others
        ii. not to be used to clear traffic
      c. Visual warning devices – consider turning off upon arrival if appropriate
    4. Respond with due regard
    5. High-risk situations
      a. Intersections
      b. Highway access

c. Speeding
d. Driver distractions
i. mobile computer
ii. global positioning systems
iii. mobile radio
iv. vehicle stereo
v. wireless devices
vi. eating/drinking
e. Inclement weather
f. Aggressive drivers
g. Unpaved roadways (see Federal Highway Administration definition)
h. Responding alone
i. Fatigue

C. Scene Safety
1. Personal
a. First priority for all EMS personnel
b. Appropriate personal protective equipment for conditions
c. Scene size-up
2. Patient
a. Keep them informed of your actions
b. Protect from further harm
3. Control traffic flow
a. Proper positioning of emergency vehicles
i. upwind/uphill
ii. protect scene
b. Use of lights and other warning devices
c. Setting up protective barrier
d. Designate a traffic control person
4. 360-degree assessment (traffic crashes and outdoor incidents)
a. Downed electrical lines
b. Leaking fuels or fluids
c. Smoke or fire
d. Broken glass
e. Trapped or ejected patients
f. Mechanism of injury

D. Leaving the Scene
1. Ensure all hazards have been mitigated
2. Pick up and dispose of all equipment properly
3. Turn scene over to appropriate authority prior to leaving
a. Law enforcement
b. Fire suppression
c. Highway department
d. Other

EMS Operations

Incident Management

EMR Education Standard

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

EMR-Level Instructional Guideline

Information related to the clinical management of the patient within components of the Incident Management System (IMS) is found in the clinical sections of the National EMS Education Standards and Instructional Guidelines for each personnel level.

I. Establish and Work Within the Incident Management System
   - A. Entry-Level Students Need to Be Certified in
     1. ICS-100: Introduction to ICS, or equivalent
     2. FEMA IS-700: NIMS, An Introduction
   - B. This Can Be Done as a Co requisite or Prerequisite or as Part of the Entry-Level Course

EMS Operations

Multiple Casualty Incidents

EMR Education Standard

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

EMR-Level Instructional Guideline

The intent of this section is to give an overview of operating during a multiple casualty incident when a multiple casualty incident plan is activated.

Information related to the clinical management of the patients during a multiple casualty incident is found in the clinical sections of the National EMS Education Standards and Instructional Guidelines for each personnel level.

I. Multiple-Casualty Incidents (MCI)
   - A. A Situation With Numerous Patients That Does Not Overwhelm the Routine Capacity of the System

II. Triage Principles
   - A. Primary Triage Used On-Scene to Rapidly Categorize Patient's Condition
     1. Document location of patient and transport needs
     2. Triage tape or labels used
     3. Focus on speed to sort patients quickly
   - B. Patient Priority
     1. Immediate
        - a. Airway and breathing difficulties
        - b. Uncontrolled or severe bleeding
        - c. Decreased mental status
        - d. Patients with severe medical problems
        - e. Shock (hypoperfusion)
        - f. Severe burns
     2. Delayed
        - a. Burns without airway problems
        - b. Major or multiple bone or joint injuries
        - c. Back injuries with or without spinal cord damage
     3. Hold
        - a. Minor painful, swollen, deformed extremities
        - b. Minor soft tissue injuries
     4. Deceased

C. Triage Tagging/Labeling
   1. International agreement on color-coding and priorities
      a. Immediate Red Priority-1 (P-1)
      b. Delayed Yellow Priority-2 (P-2)
      c. Hold Green Priority-3 (P-3)
      d. Deceased Black Prority-0 (P-0)

D. Triage Procedures
   1. Identify a triage officer (remains on-scene for duration of event)
   2. Request additional resources
      a. Personnel
      b. Equipment
   3. Perform triage of all patients
   4. Assign personnel and equipment to highest priority patients

