



NATIONAL CONTINUED COMPETENCY PROGRAM

EMR EDUCATION UPDATE



National Registry of
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EMERGENCY MEDICAL RESPONDERS

AIRWAY, RESPIRATION, & VENTILATION

VENTILATION

ADULT & PEDIATRIC PATIENTS: ½ HOUR

INSTRUCTOR PREPARATIONS

- Review *National EMS Education Standards*
- Review relevant material in an EMR text
- Assemble skills laboratory materials:
 - Airway management trainer
 - Bag Valve Mask Resuscitator
 - Oropharyngeal Airways and tongue blades
 - Nasopharyngeal Airways
 - Oxygen source

LEARNING OBJECTIVES

- Differentiate between adequate and inadequate breathing
- Differentiate between respiratory distress and respiratory failure
- Explain when to oxygenate and when to ventilate a patient

LESSON CONTENT

- I. Respiratory distress vs. failure
 - a. Respiratory conditions are dynamic
 - i. Range from minor respiratory distress to respiratory arrest
 - ii. Can be acute, chronic, or chronic with acute exacerbation
 - iii. Signs/symptoms are dynamic and may change over time depending on the state of patient's disease process
 - b. Many patients with respiratory diseases need only comfort care
 - c. Important to know when exactly to provide an intervention (such as artificial ventilation) in order to increase the likelihood of patient improvement
 - d. In respiratory failure, inadequate alveolar ventilation exhibited by
 - i. Decrease in or excessively high respiratory rate
 1. Reduces tidal volume and amount of air available for alveolar gas exchange
 - ii. Decrease in tidal volume (or both)
 - iii. Patients in respiratory failure are severely ill
 - e. Must recognize the transition of a respiratory disease from distress to failure
 - i. Deterioration in mental status, confusion, loss of gag reflex
 - ii. Accessory muscle use, head bobbing, grunting, nasal flaring
 - iii. Decrease in SpO₂
 - iv. Cyanosis
 - v. Hypercarbia
- II. Airway adjuncts
 - a. Reference: Red Cross—Airway Adjuncts
 - b. Oropharyngeal (OPA)
 - i. Indications
 1. Respiratory distress/failure
 2. Unconscious, unresponsive patient
 - ii. Contraindications
 1. Gag reflex
 2. Presence of oral trauma (broken teeth, recent oral surgery, etc.)
- III. Positioning of the pediatric patient for artificial ventilation
 - a. Sniffing position

b. Pad behind shoulders

EMR VENTILATION SKILLS	Successful	Unsuccessful
1. Place an OPA		
2. Ventilate an apneic patient (simulated)		
a. Minimum of two minutes		
b. Maintain a mask seal		
c. Appropriate rate (10-12 breaths/ min)		
d. Appropriate volume for patient size		
e. Monitor chest rise		
f. No insufflation of stomach, if applicable		
3. Suction the upper airway		
The adjunct and ventilation skills should be practiced as a simulation case. A scenario should be presented which requires the learner to differentiate between a patient that requires supplemental oxygenation and one that requires ventilation.		
Documentation of successful completion of each skill must be maintained for each student in order to award full credit for this topic.		



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EMERGENCY MEDICAL RESPONDERS

AIRWAY, RESPIRATION, & VENTILATION

OXYGENATION

ADULT & PEDIATRIC PATIENTS: ½ HOUR

INSTRUCTOR PREPARATIONS

- Review *National EMS Education Standards*
- Review relevant material in an EMR text
- Assemble skills laboratory materials:
 - Airway management trainer
 - Oxygen cylinder and regulator
 - Nasal Cannula
 - Non-rebreather mask
 - Oxygen therapy skills evaluation form


LEARNING OBJECTIVES

- Discuss the set-up and safe use of oxygen therapy equipment
- Differentiate between the features and indications of oxygen therapy devices including nasal cannula and non-rebreather mask
- Demonstrate the proper set-up and administration of oxygen by nasal cannula and non-rebreather mask on a simulated or real patient.

LESSON CONTENT

- I. AHA Guidelines recommend that oxygen therapy for patients with suspected acute coronary syndrome (ACS) and stroke should be guided by measured oxygen levels (SpO₂). In the absence of SpO₂ measurements, it is reasonable to administer oxygen 2 L/min via nasal cannula for patients with signs and symptoms of ACS or stroke
 - a. Presenting with dyspnea
 - b. When signs and symptoms of shock or heart failure are present
- II. If the patient with ACS or stroke has signs and symptoms of dyspnea, shock, or heart failure, it is reasonable to administer high flow oxygen via non-rebreather mask
 - a.

EMR OXYGENATION SKILLS	Successful	Unsuccessful
1. Demonstrate safe handling of oxygen cylinders		
2. Assemble and disassemble a portable oxygen cylinder		
3. Determine full and empty/residual PSIs		
4. Apply nasal cannula to live or simulated patient		
Documentation of successful completion of each skill must be maintained for each student in order to award full credit for this topic.		

	<p>National Registry of Emergency Medical Technicians® THE NATION'S EMS CERTIFICATION™</p>	<p>EMERGENCY MEDICAL RESPONDERS CARDIOVASCULAR <i>POST-RESUSCITATION CARE</i> ADULT & PEDIATRIC PATIENTS: ½ HOUR</p>
<p><u>INSTRUCTOR PREPARATIONS</u></p>		
<ul style="list-style-type: none"> • <i>National EMS Education Standards</i> • Review current AHA Guidelines 		
<p><u>LESSON OBJECTIVES</u></p>		
<ul style="list-style-type: none"> • Identify the signs associated with Return of Spontaneous Circulation (ROSC) 		
<p><u>LESSON CONTENT</u></p>		
<ol style="list-style-type: none"> I. Recognition of Return of Spontaneous Circulation (ROSC) <ol style="list-style-type: none"> a. CPR must be continued until signs of life are observed <ol style="list-style-type: none"> i. Patient breathing ii. Patient movement II. Optimizing ventilation and oxygenation in the post cardiac arrest patient <ol style="list-style-type: none"> a. Avoid excessive ventilation (over-bagging) <ol style="list-style-type: none"> i. Reduces cardiac output ii. Decreases cerebral blood flow III. System of care <ol style="list-style-type: none"> a. Most deaths following ROSC occur within the first 24 hours b. Transport to the most appropriate facility <ol style="list-style-type: none"> i. May include transport or transfer to an alternate facility, such as: <ol style="list-style-type: none"> 1. STEMI/PCI Center 2. Cardiac Center 3. Therapeutic Hypothermia Centers 		

