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-Fire Station Based

b. Third service-Private ambulance resource- ex. EVAC

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- helps sets standards and protocols for EMS

C. Access to the Emergency Medical Services

1. Public Safety Access Point (PSAP)- call center-most have caller location-voice broadcasting system

2. Most communities access through 9-1-1

D. Education

1. National Scope of Practice Model -What you are legally allowed to perform as a result of your training

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-Medical Director of one of the local Emergency/Trauma Departments

a. Protocols/Standards

b. Quality improvement-CQI Continuous quality improvement

c. Administrative

d. Online (direct communication) off line (standards and protocols)

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 Crew

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-quality of care overtime-ongoing case management. Good notations-> proper report and documentation

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- could revoke your license, need to work with a current license

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- not following rules

c. Knowledge-based failure-not properly trained

4. How you can help reduce errors

a. Debrief calls

b. Constantly question assumptions

c. Use decision aids

d. Ask for help

Preparatory

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

Use data (example response times) to improve emergency route access to patients

and to care facility (trauma centers and hospitals

Preparatory

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-before and after each patient-

C. Adherence to Standard Precautions/OSHA Regulation-PPE and Universal Precautions

D. Safe Operation of EMS/Patient Care Equipment

E. Environmental Control-Stabilize scene and vehicle

F. Occupational Health and Blood borne Pathogens

1. Immunizations

2. Sharps- dispose of appropriately

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-after each call.

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(signed by doctor, legal document)

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(decapitation)

lividity- pooling of blood and body fluids due to lack of circulation.

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(droplets or airborne)

b. Direct contact with infected blood or body fluid

Indirect contact- touching contaminated objects

Vector- passed on from insects

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(hazardous gas or gasoline/hazardous tankard truck fluid)

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(item/agent (biological, chemical, radiological and/or physical) that has the potential to cause harm to humans/animals/environment.

b. Assess the scene for signs of hazardous materials if suspected

i. binoculars

ii. look for placards(signs on buildings with possible material hazards)

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(do not over reach as this will cause you to strain the muscles in your back)

b. Correct reaching for log rolling

4. Pushing and pulling techniques(easier to push than pull, keep arms close to body for both , feet hip width apart, bend with your knees)

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(pull by clothing across the back area)

c. Blanket drag(blanket or sheet)

d. Firefighter’s drag(patient seated, firefighter’s arms are under patient’s arms and then clasped around patient’s chest. Fire fighter bends their knees and drags patient backwards)

e. Firefighter’s carry(patient over back with arms over fire fighter’s shoulders- patient is carried)

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(lift up and move)

ii. draw sheet(slide using a sheet)

D. Positioning Patients

1. Position of comfort

a. Indications for use-Respiratory distress, chest pain

b. Techniques-assist or on stretcher

2. Recovery position-side lying, left lateral

a. Indications for use-post dictal(after seizure)

b. Techniques-log roll

3. Supine

a. Indications for use-CPR/Maintaining c-spine/back boarding

b. Techniques-log roll

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-wrist, ankle, belt , harness

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-record of care

2. Continuity of care

3. Administrative-admissions and insurance

4. Legal document

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

Preparatory

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/mechanism of injury

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-HIPPA

3. Interruptions-minimal

4. Physical environment

a. Lighting

b. Noises and outside interference

c. Distracting equipment

d. Distance-be near the patient

e. Equal seating, eye level

5. Note-taking-you may forget information

B. Interviewing Techniques

1. Using questions

a. Open-ended questions-allows them to elaborate

b. Closed or direct questions-use for patients with difficulty breating/ in pain

c. One question at a time-may confuse patient or miss information

d. Choose language the patient understands-plain English avoid too many medical terms they may not understand.

2. Hazards of interviewing THINGS NOT TO DO

a. Providing false assurance or reassurance

b. Giving advice

c. Leading or biased questions

d. Talking too much

e. Interrupting

f. Using “why” questions -patient may not know why, this type of questioning may become distressing to the patient

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 you have explained procedures and treatments

b. Understanding implications of actions

C. Implied

1. Inability to consent arising from medical condition ex.unconscious patient

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-if parent is not working in child’s best interest

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-starting care and leaving patien at scene or with unqualified personell

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- failure to perform care needed

performing care incorrectly

iii. harm (damage to patient)

iv. proximate causation

3. Abandonment

B. Criminal

1. Assault-threat of harm/injury or treating a patient who is refusing

2. Battery-actually causing harm/injury or treating patient after they refuse

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-procedures, actions, processes that EMR permitted to perform under license

