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## **Initial Patient Care Protocol-Adult and Pediatrics**

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This protocol serves to reduce the need for extensive reiteration of basic assessment and other considerations in every protocol.

### **Assessment**

1. Assess scene safety
  - a. Evaluate for hazards to EMS personnel, patient, bystanders
  - b. Determine number of patients
  - c. Determine mechanism of injury
  - d. Request additional resources if needed and weigh the benefits of waiting for additional resources against rapid transport to definitive care

Consider declaration of mass casualty incident if needed

2. Use appropriate personal protective equipment (PPE)
3. Wear high-visibility, retro-reflective apparel when deemed appropriate (e.g. operations at night or in darkness, on or near roadways)
4. Consider cervical spine stabilization and/or spinal care if trauma

### **Primary Survey**

1. **Airway, Breathing, Circulation** is cited below; (although there are specific circumstances where **Circulation, Airway, Breathing** may be indicated such as cardiac arrest or major arterial bleeding)
  - a. Airway (assess for patency and open the airway as indicated)
    - i. Patient is unable to maintain airway patency—open airway
      1. Head tilt chin lift
      2. Jaw thrust
      3. Suction
      4. Consider use of the appropriate airway management adjuncts and devices:
        - oral airway,
        - nasal airway,
        - blind insertion, or supraglottic airway device,
        - laryngeal mask airway,
        - endotracheal tube
      5. For patients with laryngectomies or tracheostomies, remove all objects or clothing that may obstruct the opening of these devices, maintain the flow of prescribed oxygen, and reposition the head and/or neck
    - b. Breathing
      - i. Evaluate rate, breath sounds, accessory muscle use, retractions, patient positioning
      - ii. Administer oxygen as appropriate with a target of achieving 94-98% saturation for most acutely ill patients
      - iii. Apnea (not breathing) – open airway-see #4 above

- c. Circulation
  - i. Control any major external bleeding (see Extremity Trauma/External Hemorrhage Management guideline)
  - ii. Assess pulse
    - 1. If none – go to Cardiac Arrhythmia Protocol
    - 2. Assess rate and quality of carotid and radial pulses
  - iii. Evaluate perfusion by assessing skin color and temperature
    - 1. Evaluate capillary refill
  
- d. Disability
  - i. Evaluate patient responsiveness: AVPU scale (Alert, Verbal, Pain, Unresponsive)
  - ii. Evaluate gross motor and sensory function in all extremities
  - iii. Check blood glucose in patients with altered mental status
  - iv. If acute stroke suspected – go to Stroke Protocol
  
- e. Expose patient as appropriate to complaint
  - i. Be considerate of patient modesty
  - ii. Keep patient warm

### **Secondary Survey**

1. The performance of the secondary survey should not delay transport in critical patients. Secondary surveys should be tailored to patient presentation and chief complaint. Secondary survey may not be completed if patient has critical primary survey problems
  - a. Head
    - i. Pupils
    - ii. Naso-oropharynx
    - iii. Skull and scalp
  
  - b. Neck
    - i. Jugular venous distension
    - ii. Tracheal position
    - iii. Spinal tenderness
  
  - c. Chest
    - i. Retractions
    - ii. Breath sounds
    - iii. Chest wall deformity
  
  - d. Abdomen/Back
    - i. Flank/abdominal tenderness or bruising
    - ii. Abdominal distension
  
  - e. Extremities

- i. Edema
      - ii. Pulses
      - iii. Deformity
    - e. Neurologic
      - i. Mental status/orientation
      - ii. Motor/sensory
2. Obtain Baseline Vital Signs (An initial full set of vital signs is required: pulse, blood pressure, respiratory rate, neurologic status assessment) (see chart below)
- a. Neurologic status assessment: establish a baseline and note any change in patient neurologic status
    - i. AVPU (Alert, Verbal, Painful, Unresponsive) or
    - ii. Glasgow Coma Score (GCS)
  - b. Patients with cardiac or respiratory complaints
    - i. Pulse oximetry
    - ii. 12-lead EKG should be obtained early in patients with cardiac or suspected cardiac complaints
    - iii. Continuous cardiac monitoring, if available
    - iv. Consider waveform capnography (essential for patients who require invasive airway management) or digital capnometry
  - c. Patient with altered mental status
    - i. Check blood glucose
    - ii. Consider waveform capnography (essential for patients who require invasive airway management) or digital capnometry
  - d. Stable patients should have at least two sets of pertinent vital signs. Ideally, one set should be taken shortly before arrival at receiving facility
  - e. Critical patients should have pertinent vital signs frequently monitored
3. Obtain OPQRST history:
- a. **O**nset of symptoms (circumstances surrounding onset such as gradual, or sudden onset)
  - b. **P**rovocation – location; any exacerbating or alleviating factors
  - c. **Q**uality of pain
  - d. **R**adiation of pain
  - e. **S**everity of symptoms – pain scale
  - f. **T**ime of onset and circumstances around onset