EMR POST RESUSCITATION SKILLS	none
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EMERGENCY MEDICAL RESPONDERS

CARDIOVASCULAR
STROKE

ADULT & PEDIATRIC PATIENTS: ½ HOUR

INSTRUCTOR PREPARATIONS

- *National EMS Education Standards*
- [¹American Heart/Stroke Association—FAST](#)

LESSON OBJECTIVES

- Identify the options for out-of-hospital stroke assessment tools
- Explain oxygen administration during a stroke emergency

LESSON CONTENT

- I. Stroke
 - a. Definitive care for the stroke patient is delivered at a hospital that specializes in the management for stroke patients.
 - b. Optimal out-of-hospital care for the stroke patient is recognition and rapid transport.
 - c. Pediatric strokes, while rare, do happen
- II. Out-of-hospital stroke assessment tool
 - a. Specific tool used will be determined by local protocol
 - i. Examples include
 1. [Cincinnati Prehospital Stroke Scale, 1999](#)
 2. [Los Angeles Prehospital Stroke Screen-LAPSS, 2000](#)
 3. [Miami Emergency Neurologic Deficit Checklist, 2001](#)
 - b. Signs and Symptoms assessed by these tools
 - i. Symmetry of the face
 - ii. Weakness of extremities
 - iii. Speech difficulties
 - iv. Coordination
 - c. Communicate assessment findings to the hospital while en route
 - i. Allows for early activation of the stroke team
- III. Management of stroke patients
 - a. Provide supportive care
 - b. Consider 2 L/min O₂ via nasal cannula instead of O₂ via high flow mask
 - i. High flow oxygen decreases cerebral blood flow
 - c. Rapid transport to an appropriate receiving facility
 - d. Important to accurately determine when the last time that the patient was seen normal

EMR STROKE SKILLS

none



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EMERGENCY MEDICAL RESPONDERS

CARDIOVASCULAR
CARDIAC ARREST
ADULT PATIENTS: ½ HOUR

INSTRUCTOR PREPARATIONS

- *National EMS Education Standards*
- Review current AHA Guidelines

LESSON OBJECTIVES

- State the chain of survival
- Describe the current techniques of one and two-rescuer CPR
- Demonstrate the current techniques of one and two-rescuer CPR

LESSON CONTENT

- I. Chain of survival
 - a. There are 5 links in the adult Chain of Survival
 - i. Immediate recognition of cardiac arrest and activation of the emergency response system
 - ii. Early cardiopulmonary resuscitation (CPR) with an emphasis on chest compressions
 - iii. Rapid defibrillation
 - iv. Effective advanced life support
 - v. Integrated post-cardiac arrest care
 - b. A strong chain of survival can improve chances of survival and recovery for victims of heart attack, stroke, and other emergencies.
- II. Optimal chest compressions
 - a. Compress at a rate of 100 – 120/min
 - b. The number of compressions per minute is an important determinant of return of spontaneous circulation (ROSC) and good neurological outcomes
 - c. Heel of one hand over the center of the patient's chest (lower half of the sternum) and the heel of the other hand over the first so the hands are overlapped and parallel
 - d. Compress at least 2 inches (5 cm)
 - i. Shallow compressions are associated with lower cardiac arrest survival
 - e. Do not compress more than 2.4 inches (6 cm)
 - i. Non-life threatening injuries may occur
 - f. Allow complete recoil of chest between compressions
 - g. Minimize interruption
 - i. Ventilation/Compression Ratio
 1. 2 breaths after every 30 compressions if no advanced airway is in place
 2. 1 breath every 6 seconds with continuous compressions if an advanced airway is present
 3. Each breath should take about 1 second
 4. Ventilate with only enough volume to observe chest rise
 - h. High performance CPR
 - i. Coordinated manner with other practitioners (e.g., pit crew CPR)
 - ii. Function as a team, including team training
 - i. Mechanical CPR devices
 - i. Per AHA Guidelines, there is no clear benefit on the use of mechanical CPR devices vs. manual chest compressions in patients with cardiac arrest; however, mechanical compression devices should be considered in settings

where compressions may be challenging or dangerous for a provider (e.g., in an ambulance during transport)

EMR CARDIAC ARREST SKILLS	Successful	Unsuccessful
1. Assess patient breathing and responsiveness simultaneously		
2. Assess patient carotid pulse		
3. Perform chest compressions adequately		
4. Demonstrate proper application and utilization of an AED		
5. Apply AED pads correctly on a pregnant patient		
6. Utilize crew resource management techniques		
a. Switch CPR every two minutes		
b. Pit Crew CPR		
Documentation of successful completion of each skill must be maintained for each student in order to award full credit for this topic.		



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EMERGENCY MEDICAL RESPONDERS

CARDIOVASCULAR
PEDIATRIC CARDIAC ARREST
PEDIATRIC PATIENTS: 1 HOUR

INSTRUCTOR PREPARATIONS

- *National EMS Education Standards*
- Review current AHA Guidelines

LESSON OBJECTIVES

- Describe the current techniques of one and two-rescuer CPR
- Demonstrate the current techniques of one and two-rescuer CPR