2. Authority to practice (Medical Practice Act as applicable)

3. Professional responsibility-to carry out practices

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-speaking with medical director for extra orders

ii. off-line medical direction-standards and protocols

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-actions may be taken against your license

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 (front)and posterior (back)

3. Midline, medial(towards the middle of body) lateral(towards the sides of the body), inferior (towards the foot of the body), superior (towards the head of the body)

4. Pertains to the extremities Distal(furthest away from main stem of the body), proximal (part of the extremity that is closest to the main stem of the body)

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 (flap of tissue that covers trachea-protects it from food and drink accidentally getting into trachea)

g. Lower airway

i. trachea/windpipe

ii. bronchi

iii. lungs and bronchioles

iv. alveoli (grapelike structure where gas exchange occurs in the pulmonary capillaries)

h. Structures that support ventilation

i. chest wall

ii. diaphragm (muscle separating lung cavities and abdominal cavity)

iii. intercostal muscles (between ribs that allow for rib expansion and contraction during respiration)

i. Function

i. ventilation

ii. respiration

iii. alveolar/capillary gas exchange

2. Circulatory System

a. Heart

i. chambers(atrium collect blood and pumps it into ventricles, ventricles pump to (right side to lung tissue) and (left side to body).

ii. coronary arteries

b. Blood vessels

i. arteries-go away from the heart- pump harder to get blood and nutrients to body

ii. veins—go towards heart- carries deoxygenated blood back to pick up oxygen

iii. capillaries- smallest vessels in body where gas and nutrient exchange occurs.

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 outer layer

ii. dermis second layer

iii. subcutaneous layer innermost 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 (room air) Oxygen 20-21%

2. Patency of the airway

3. Mechanics of ventilation

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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 Body is not as mature as teen or young adult and Geriatrics Body does not function as well as it used to, breaking down more likely to have diseases/illness

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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- cardiac/heart

2. Neuro-nervous

3. Hyper- above normal

4. Hypo-below normal

5. Naso-nasal/nose

6. Oro-oral

7. Arterio- arteries

8. Hemo-blood

9. Therm-thermal

10. Vaso-vessels

11. Tachy- fast

12. Brady-slow

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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 (ex. asthma)

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 both will cause a decrease in blood flow to the tissues

b. Contractions are too weak

c. Related to heart disease, poisoning, excessive rate, or depth of

artificial ventilation

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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

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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

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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 same as below

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

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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

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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**

Take note of the statement below

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

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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-readily able to administer

B. Disadvantages- may not be focused to administer

C. Techniques take out of case, uncap, stab into muscle, vacuum action allows medication to dispense out of syringe

II. Peer Administration (Intramuscular Injection by Auto injector)

A. Advantages readily able to administer

B. Disadvantages may not be focused to administer

C. Techniques take out of case, uncap, stab into muscle, vacuum action allows medication to dispense out of syringe

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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) single dose, life saving drug. Same action as auto injection for epi pen. Administer into thigh or buttocks

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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 OPA, NPA, ET Tube(airway tube that requires intubation

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 attaches the thyroid gland in front of the larynx/voice box

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 looks like grapes

iii. each alveolus surrounded by capillary blood vessels

iv. site where oxygen and carbon dioxide (waste) are

exchanged

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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 partial obstruction

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-open airway

b. Indications-patient not breathing- checking for patient respiration, administer respirations

c. Contraindications- spinal cord injuries

d. Complications- trauma to mouth/nse/trachea

e. Procedure edge of palm on patient’s forehead, tilt back while lifting the chin along the jaw bone

f. Limitation

2. Jaw thrust maneuver keeping spinal cord in a neutral position, use thumbs to jut jaw bone forward

a. To open airway when cervical spine injury is suspected

b. Procedure use thumbs to jut jaw bone forward

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 air passage opening through the mouth

b. Indications helps to allow air flow, keeping tongue from blocking airway

c. Contraindications-patient is becoming conscious

d. Complications

e. Procedure measure OPA from edge of lips to the angle of the jaw, insert turned up or sideways, as it is inserted, twist the OPA to turn it down towards pharynx

f. Limitation mouth/ pharynx injury. Once patient becomes conscious, patient will start gaging.