E. Post-Traumatic and Cumulative Stress
   1. Should be part of post-incident standard operating procedure (SOP)
   2. Access to defusing during the multiple casualty incident
   3. Roles of debriefing for a multiple casualty incident
   4. Access to debriefing

III. Resource Management

A. Triage Procedures
   1. Identify a triage officer (remains on scene for duration of event)
   2. Request additional resources
      a. Personnel
      b. Equipment
   3. Perform triage of all patients
   4. Assign personnel and equipment to highest priority patients

EMS Operations
Air Medical

EMR Education Standard

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

EMR-Level Instructional Guideline

The intent of this section is to give an overview of operating safely in and around a landing zone during air medical operations and transport.

Information related to the clinical management of the patient being cared for during air medical operations is found in the clinical sections of the National EMS Education Standards and Instructional Guidelines for each personnel level.

I. Safe Air Medical Operations
   - A. Types
     1. Rotorcraft
     2. Fixed wing
   - B. Advantages
     1. Specialized care – skills, supplies, equipment
     2. Rapid transport
     3. Access to remote areas
     4. Helicopter hospital helipads
   - C. Disadvantages
     1. Weather/environmental
     2. Altitude limitations
     3. Airspeed limitations
     4. Aircraft cabin size
     5. Terrain
     6. Cost
   - D. Patient Transfer
     1. Interacting with flight personnel
     2. Patient preparation
     3. Scene safety
        - a. Securing loose objects
        - b. Approaching the aircraft
        - c. Landing zone
   - E. Landing Zone Selection and Preparation
   - F. Approaching the Aircraft
   - G. Communication Issues

II. Criteria for Utilizing Air Medical Response
    A. Indications for Patient Transport
        1. Medical
        2. Trauma
        3. Search and rescue
    B. Activation
        1. Local and State guidelines exist for air medical activation
            a. State statutes
            b. Administrative rules
            c. City/county/district ordinance standards

EMS Operations
Vehicle Extrication

EMR Education Standard

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

EMR-Level Instructional Guideline

The intent of this section is to give an overview of vehicle extrication to ensure EMS personnel and patient safety during extrication operations. This does not prepare the entry-level student to become a vehicle extrication expert or technician.

Information related to the clinical management of the patient being cared for during vehicle extrication is found in the clinical sections of the National EMS Education Standards and Instructional Guidelines for each personnel level.

I. Safe Vehicle Extrication
  A. Role of EMS in Vehicle Extrication
    1. Provide patient care
    2. Perform simple extrication
  B. Personal Safety
    1. First priority for all EMS personnel
    2. Appropriate personal protective equipment for conditions
    3. Scene size-up
  C. Patient Safety
    1. Keep them informed of your actions
    2. Protect from further harm
  D. Situational Safety
    1. Control traffic flow
      a. Proper positioning of emergency vehicles
        i. upwind/uphill
        ii. protect scene
      b. Use of lights and other warning devices
      c. Setting up protective barrier
      d. Designate a traffic control person
    2. 360-degree assessment
      a. Downed electrical lines
      b. Leaking fuels or fluids
      c. Smoke or fire
      d. Broken glass
      e. Trapped or ejected patients
      f. Mechanism of injury

3. Vehicle stabilization
    a. Put vehicle in “park” or in gear
    b. Set parking brake
    c. Turn off vehicle ignition
    d. Cribbing/Chocking
    e. Move seats back and roll down windows
    f. Disconnect battery or power source
    g. Identify and avoid hazardous vehicle safety components
        i. seat belt pretensioners
        ii. undeployed air bags
        iii. other
4. Unique hazards
    a. Alternative-fuel vehicles
    b. Undeployed vehicle safety devices
    c. HAZMAT
5. Evaluate the need for additional resources
    a. Extrication equipment
    b. Fire suppression
    c. Law enforcement
    d. HAZMAT
    e. Utility companies
    f. Air medical
    g. Others
6. Extrication considerations
    a. Disentanglement of vehicle from patient
    b. Multi-step process
    c. Rescuer-intensive
    d. Equipment-intensive
    e. Time-intensive
    f. Access to patient
        i. simple
            a) try to open doors
            b) ask patient to unlock doors
            c) ask patient to lower windows
        ii. complex
        iii. tools
            a) hand
            b) pneumatic
            c) hydraulic
            d) other