LESSON CONTENT

- I. Techniques of single rescuer CPR
 - a. Infant (less than one year of age)
 - i. 2-fingers just below the inter-mammary (nipple) line
 - ii. 100 – 120 compressions per minute
 1. Number of compressions per minute is an important determinant of return of spontaneous circulation and good neurological outcomes
 - iii. Compress 1/3 the anterior-posterior diameter of the chest (about 1 ½ inches)
 - iv. Allow complete recoil of chest between compressions
 - v. Minimize interruption
 - vi. Ventilation/Compression Ratio
 1. Compressions combined with ventilations greatly improve infant and children resuscitation outcomes
 2. Two breaths after every 30 compressions
 3. Ventilate with enough volume to observe chest rise
 - b. Child (1 year of age until onset of puberty)
 - i. 100 – 120 compressions per minute
 - ii. Use one or two hands on the lower half of the sternum
 - iii. Compress 1/3 the anterior-posterior diameter of the chest (approximately 2 inches)
 - iv. Allow complete recoil of chest between compressions
 - v. Minimize interruption
 - vi. Ventilation/Compression Ratio
 1. Compressions combined with ventilations greatly improve infant and children resuscitation outcomes
 2. Two breaths after every 30 compressions
 3. Ventilate with enough volume to observe chest rise
- II. Techniques of 2-Rescuer CPR
 - a. Rescuer fatigue can lead to inadequate rate, depth and recoil in CPR in minutes, even when the rescuer does not feel fatigued
 - b. When performing 2-Rescuer CPR, rotate the rescuer who is performing compressions with the rescuer who is performing ventilations at least every two minutes.
 - c. Infant (less than one year of age)
 - i. Two thumb encircling hands technique, just below the inter-mammary (nipple) line
 - ii. 100 – 120 compressions per minute
 - iii. 1/3 the anterior-posterior diameter of the chest (about 1 ½ inches)
 - iv. Allow complete recoil of chest between compressions
 - v. Minimize interruption
 - vi. Ventilation/Compression Ratio

1. Resuscitation outcomes in infants and children are best if compressions are combined with ventilations
 2. Two breaths after every 15 compressions
 3. Ventilate with only enough volume to see chest rise
- d. Child (one year of age until onset of puberty)
- i. Use one or two hands on the lower half of the sternum
 - ii. 100 – 120 compressions per minute
 - iii. 1/3 the anterior-posterior diameter of the chest (about 2 inches)
 - iv. Allow complete recoil of chest between compressions
 - v. Minimize interruption
- e. Ventilation/Compression Ratio
- i. Resuscitation outcomes in infants and children are best if compressions are combined with ventilations
 - ii. Two breaths after every 15 compressions
 - iii. Ventilate with only enough volume to see chest rise

EMR PEDIATRIC CARDIAC ARREST SKILLS	Successful	Unsuccessful
1. Assess patient breathing and responsiveness simultaneously		
2. Assess patient carotid pulse		
3. Perform chest compressions adequately		
4. Apply and utilize an AED appropriately		
5. Utilize crew resource management techniques		
a. Switch CPR every two minutes		
b. Pit Crew CPR		
Documentation of successful completion of each skill must be maintained for each student in order to award full credit for this topic.		



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EMERGENCY MEDICAL RESPONDERS

TRAUMA

CENTRAL NERVOUS SYSTEM (CNS) INJURY

ADULT & PEDIATRIC PATIENTS: ½ HOUR

INSTRUCTOR PREPARATIONS

- *National EMS Education Standards*
- ²[EMS Spinal Precautions and the use of the long backboard, 2013](#)
- ³[Centers for Disease Control and Prevention: HEADS UP](#)

LESSON OBJECTIVES

- Identify the signs and symptoms of a patient with a traumatic brain injury (TBI)
- Differentiate between the various levels of a TBI
- Discuss the current research and practices for the use of selective spinal immobilization

LESSON CONTENT

- I. Signs and symptoms of Traumatic Brain Injury (TBI) may include any or all of the following:
 - a. Physical
 - i. Headache
 - ii. Nausea
 - iii. Vomiting
 - iv. Balance problems
 - v. Dizziness
 - vi. Visual problems
 - vii. Fatigue
 - viii. Light sensitivity
 - ix. Noise sensitivity
 - x. Numbness/tingling
 - b. Cognitive
 - i. Mental foginess
 - ii. Feeling slowed down
 - iii. Difficulty concentrating
 - iv. Difficulty remembering
 - c. Emotional
 - i. Irritability
 - ii. Sadness
 - iii. Heightened emotions
 - iv. Nervousness
 - d. Sleep
 - i. Drowsiness
 - ii. Sleeping less than/more than usual
 - iii. Trouble falling asleep
- II. Care and Education of the Concussion Patient
 - a. If you suspect your patient has a concussion, transport him/her to the appropriate facility
 - b. If the patient (or family) refuses transport, educate them regarding the following warning signs and, if any are present, explain the importance of seeking medical attention
 - i. One pupil larger than the other
 - ii. Drowsiness or cannot be awakened
 - iii. A headache that gets worse and does not go away
 - iv. Weakness, numbness, or decreased coordination
 - v. Repeated vomiting or nausea

- | |
|--|
| <ul style="list-style-type: none">vi. Slurred speechvii. Convulsions or seizuresviii. Difficulty recognizing people or placesix. Increasing confusion, restlessness, unusual behavior, or agitationx. Loss of consciousness (even brief) |
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EMR CNS SKILLS	none
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EMERGENCY MEDICAL RESPONDERS

MEDICAL
OB EMERGENCIES

ADULT & PEDIATRIC PATIENTS: ½ HOUR

INSTRUCTOR PREPARATIONS

- *National EMS Education Standards*
- Review current AHA Guidelines

LESSON OBJECTIVES

- State the stages of labor
- Explain the procedures for normal child delivery in the out-of-hospital setting
- Determine the need for neonatal resuscitation during delivery
- Discuss the management principles of neonatal resuscitation
- Describe the routine care of a newborn not requiring resuscitation

LESSON CONTENT

- I. Signs of labor
 - a. Bloody show
 - b. Ruptured membranes (“water breaks”)
 - c. Regular, close contractions
- II. Stages of labor and delivery
 - a. Stage One: onset of contractions until fetus is in the birth canal
 - b. Stage Two: birth canal until birth
 - c. Stage Three: deliver the placenta
- III. Patient assessment during labor and delivery
 - a. Monitor and maintain adequate airway, breathing, and circulation
 - b. Gain SAMPLE history and obstetric history
 - i. Due date
 - ii. Number of previous deliveries
 - iii. Any known complications
 - iv. Bloody show, water broken
 - v. Contractions: regular, duration, etc.
 - c. Monitor vital signs
- IV. Prepare for delivery
 - a. Precautions
 - i. Gloves
 - ii. Gown
 - iii. Eye and face protection
 - b. Supplies
 - i. OB kit (if available)
 - ii. Towels
 - iii. Sheets
 - iv. Bulb syringe
 - v. Cord clamps
 - vi. Sterile scissors or razor
 - vii. Sanitary pads
 - viii. Container for placenta (afterbirth)
 - ix. Hazardous materials bag
 - c. Delivery position
 - i. Provide privacy
 - ii. Lay patient on her back
 - iii. Elevate hips