C. Relief of Foreign Body Airway Obstruction

D. Upper Airway Suctioning

1. Purpose clear airway of fluid and small particles

2. Indications unconscious patients/semi conscious who is vomiting

3. Contraindications mouth trauma

4. Complications

5. Procedure

a. mechanically powered suction devices

i. purpose clear airway of fluid and small particles

ii. indication unconscious patients/semi- conscious who is vomiting

iii. contraindications mouth trauma

iv. complications

v. procedure attach tubing, turn machine on, test for suction by putting your thumb over valve hole, put tube into patient’s mouth rotating tube around mouth while placing finger over the opening to allow for suction. Do not suction for 5-10 seconds- no more than15 seconds maximum.

vi. limitation

b. hand-powered suction

i. purpose clear airway of fluid and small particles

ii. indication- battery operated is not available, unconscious patients/semi conscious who is vomiting

iii. contraindications mouth trauma

iv. complications

v. procedure attach tubing, turn machine on, test for suction by putting your thumb over valve hole, put tube into patient’s mouth rotating tube around mouth while placing finger over the opening to allow for suction. Do not suction for 5-10 seconds- no more than15 seconds maximum.

vi. limitation takes slightly longer because you have to pump it manually

6. Limitation

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

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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

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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 Causes

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 Causes

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 highpitched

whistling sound known as stridor

a. Foreign body

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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 bagmask 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 using all or some of these to help breathe

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

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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-low flow oxygen

b. Indications minor injury, anxious patient or if patient cannot tolerate the non -rebreather mask

c. Procedure attach to flowmeter , place prongs in patients nose and loop tubing around patient’s ear (not neck)

d. Limitation only can be dialed up to 6 liters, more oxygen is needed if patient is in more distress/ major trauma, patient must be breathing adequately on their own.

2. Non-Rebreather (NRB) Mask

a. Purpose deliver high flow oxygen

b. Indications- chest pain/ respiratory distress etc.

c. Procedure- place on flowmeter of oxygen tank, turn flowmeter to between 10-15 liters per min. , fill reservoir ¾ by placing finger over one way valve , then place mask on patient’s face and secure with strap

d. Limitation- patient must be breathing adequately on their own.

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

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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 flailing chest movements (broken ribs) segment will move opposite of the rest of rib cage.

b. Splinting patient holding chest area due to pain

c. Penetrating (knife, gun)

d. Asymmetric one side moves in or out unevenly to the opposite side

6. Irregular respiratory pattern

II. Oxygenation

A. Adequate

1. Mental status considered normal for patient

2. Skin color normal

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B. Inadequate

1. Ambient air (room 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 condition of being blue

b. Pallor pale/ with out color

c. Mottling bluish with marble/ purple

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 to oxygenate patient that is viable with life

ii. indications Shallow breathing, bradypnea (slow breathing) apnea (no breaths), dyspnea (difficulty breathing)

iii. procedure- Open airway (head tilt chin lift, jaw thrust) create E-C seal on appropriately sized mask, breathe into mask. Watch for patient chest rise and fall. 2 breaths after every 30 chest compressions or if patient has a pulse and is not taking adequate breaths- breath into mask as patient is taking a breath to assist their respirations.

iv. limitation- facial/mouth damage, large amounts of secretions in mouth (you will need to suction)

v. pocket mask with oxygen outlet

a) advantages-adds oxygen to the breaths being delivered

b) oxygen flow rate-15 liters per minute (flow meter)

b. Bag-valve-mask with reservoir

i. purpose to oxygenate patient that is viable with life

ii. indications Shallow breathing , bradypnea (slow breathing) apnea (no breaths), dyspnea (difficulty breathing)

iii. procedure Use BVM connected to Oxygen, create E-C seal on appropriately sized mask, squeeze bag every five seconds( allowing the BVM to re-inflate) Watch for patient chest rise and fall.

iv. limitation- facial/mouth damage, large amounts of secretions in mouth (you will need to suction)

v. indications

a) apnea(no breaths)

b) cardiac arrest- patient would have apnea, see above for others indications

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

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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 See above limitations for the BVM(bag-valve-mask)

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-air is under pressure by a mechanical device, designed to improve the exchange of air between lungs and atmosphere. It delivers artificial respiration with their breath and inbetween their breaths. Ex. CPAP machine

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

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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

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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

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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

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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 and healthcare professional

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

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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 (AVPU)

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-sternal rub

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

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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 noisy, irregular, too shallow, too deep

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

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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

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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

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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”

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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)

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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. Contusions

c. Abrasions

d. Penetrating

e. Burns

f. Tenderness

g. Lacerations

h. 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

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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 (evisceration-organ outside of body)

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

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b) normal adult systolic blood pressure 100-120

ii. diastolic blood pressure

a) force exerted against the arteries when the heart is

between contractions

b) normal adult diastolic blood pressure 60-80

c. Technique

i. equipment

a) blood pressure cuff sizes

b) stethoscope

ii. positioning

a) position of the patient resting, may be sitting or laying down

b) position of the arm resting on a surface with antecubital space facing up

iii. measurement

a) auscultation- listening with stethoscope

b) palpation- feeling radial while using a b/p cuff(sphygmomanometer)

d. Relationship of blood pressure to perfusion lower B/P the lower the perfusion. Too high of B/P can also lower perfusion.