4. Obtain SAMPLE history:
  - a. Symptoms
  - b. Allergies – medication, environmental, and foods
  - c. Medications – prescription and over-the-counter; bring containers to ED if possible
  - d. Past medical history
    - i. look for medical alert tags, portable medical records, advance directives
    - ii. look for medical devices/implants (some common ones may be dialysis shunt, insulin pump, pacemaker, central venous access port, gastric tubes, urinary catheter)
  - e. Last oral intake
  - f. Events leading up to the 911 call

### **Treatment and Interventions**

1. Administer oxygen as appropriate with a target of achieving 94-98% saturation
2. Tier with an appropriate service if advanced level of care or assistance is needed and can be accomplished in a timely manner
3. Place appropriate monitoring equipment as dictated by assessment, within scope of practice – these may include:
  - a. Continuous pulse oximetry
  - b. Cardiac rhythm monitoring
  - c. Waveform capnography or digital capnometry
  - d. Carbon monoxide assessment
4. If within scope of practice, establish vascular access if indicated or in patients who are at risk for clinical deterioration.
  - a. If IO is to be used for a conscious patient, consider the use of 0.5 mg/kg of lidocaine 0.1mg/mL with slow push through IO needle to a maximum of 40 mg to mitigate pain from IO medication administration
5. Monitor pain scale if appropriate
6. Reassess patient

### **Patient Safety Considerations**

1. Routine use of lights and sirens is not warranted
2. Even when lights and sirens are in use, always limit speeds to level that is safe for the emergency vehicle being driven and road conditions on which it is being operated
3. Be aware of legal issues and patient rights as they pertain to and impact patient care (e.g. patients with functional needs or children with special healthcare needs)
4. Be aware of potential need to adjust management based on patient age and comorbidities, including medication dosages
5. The maximum weight-based dose of medication administered to a pediatric patient should not exceed the maximum adult dose except where specifically stated in a patient care guideline
6. Direct medical control should be contacted when mandated or as needed

## **Key Considerations**

**Pediatrics:** Use an accurate weight or length-based assessment tool (length-based tape or other system) to estimate patient weight and guide medication therapy and adjunct choices.

- a. The pediatric population is generally defined by those patients who weigh up to 40 kg or up to 14-years of age, whichever comes first
- b. Consider using the pediatric assessment triangle (appearance, work of breathing, circulation) when first approaching a child to help with assessment.

**Geriatrics:** The geriatric population is generally defined as those patients who are 65 years old or more.

- a. In these patients, as well as all adult patients, reduced medication dosages may apply to patients with renal disease (i.e. on dialysis or a diagnosis of chronic renal insufficiency) or hepatic disease (i.e. severe cirrhosis or end-stage liver disease)

**Co-morbidities:** reduced medication dosages may apply to patients with renal disease (i.e. on dialysis or a diagnosis of chronic renal insufficiency) or hepatic disease (i.e. severe cirrhosis or end-stage liver disease).

## **Normal Vital Signs**

<b>Age</b>	<b>Pulse</b>	<b>Respiratory Rate</b>	<b>Systolic BP</b>
Preterm less than 1 kg	120-160	30-60	36-58
Preterm 1 kg	120-160	30-60	42-66
Preterm 2 kg	120-160	30-60	50-72
Newborn	120-160	30-60	60-70
Up to 1 year	100-140	30-60	70-80
1-3 years	100-140	20-40	76-90
4-6 years	80-120	20-30	80-100
7-9 years	80-120	16-24	84-110
10-12 years	60-100	16-20	90-120
13-14 years	60-90	16-20	90-120
15 years or older	60-90	14-20	90-130

**Glasgow Coma Scale**

<b>ADULT GLASGOW COMA SCALE</b>		<b>PEDIATRIC GLASGOW COMA SCALE</b>	
<b>Eye Opening (4)</b>		<b>Eye Opening (4)</b>	
Spontaneous	4	Spontaneous	4
To Speech	3	To Speech	3
To Pain	2	To Pain	2
None	1	None	1
<b>Best Motor Response (6)</b>		<b>Best Motor Response (6)</b>	
Obeys Commands	6	Spontaneous Movement	6
Localizes Pain	5	Withdraws to Touch	5
Withdraws from Pain	4	Withdraws from Pain	4
Abnormal Flexion	3	Abnormal Flexion	3
Abnormal Extension	2	Abnormal Extension	2
None	1	None	1
<b>Verbal Response (5)</b>		<b>Verbal Response (5)</b>	
Oriented	5	Coos, Babbles	5
Confused	4	Irritable Cry	4
Inappropriate	3	Cries to Pain	3
Incomprehensible	2	Moans to Pain	2
None	1	None	1
<b>Total</b>		<b>Total</b>	