- iv. Bend knees
- v. Separate legs (Ask her to relax her legs the best she can.)
- vi. Someone support her head if available
- d. When the baby crowns and delivers
 - i. Do not stick fingers into the vagina
 - ii. Support the baby's head as it delivers
 - iii. Address nuchal cord if present
 - 1. Cephalic presentation but the umbilical cord is around the neck
 - 2. Common finding during delivery
 - 3. Rarely associated with adverse outcomes
 - 4. Management
 - a. Attempt to slip the cord over the infant's head
 - b. If unable to slip over the head
 - i. Clap the cord
 - ii. Cut the cord
 - iv. Support the baby's torso (do not twist or pull)
 - v. Keep the head lowered while extremities and torso deliver
 - 1. Suction mouth and nose
 - vi. Once the baby is fully delivered, keep him/her at the level of the birth canal until the cord is clamped using sterile equipment
 - vii. Deliver the afterbirth (may take a few minutes after the baby delivers)
- V. Routine care of the newborn not requiring resuscitation
 - a. Assess the newborn
 - i. Respirations
 - ii. Pulse
 - iii. Color (pink, red)
 - iv. Cry vs no sound
 - v. Movement vs. lethargy
 - b. Care for the newborn
 - i. Provide supportive care for the healthy newborn
 - ii. Dry and warm the baby (wrap in towels or available materials)
 - iii. Give the baby to the mother if she is able to hold him/her
 - iv. Monitor ABCs
- VI. Neonatal resuscitation
 - a. Assessment
 - i. If "yes" is answered to these three questions, the infant stays with the mother and standard care continues, including maintaining the newborn's temperature.
 - 1. Full term gestation?
 - 2. Good muscle tone?
 - 3. Breathing or crying adequately?
 - ii. If "no" is answered to ANY of the above assessment questions, resuscitation efforts should be attempted in this sequence:
 - 1. First 30 seconds postpartum
 - a. Dry the infant, then, warm and maintain normal temperature
 - b. Position airway
 - c. Clear secretions
 - d. Stimulate
 - 2. 30-60 seconds postpartum
 - a. Heart rate below 100/min or gasping/apnea
 - i. Initiate positive pressure ventilation
 - b. Labored breathing or persistent cyanosis

- i. Position and clear the airway and provide supplementary O₂ as needed
- 3. After one (1) minute postpartum
 - a. Heart rate >100/min
 - i. Provide post resuscitation care
 - b. Heart rate <100/min
 - i. Check chest movement; correct ventilations as needed
 - c. Heart rate <60/min
 - i. Begin chest compressions coordinated with PPV and 100% O₂

EMR OB SKILLS	none
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EMERGENCY MEDICAL RESPONDERS

MEDICAL
INFECTIOUS DISEASE

ADULT & PEDIATRIC PATIENTS: ¼ HOUR

INSTRUCTOR PREPARATIONS

- *National EMS Education Standards*
- ⁴[Centers for Disease Control and Prevention](#)

LESSON OBJECTIVES

- Describe drug resistant infections
- State how the transmission of influenza virus (flu) occurs
- Discuss the role of the EMS provider in disease reporting
- Compare an epidemic and pandemic
- Assess the differences between sepsis and septic shock

LESSON CONTENT

- I. Anti-microbial resistance
 - a. Microbes resist the effects of medications/treatments
 - i. Germs are not killed; growth is not stopped
 - b. Difficult to treat
 - c. Anyone is susceptible; some must be more cautious, such as those with:
 - i. Weakened immune systems
 - ii. Open skin wounds
 - iii. Recent surgery
 - iv. Invasive procedures (PICC lines, IVs, in-dwelling catheters, etc.)
 - d. Occurrence
 - i. World-wide
 - ii. Ongoing battles within institutions (hospitals, clinics, etc.)
 - e. Common antibiotic resistant infections
 - i. MRSA
 - ii. VRE
 - iii. VRSA
 - iv. TB
 - v. Clostridium difficile (C-Diff)
- II. Influenza (flu)
 - a. ⁵[CDC Information and Statistics](#)
 - b. Influenza viruses
 - i. Spread from person to person via
 1. Large-particle respiratory droplet transmission
 - a. Requires close contact between source and recipient persons
 2. Contact with respiratory-droplet contaminated surfaces
 3. Airborne transmission by small-particle residue of evaporated droplets
 - ii. Typical incubation period is 1-4 days (average: 2 days)
 - iii. Contagiousness begins the day before symptoms start and lasts 5-10 days
 - iv. Children may be contagious several days before becoming symptomatic, lasting ten or more days after onset
 - v. Severely immunocompromised persons can shed virus for weeks or months
 - vi. Influenza vaccines
 1. 60% effective (varies with vaccine and flu strain)
 2. Selected based on forecasts from CDC
 3. Seasonal flu vaccine is usually trivalent (three component)

	a. Each component selected to protect one of three main flu viruses
III. Sepsis and Septic Shock	
	a. The body's response to infection.
	i. Life threatening
	ii. Tissue damage
	iii. Organ failure
	b. Septic shock
	i. Sepsis with refractory hypotension or signs of hypo perfusion despite adequate fluid resuscitation
	1. End organ dysfunction
	2. Reduced urinary output
	3. Altered mental status
IV. Emerging Infectious Diseases	
	a. Incidence in humans has increased in past two decades
	b. Threatens to continue increasing
	c. Knows no national boundaries
	d. New infections resulting from changes or evolution of existing organisms
	e. Known infections spreading to new geographic areas or populations
	f. Previously unrecognized infections appearing in areas undergoing ecologic transformation
	g. Past infections reemerging
	i. Result of antimicrobial resistance in known agents or breakdowns in public health measures

EMR INFECTIOUS DISEASE SKILLS	none
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EMERGENCY MEDICAL RESPONDERS

MEDICAL

PSYCHIATRIC AND BEHAVIORAL EMERGENCIES

ADULT & PEDIATRIC PATIENTS: ¼ HOUR

INSTRUCTOR PREPARATIONS

- *National EMS Education Standards*
- ⁶[*CDC—Suicide Risk Factors*](#)

LESSON OBJECTIVES

- Describe the components of a mental status examination
- State the risk factors for suicide