IV. Special Considerations for Pediatric and Geriatric Patients

A. Normal Vital Signs by Age

B. See Special Patient Populations Section

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Patient Assessment

Monitoring Devices

**EMR Education Standard**

No standard exists at this level for this information.

**EMR-Level Instructional Guideline**

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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

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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

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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

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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 (can be caused by the following)

A. Inadequate oxygenation or ventilation

B. Poisoning or overdose

C. Infection

D. Head injury

E. Behavioral illness

F. Diabetic conditions

III. Seizures

A. Causes -injury, high fever, electrical conduction disturbance to brain tissue, diseases (epilepsy, mitochondrial disorder, brain tumor, etc.)

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-loss of control of bladder sphincter and rectal sphincter

8. Amnesia of event- patient does not remember the event but may remember the time preceding the seizure (how they felt of what the smelled or heard)

C. Management

1. Safety of patient/position-recovery position- left side lying

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

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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

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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-sudden or severe abdominal pain is a medical emergency

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

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V. Specific Acute Abdominal Conditions

A. Gastrointestinal Bleeding

1. Causes- appendicitis , peptic ulcer, pancreatitis, diverticulitis, pyelonephritis, ruptured spleen, kidney stone, sickle cell anemia, etc.

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

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Medicine

Immunology -Immune System

**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- reaction to a substance that is usually harmless versus anaphylaxis-severe allergic reaction that may be a life threat)

B. Common Substances That Cause Anaphylaxis (peanuts, shellfish, etc.)

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 high flow.

C. Position usually of comfort

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

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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-easily spread throughout population

2. Communicable disease-easily spread throughout population

B. Transmission Routes

1. Direct contact -touching the person or their body fluids.

2. Airborne/ Droplets- Coughing and sneezing

3. Blood borne

4. Other body fluids

5. Indirect- touching a contaminated object (toys, clothing, silverware, etc.)

6. Vector- passed on by insects.

7. Foodborne

C. Standard Precautions (Review content in Preparatory: Workforce Safety)

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

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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 stage

vi. medical identification jewelry or information

b. Management

i. ABCs

ii. oxygen

c. Emotional support

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

A. Pediatrics – seizures

B. Geriatrics -- strokes

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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- relating to mental illness or its treatment

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

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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”

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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

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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 [OPQRST-onset, provoking event, quality, radiating, severity (scale of 1-10) time (how long has it been happening]

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)

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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)

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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- when a substance interferes with normal body functions after being swallowed, inhaled, injected, or absorbed

B. National Poison Control Center

1. Role- assist public with guiding them what to do in case of an incident of poising

2. When to call- any suspicion of poisoning

3. National Telephone Number 1-800-222-1222

II. Carbon Monoxide Poisoning

III. Poisoning by Nerve Agents

A. Define Nerve Agents- chemicals that disrupt the mechanisms by which nerves transfer messages to organs.

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

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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

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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

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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

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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.

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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

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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-miscarriage, trauma, menses, post delivery

B. Assess for signs of shock

C. Presence of pain

D. Management

1. Standard precautions

2. Administer oxygen

3. Position

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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.

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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

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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

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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-OPA and NPA are inserted to help with ventilation

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

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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- do not place over

2. Wet patients- remove from wet area or dry patient off

3. Transdermal medication patches- remove patch and wipe off medicine

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

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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.

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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

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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

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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

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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

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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

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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

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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

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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

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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 there is a 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

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b. Roller gauze

i. elastic

ii. non-elastic

c. Tape

D. Application

1. Dressings-check pulse motor and sensory before and after-not too tight unless applying a pressure dressing needed for bleeding control

2. Bandages-check pulse motor and sensory before and after-not too tight unless applying a pressure dressing needed for bleeding control

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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

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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

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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

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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. Take necessary steps as stated above

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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

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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

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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

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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

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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

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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 Remove patient from water

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

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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

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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

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2. Second stage: fetus enters the birth canal until birth (is delivered)

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

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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

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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

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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

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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

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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- difficulty

2. Respiratory failure- not creating good gas exchange

3. Respiratory arrest- stopped breathing

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

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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

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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

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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

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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

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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

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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

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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

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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

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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

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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

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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

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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

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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

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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

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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

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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

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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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