E. Determine Number of Patients (implement local multiple casualty incident protocols if necessary)

II. Use of Simple Hand Tools
A. Hammer
B. Center Punch

C. Pry Bar
D. Hack Saw
E. Come-Along

III. Special Considerations for Patient Care
A. Removing Patient
1. Maintain manual cervical spine stabilization
2. Complete primary assessment
3. Provide critical interventions
B. Assist With Rapid Extrication
C. Move Patient, Not Device
D. Use Sufficient Personnel
E. Use Path of Least Resistance

EMS Operations

Hazardous Materials Awareness

EMR Education Standard

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

EMR-Level Instructional Guideline

Information related to the clinical management of the patient exposed to hazardous materials is found in the clinical sections of the National EMS Education Standards and Instructional Guidelines for each personnel level.

I. Risks and Responsibilities of Operating in a Cold Zone at a Hazardous Material or Other Special Incident
   - A. Entry-Level Students Need to Be Certified in:
     1. Hazardous Waste Operations and Emergency Response (HAZWOPER) standard, 29 CFR 1910.120 (q)(6)(i) -First Responder Awareness Level
   - B. This Can Be Done as a Co requisite or Prerequisite or as Part of the Entry-Level Course

EMS Operations

Mass Casualty Incidents Due to Terrorism and Disaster

EMR Education Standard

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

EMR-Level Instructional Guideline

The intent of this section is to give an overview of operating during a terrorist event or during a natural or manmade disaster.

Information related to the clinical management of patients exposed to a terrorist event or involved in a disaster is found in the clinical sections of the National EMS Education Standards and Instructional Guidelines for each personnel level.

I. Risks and Responsibilities of Operating on the Scene of a Natural or Man-Made Disaster
   - A. Role of EMS
     1. Personal safety
     2. Provide patient care
     3. Initiate/operate in an incident command system (ICS)
     4. Assist with operations
   - B. Safety
     1. Personal
        - a. First priority for all EMS personnel
        - b. Appropriate personnel protective equipment for conditions
        - c. Scene size-up
        - d. Time, distance, and shielding for self-protection
        - e. Emergency responders are targets
        - f. Dangers of the secondary attack
     2. Patient
        - a. Keep them informed of your actions
        - b. Protect from further harm
        - c. Signs and symptoms of biological, nuclear, incendiary, chemical and explosive (B-NICE) substances
        - d. Concept of “greater good” as it relates to any delay
        - e. Treating terrorists/criminals
     3. 360-degree assessment and scene size-up
        - a. Outward signs and characteristics of terrorist incidents

b. Outward signs of a weapons of mass destruction (WMD) incident
c. Outward signs and protective actions of biological, nuclear, incendiary, chemical, and explosive (B-NICE) weapons

4. Determine number of patients (implement local multiple-casualty incident (MCI) protocols as necessary)
5. Evaluate need for additional resources
6. EMS operations during terrorist, weapons of mass destruction, disaster events
   a. All hazards safety approach
   b. Initially distance from scene and approach when safe
   c. Ongoing scene assessment for potential secondary events
   d. Communicate with law enforcement at the scene of an armed attack
   e. Initiate or expand incident command system as needed
   f. Perimeter use to protect rescuers and public from injury
   g. Escape plan and a mobilization point at a terrorist incident
7. Care of emergency responders on scene
   a. Safe use of an auto injector for self and peers
   b. Safe disposal of auto injector devices after activation

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