LESSON CONTENT

- I. Mental status examination
 - a. Mechanism of injury or nature of illness?
 - i. Injuries/illnesses can cause altered behavior
 1. Head injuries
 2. Hypoglycemia
 3. Hypoxia
 4. Stroke
 5. Dementia
 - ii. Medication side effects
 - b. Mental health history
 - c. General appearance
 - i. Dress
 - ii. Grooming
 - iii. Posture
 - iv. Wringing of hands
 - v. Facial grimaces
 - vi. Mannerisms
 - vii. Actions
 - viii. Violence
 - d. Speech
 - i. Spontaneous or pressured
 - ii. Slow or fast
 - iii. Soft or loud
 - iv. Understandable or not
 - v. Appropriate or inappropriate
 1. Mixed/confused words (word salad)
 2. Full words inappropriately used together
 3. Delusional
 - vi. Mood
 1. Depressed
 2. Euphoric
 3. Manic
 4. Anxious
 5. Angry
 6. Agitated
 7. Fearful
 8. Guilty
 - vii. Area of thought
 1. Racing thoughts

- 2. Hallucinations
 - a. Auditory
 - b. Visual
 - c. Somatic (strange body sensations)
- 3. Obsessive
- 4. Delusions (false beliefs)
- 5. Suicidal
- 6. Unconnected
- 7. Disturbed or distorted
- viii. Once you have completed a mental status examination, you should report
 - 1. General appearance
 - 2. Speech
 - 3. Mood
 - 4. Area of thought
- II. Patient considerations
 - a. Pregnant
 - b. Pediatric
 - c. Geriatric
- III. Agitated Delirium/Excited Delirium (refer to the resources in the instructor preparations section)
 - a. Stay calm, and do not cause more harm to the patient
 - b. Characterized by a sudden onset of extreme agitation and extremely irrational or combative behavior
 - i. Bizarreness, aggressiveness, agitation, ranting, hyperactivity, paranoia, panic
 - ii. Reported to result from substance intoxication, psychiatric illness, alcohol withdrawal, head trauma, or a combination of these
 - iii. Patient may exhibit hypertension, tachycardia, diaphoresis, dilated pupils, tachypnea, abnormal tolerance to pain, hyperthermia, noncompliance, and endless endurance and strength
 - iv. May lead to respiratory and cardiac arrest
 - 1. Restraints may increase the risk
- IV. Suicide/Depression (refer to the resources in the instructor preparations section)
 - a. [⁶Risk Factors for Suicide](#)
 - i. History of depression and other mental disorders
 - ii. Previous suicidal gestures/attempts
 - iii. History of family/child abuse (non-accidental trauma)
 - iv. Feelings of hopelessness
 - v. Unwillingness to seek mental health care (stigma attached)
 - vi. Feeling of being isolated from others
 - vii. History of impulsive or aggressive behavior
 - viii. Inability to access mental health
 - ix. Recent diagnosis of a serious illness, especially an illness that signals a loss of independence
 - x. Recent loss of a loved one, job, money or social loss
 - xi. Access to firearms
 - xii. PTSD
 - xiii. Alcohol or drug abuse
 - xiv. Loss of relationship
 - xv. Gives away personal belongings/cherished possessions
 - xvi. Physical or mental stress
 - xvii. Major physical stress such as surgery and long periods of sleep deprivation

- | |
|---|
| xviii. Expression of a clear plan for committing suicide
xix. Ability of the mechanisms to carry out suicide |
|---|

EMR PSYCHIATRIC SKILLS	Successful	Unsuccessful
1. Demonstrate proper verbal de-escalation techniques		
Documentation of successful completion of each skill must be maintained for each student in order to award full credit for this topic.		



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EMERGENCY MEDICAL RESPONDERS

MEDICAL

TOXICOLOGICAL EMERGENCIES--OPIOIDS

ADULT & PEDIATRIC PATIENTS: ½ HOUR

INSTRUCTOR PREPARATIONS

- *National EMS Education Standards*
- Poison Control: 1-800-222-1222

LESSON OBJECTIVES

- Identify common synthetic stimulants and natural or synthetic THC
 - Recognize the effects
 - Synthetic stimulants
 - Natural and synthetic THC
- Identify common opioids
 - Recognize the effects
- Explain common treatment options for a person experiencing opioid overdose

LESSON CONTENT

- I. Poison control: 1-800-222-1222
- II. Toxicological Emergencies
 - a. Synthetic stimulants
 - b. Tetrahydrocannabinol (THC - natural/synthetic)
 - c. Opioid
- III. Synthetic Stimulants
 - a. Bath Salts
 - i. Bliss, Blue Silk, Ivory Wave, White Dove, White Knight, White Lightning
 - ii. Usually sold as a powder
 1. White or off-white in color
 2. Can also be sold in capsule
 - iii. Usually inhaled nasally
 1. Can also be taken orally, intravenously, or smoked
 - b. Methamphetamine
 - i. Crank, Crystal Meth, Glass, Ice, Tweak, Yaba
 - ii. Usually sold as crystals
 1. White or off-white in color
 2. Yellow/red crystalline powder
 - iii. Usually smoked, snorted or injected IV
 - c. MDMA (methylenedioxymethamphetamine)
 - i. Ecstasy, E, X, XTC, Smarties, Scooby-Snacks, Skittles
 - ii. Usually sold in tablets or capsules
 1. Can also be sold in liquid drops, snorted, or smoked
 2. Can be any color
 - d. Effects of synthetic stimulants
 - i. Psychological
 1. Agitation, insomnia, irritability, dizziness, depression, paranoia, delusions, suicidal thoughts, seizures, and panic attacks
 - ii. Somatic (effects on the body)
 1. Hyperthermia (significant with MDMA)
 2. Rapid heart rate - can lead to heart attacks and strokes
 3. Chest pains, nosebleeds, sweating, nausea, and vomiting
- IV. Tetrahydrocannabinol (THC)
 - a. Natural

- i. Weed, bud, doobie, Mary Jane, pot, blunt, herb, hemp, grass, etc.
 - ii. A green, brown or gray mixture of dried, shredded leaves, stems, seeds, and flowers of the hemp plant
 - iii. Usually smoked in a cigarette or pipe
 - b. Synthetic
 - i. Characterized by mimicking natural THC
 - ii. Can cause psychosis
 - iii. K2, spice, black mamba, Bombay blue, genie, zohai
 - iv. Similar appearance to natural THC
 - c. Effects of THC
 - i. Impaired short term memory
 - ii. Decreased concentration and attention
 - iii. Impaired balance and coordination
 - iv. Increased heart rate and blood pressure
 - v. Increased appetite

V. Opioids

- a. Synthetic or semi-synthetic opioids act on the Central Nervous System as a depressant to:
 - i. Decrease the perception of pain
 - ii. Decrease the reaction to pain
 - iii. Increase pain tolerance
- b. May be prescribed for acute pain, debilitating pain, or chronic pain as part of palliative care
- c. May be abused to induce euphoria
- d. Prolonged use may lead to tolerance and/or addiction
- e. Common effects:
 - i. Respiratory depression
 - ii. Drowsiness
 - iii. Constipation
 - iv. Constricted pupils
 - v. Dry mouth
 - vi. Itching
 - vii. Nausea and vomiting
- f. Common opioids
 - i. Heroin
 - ii. Morphine
 - iii. Oxycodone (Percocet[®])
 - iv. Codeine
 - v. Fentanyl
 - vi. Hydrocodone (Vicodin[®])
 - vii. Hydromorphone (Dilaudid[®])
 - viii. Meperidine (Demerol[®])
 - ix. Methadone
- g. Naloxone (Narcan[®])
 - i. Opioid antagonist
 - ii. Reverse CNS and respiratory depression due to opioid overdose
 - iii. NOT effective against non-opioid drugs
 - iv. First responders and/or bystanders may administer intranasally or via auto-injector

VI. Pediatric toxicology/ingestion

- a. Poison Control: 1800-222-1222

- | |
|---|
| <ul style="list-style-type: none"> b. Risks for accidental ingestion c. Exposure from hazardous environment |
|---|

EMR TOXICOLOGICAL EMERGENCY SKILLS	Successful	Unsuccessful
1. Demonstrate the ability to identify patients who need naloxone		
2. Demonstrate the administration of an auto-injector or intra-nasal naloxone as appropriate for local protocol		
Documentation of successful completion of each skill must be maintained for each student in order to award full credit for this topic.		



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MERGENCY MEDICAL RESPONDERS

MEDICAL

NEUROLOGICAL EMERGENCIES-SEIZURES

ADULT & PEDIATRIC PATIENTS: ½ HOUR

INSTRUCTOR PREPARATIONS

- *National EMS Education Standards*

LESSON OBJECTIVES

- Define altered mental status (AMS)
- State common causes of altered mental status
- Define status epilepticus/seizures
- Explain complications associated with seizures

LESSON CONTENT

- I. Altered mental status definition and causes
 - a. Definition: change in a person's level of awareness
 - b. Causes (AEIOU-TIPPSS— acronym for assessment of AMS patient)
 - i. Alcohol
 - ii. Epilepsy (seizures)
 - iii. Insulin (diabetic condition)
 - iv. Oxygen (lack of)
 - v. Uremia (kidney failure)
 - vi. Trauma
 - vii. Infection
 - viii. Psychiatric
 - ix. Poisoning (including drug overdose)
 - x. Shock
 - xi. Stroke

- II. Types of seizures
 - a. Generalized
 - i. Tonic-clonic
 - ii. Absence
 - b. Partial
 - i. Simple
 - ii. Complex
 - c. Status epilepticus
 - i. [⁷Epilepsy Currents-AESG—“Evidence Based Guideline: Treatment of Convulsive Status Epilepticus in Children and Adults: Report of the Guideline Committee of the American Epilepsy Society”](#)
 1. A continuous seizure lasting more than 30 minutes
 2. Two or more seizures without regaining consciousness between any of them
 3. Prolonged seizures last between 5 and 30 minutes
 - a. Should be treated as status epilepticus
 - ii. Complications
 1. Aspiration
 2. Bone and spine fractures
 3. Brain damage from lack of oxygen and/or depletion of glucose
 4. Dehydration

- III. Causes
 - a. Medication non-compliance

	<ul style="list-style-type: none"> b. Rapid increase in body temperature (febrile) c. Infection d. Hypoxia e. TBI f. Alcohol or drug withdrawal g. Stroke h. Hypoglycemia i. Eclampsia j. Seizure disorder k. Electrolyte disturbances l. Poisoning
IV.	<p>Assessment findings</p> <ul style="list-style-type: none"> a. Spasms/muscle contractions/shaking or tremors b. Sweating c. Cyanosis during seizure activity d. Increased secretions e. Incontinence f. Postictal state
V.	<p>Management</p> <ul style="list-style-type: none"> a. Protect from further injury; position on side to protect airway b. Ensure open airway, adequate ventilations, and oxygenation <ul style="list-style-type: none"> i. Consider using an NPA c. Provide emotional support; reduce stimulants that may trigger more seizures

EMR NEUROLOGICAL/SEIZURE SKILLS	none
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EMERGENCY MEDICAL RESPONDERS

MEDICAL

ENDOCRINE EMERGENCIES-DIABETES

ADULT & PEDIATRIC PATIENTS: ½ HOUR

INSTRUCTOR PREPARATIONS

- *National EMS Education Standards*

LESSON OBJECTIVES


- Explain the role glucose plays on the cells
- Identify symptoms commonly associated with hypoglycemia
- Identify symptoms commonly associated with hyperglycemia

LESSON CONTENT

- I. Glucose
 - a. Sugar
 - b. Fuel for cells
 - c. Proper amounts of glucose in blood ensures proper brain and cell functioning
 - d. Changes in levels may result in altered behavior
- II. Insulin
 - a. A “carrier” for glucose to enter cells
- III. Diabetes
 - a. Condition in which insulin is nonexistent, minimal, or nonfunctioning
 - b. Without treatment it leads to high blood sugar
 - c. Two types of diabetes
 - i. Insulin dependent diabetes (IDDM, Type 1)
 1. Early age of onset
 2. Lack of insulin production
 - ii. Non-insulin dependent diabetes (NIDDM, Type 2)
 1. Later age of onset
 2. Associated with obesity
 3. Some cases are resolved with weight loss
 4. Cells are less receptive to insulin
 5. Medication required to improve insulin sensitivity
- IV. Hypoglycemia
 - a. Rapid onset and changes in mental status
 - b. Sweating
 - c. Hunger
 - d. Rapid pulse
 - e. Rapid, shallow respirations
 - f. Seizures, come (late)
 - g. Bizarre behavior (sudden onset and abnormal for patient)
- V. Hypoglycemia management
 - a. Ensure open airway, adequate breathing, circulation, and ability to swallow
- VI. Hyperglycemia
 - a. Slow onset and changes in mental status
 - b. Rapid breathing, sweet breath odor
 - c. Dehydration, pale, warm, dry
 - d. Weakness, nausea, vomiting
 - e. Weak, rapid pulse
 - f. Polyuria, polydipsia, polyphagia
- VII. Hyperglycemia management
 - a. Ensure an open airway, adequate breathing, circulation, and ability to swallow

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| <ul style="list-style-type: none"> b. Supportive care c. Transport |
|--|

EMR ENDOCRINE/DIABETES ACTIVITY	Successful	Unsuccessful
1. Gain familiarity with insulin pumps*		
*This skill may be practiced using diagrams of various types of insulin pumps. The use of a physical pump is not mandatory.		
Documentation of successful completion of each skill must be maintained for each student in order to award full credit for this topic.		

 National Registry of Emergency Medical Technicians® THE NATION'S EMS CERTIFICATION™		EMERGENCY MEDICAL RESPONDERS MEDICAL IMMUNOLOGICAL EMERGENCIES ALLERGIC REACTION & ANAPHYLAXIS ADULT & PEDIATRIC PATIENTS: ½ HOUR	
<u>INSTRUCTOR PREPARATIONS</u>			
<ul style="list-style-type: none"> • <i>National EMS Education Standards</i> 			
<u>LESSON OBJECTIVES</u>			
<ul style="list-style-type: none"> • Discuss the physiology related to allergies and anaphylaxis • Differentiate between a mild/localized allergic reaction and anaphylaxis • Explain the actions of medications used to treat anaphylaxis <ul style="list-style-type: none"> ○ Epinephrine 			
<u>LESSON CONTENT</u>			
I. Allergic reaction <ol style="list-style-type: none"> a. Hyperactive, localized immune response to an allergen b. Some histamine is released c. Localized: redness, swelling, hives, itching d. May cause nausea, vomiting, and/or diarrhea e. Usually requires minimal supportive therapies f. Repeat exposures may lead to anaphylaxis (e.g., insect stings, foods, etc.) 			
II. Anaphylaxis <ol style="list-style-type: none"> a. Multiple body systems are affected, not just a localized reaction like allergies b. Life threatening reaction of the immune system to an allergen c. Large quantities of histamine are released throughout the body d. Vasodilation and increased capillary permeability e. May lead to shock f. Bronchoconstriction and mucous production g. May lead to respiratory distress <ol style="list-style-type: none"> i. Soft tissue swelling of the upper airway ii. Airway obstructions 			
III. Treatment for Anaphylaxis <ol style="list-style-type: none"> a. Out-of-hospital treatment <ol style="list-style-type: none"> i. Ensure adequate airway, ventilation, and oxygenation ii. Administer oxygen iii. Assist patient with epinephrine auto-injector if available iv. Transport (or arrange for transportation) to an appropriate facility for evaluation 			

EMR IMMUNOLOGICAL EMERGENCIES SKILLS	Successful	Unsuccessful
1. Demonstrate assisting a patient in administering medication with an auto-injector		
Documentation of successful completion of each skill must be maintained for each student in order to award full credit for this topic.		



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EMERGENCY MEDICAL RESPONDERS

OPERATIONS

FIELD TRIAGE—DISASTERS/MCIs
ADULT & PEDIATRIC PATIENTS: ½ HOUR

INSTRUCTOR PREPARATIONS

- *National EMS Education Standards*
- ⁸[*National Implementation of the Model Uniform Core Criteria for Mass Casualty Incident Triage 2013 \(MUCC\)*](#)

LESSON OBJECTIVES

- Relate MUCCs impact on the development of the CDC Field Triage Decision Scheme and SALT
- Analyze the triage methods for
 - SALT
 - START
 - JumpSTART

LESSON CONTENT

- I. MUCC (Model Uniform Core Criteria)
 - a. Reference:
 - i. ⁸[*National Implementation of the Model Uniform Core Criteria for Mass Casualty Incident Triage 2013*](#)
 - b. A science and consensus-based national guideline that recommends 24 core criteria for all mass casualty triage systems
 - c. Used as the basis for CDC Field Triage Decision scheme and SALT (Sort, Assess, Lifesaving Interventions, Treatment/Transport)
- II. SALT Triage
 - a. Reference: [Sort, Assess, Lifesaving interventions, Treatment/transport](#)
 - b. Steps to consider during triage
 - i. Sort: Global sorting
 1. Obvious life threat
 2. Purposeful movement
 3. Walk
 - ii. Individual assessment
 1. Perform lifesaving interventions as indicated
 2. Perform ongoing reassessments
 - iii. Treatment and/or transport
- III. START (adult triage)
 - a. Reference: [Simple Triage and Rapid Treatment](#)
 - b. Steps to consider during triage
 - i. Assess respirations
 - ii. Assess perfusion
 - iii. Assess mental status
 - c. Immediate or delayed transport depends on the assessment findings
- IV. JumpSTART (pediatric triage)
 - a. Reference: [Pediatric MCI Triage Tool](#)
 - b. First, triage patients who do not walk independently (based on age)
 - c. Steps to consider during triage
 - i. Assess respirations
 - ii. Assess perfusion
 - iii. Assess mental status
 - d. Determine immediate or delayed transport based on assessment findings

EMR FIELD TRIAGE ACTIVITY	Successful	Unsuccessful
1. Triage patients, in accordance with local protocol, using the SALT or the START/JumpSTART algorithm in a simulated multi-casualty scenario		
Documentation of successful completion of each skill must be maintained for each student in order to award full credit for this topic.		



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EMERGENCY MEDICAL RESPONDERS

OPERATIONS

EMS PROVIDER HYGIENE, SAFETY, AND VACCINATIONS

ADULT & PEDIATRIC PATIENTS: ¼ HOUR

INSTRUCTOR PREPARATIONS

- *National EMS Education Standards*
- ⁹[CDC—Hand Hygiene Guideline](#)
- ¹⁰[APIC—Guide to Infection Prevention in Emergency Medical Services](#)

LESSON OBJECTIVES

- Identify proper hand washing technique
- Identify appropriate use of alcohol-based hand cleaner
- Discuss the CDC's recommendations of vaccines for healthcare providers
- Assess eye safety indications and measures

LESSON CONTENT

- I. Always wash hands
 - a. Before and after patient contact
 - b. Before eating
 - c. After cleaning the ambulance or equipment
 - d. After using the restroom
 - e. After nose blowing, coughing, or sneezing
- II. CDC Recommendations for washing with soap and water
 - a. Reference: ⁹[CDC—Hand Hygiene Guideline](#)
 - b. Remove all jewelry
 - c. Wet hands with clean running water
 - d. Apply soap
 - e. Scrub the back of hands
 - f. Clean underneath fingernails
 - g. Continuously rub hands for at least 20 seconds
 - h. Rinse hands well under running water
 - i. Dry hands using a clean towel or air dry
- III. Alcohol-based hand cleaner/sanitizer
 - a. Should contain at least 60% alcohol
 - b. Reduces number of germs
 - c. Does not eliminate all types of germs
 - d. Does not kill viruses
 - i. Creates inhospitable environments for viruses to live
 - e. Ineffective when hands are visibly dirty
 - f. Techniques for using hand sanitizer
 - i. Know that soap and water is more effective than hand sanitizer
 - ii. Apply to palm of one hand
 - iii. Rub hands together
 - iv. Rub all surfaces of hands and fingers until dry
 - v. Wash hands when soap and water become available
- IV. Eye and face protections
 - a. Eye protection is recommended by the CDC when workers may be at risk of acquiring infectious diseases via ocular exposure
 - i. Adenovirus
 - ii. Herpes simplex
 - iii. Staphylococcus aureus
 - iv. Hepatitis B and C

- v. HIV
- vi. Rhinoviruses
- b. Eye protection devices
 - i. Goggles
 - ii. Face Shields
 - iii. Safety glasses
 - iv. Full-face respirators
- V. Vaccinations for healthcare providers
 - a. Reference: ¹¹[CDC—Vaccines: Healthcare Provider/Professionals](#)
 - b. Recommended vaccines (not exhaustive)
 - i. Hepatitis B
 - ii. Influenza
 - iii. MMR (measles, mumps and rubella)
 - iv. Varicella
 - v. Pertussis
 - vi. Consider recommended vaccines for disaster response
 - c. Vaccines
 - i. Help prevent transmission of certain diseases
 - ii. Some are attenuated (weakened or killed) viruses
 - iii. Some mimic certain diseases
 - 1. Produce antibodies in the blood
 - iv. Some provide antibodies directly

EMR HYGIENE SKILLS	none
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EMERGENCY MEDICAL RESPONDERS

OPERATIONS

EMS CULTURE OF SAFETY

ADULT & PEDIATRIC PATIENTS: ¼ HOUR

INSTRUCTOR PREPARATIONS

- ¹²[*Strategy for a National EMS Culture of Safety*](#)

LESSON OBJECTIVES

- Define culture of safety
- Identify and explain the six core elements necessary to advance an EMS Culture of Safety
- Identify the role of the EMS providers in establishing a culture of safety within EMS organizations

LESSON CONTENT

- I. Define culture of safety
 - a. Reference: ¹²[*Strategy for a National EMS Culture of Safety*](#)
 - b. “The enduring value and priority placed on worker and public safety by everyone in every group at every level of an organization. It refers to the extent to which individuals and groups will commit to personal responsibility for safety; act to preserve, enhance and communicate safety concerns; strive to actively learn, adapt and modify (both individual and organizational) behavior based on lessons learned from mistakes; and be rewarded in a manner consistent with these values.”
- II. Identify and explain the six core elements necessary to advance an EMS Culture of Safety as described in the 2013 *Strategy for a National EMS Culture of Safety*
 - a. Just Culture
 - i. Development of environments in which EMS personnel are safe to report errors
 1. Focus on the various factors that contributed to the error
 - ii. Assess risks in order to identify means of overcoming factors that contribute to errors
 1. Systems factors and individual factors are examined in order to make improvements to avoid future errors
 - iii. Blaming or punishing is not an option in a Just Culture
 - b. Coordinated support and resources
 - i. Creation of a guidance and resource coordination body
 1. e.g., EMS Safety Resource Center (EMSSRC)
 - a. Purpose is to determine the best way to effectively serve EMS in the support role
 - b. Partner with governing bodies to serve as a conduit of information and resources for EMS Safety
 - c. No oversight or authority
 - d. Suggested support areas:
 - i. Outreach and Resources for EMS and other stakeholders
 - ii. Resources for Public Outreach
 - iii. Measuring Progress and Success
 - c. EMS Safety Data System
 - i. Data driven decisions and policies related to EMS safety can only be made if all data is accessible on a national level.
 - ii. A robust, secure system would allow access to researchers, decision makers, and national stakeholder groups.

- iii. Data sets have been identified; data will be analyzed and used to inform future plans, initiatives, processes, and policies in order to protect the health and well-being of EMS personnel, their patients, and the general public
 - 1. Injuries
 - 2. Illnesses
 - 3. Incidents
 - d. EMS Education Initiatives
 - i. Safety starts with EMS leaders and educators and involves everyone
 - ii. Initial EMS programs must encourage a culture of safety throughout the program
 - iii. Continuing education and new employee onboarding must infuse culture of safety throughout the curricula
 - e. EMS safety standards
 - i. Safety standards for patient and responder safety must be developed using data and evidence
 - ii. EMSSRC can coordinate the efforts to combine work and data completed by various EMS stakeholders and projects
 - f. Requirements for reporting and investigation
 - i. Mandates for reporting safety are necessary so a common language and data set can be created to improve responder and patient safety
 - 1. Steps may include:
 - a. Determining what data are already mandated and available
 - b. Determining what data are necessary and useful
 - c. Learning from those with hands-on experience
 - d. Assigning and obtaining authorization for an investigative body
 - e. Identifying existing best practices
- III. Consider these questions in regards to the policies, practices, and daily operations in your organization/agency:
 - a. What changes are needed to encourage the development of a culture of safety?
 - b. How are mistakes handled if one is made during a patient care encounter?
 - c. How should it be handled if applying the concept of Just Culture?

EMR CULTURE OF SAFETY SKILLS	none
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