## **PEDIATRIC ABDOMINAL PAIN**

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1. Follow Initial Patient Care Protocol for all patients

### **BASIC CARE GUIDELINES**

- a) Give nothing by mouth
- b) Transport in position of comfort

### **ADVANCED CARE GUIDELINES**

- a) Establish IV Access if patient condition warrants
- b) Consider a fluid bolus if indicated of **NORMAL SALINE**  
10 mL/kg for patients 0-30 days, or  
20 mL/kg for patients 30 days to puberty
- c) Evaluate the need for pain and nausea control



## PEDIATRIC ALLERGIC REACTION

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1. Follow initial patient care protocol

### BASIC CARE GUIDELINES

- a) Assess airway via Airway Protocol
- b) If the patient has a physician prescribed auto-injectable epinephrine assist with administration and monitor for signs of anaphylaxis

### ADVANCED CARE GUIDELINES

- a) Administer **EPINEPHRINE 1:1,000** IM per pediatric dosing guideline. May repeat in 15 minutes if symptoms warrant.
- b) Establish IV / IO access.
- c) **DIPHENHYDRAMINE (BENADRYL)** 1.0 mg/kg IV or IM, up to a maximum dose of 50 mg
- d) Consider administration of **IPRATROPIUM BROMIDE 0.5mg/ALBUTEROL 2.5mg (DUONEB)** in 3mL NS by nebulizer **X 1** for respiratory distress if > age 5 and no history of glaucoma **OR** **ALBUTEROL 2.5mg** by nebulizer if respiratory distress
- e) Consider early intubation if severe anaphylaxis exists.
- f) For cases of anaphylaxis (systolic BP less than 90, respiratory distress, altered LOC) consider administration of IV **EPINEPHRINE** as follows:
  - Add 1 mg **EPINEPHRINE** to 1 liter normal saline (either 10 ml 1:10,000 or 1 ml 1:1000) Affix a label stating "**1 mg EPINEPHRINE added**"
  - Attach micro drip tubing to the bag with **EPINEPHRINE**
  - Administer IV piggyback at a rate of 60 micro drops per minute into a fast running IV of Normal Saline

## PEDIATRIC ALTERED MENTAL STATUS

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Revised 2017

1. Follow initial patient care protocol

### BASIC CARE GUIDELINES

- a) Follow Airway Protocol to ensure adequate ventilation
- b) Obtain blood glucose
- c) If conscious & able to swallow, administer **GLUCOSE** 15 gm by mouth for children over 2 years of age.

### ADVANCED CARE GUIDELINES

- d) Establish IV access at a TKO rate.
- e) Monitor EKG and treat dysrhythmias following the appropriate protocol(s).
- f) If blood sugar less than 60 mg/dL administer **DEXTROSE** based on Pediatric Dosing Reference
- a) If unable to obtain IV access give **GLUCAGON** 0.5-1 mg IM up to 1 mg maximum
- d) Evaluate the need for **NALOXONE** 0.1 mg/kg IV up to maximum dose of 2.0 mg per dose
- e) Evaluate the need for intubation
- b) If there is evidence of shock or a history of dehydration, administer a fluid bolus of **NORMAL SALINE** at 10 ml/kg if age 0-30 days or 20 ml/kg for ages 30 days to puberty over 10-15 minutes
- c) Reassess patient, if signs of shock persist, bolus may be repeated at the same dose up to two times for a maximum total of 60 ml/kg.

## PEDIATRIC ASTHMA

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1. Follow initial patient care protocol

### BASIC CARE GUIDELINES

- a) Keep patient at rest and in a position of comfort.
- b) Use Airway Protocol to evaluate the airway and adequacy of ventilation
- c) If patient has a physician prescribed, hand-held metered dose inhaler, assist with administration
- d) Reassess patient and repeat second dose if necessary per medical direction

### ADVANCED CARE GUIDELINES

- e) If patient condition indicates establish IV access.
- f) Apply appropriate patches and monitor EKG.
- g) **IPRATROPIUM 0.5 mg/ALBUTEROL 2.5 mg (DUONEB)** by nebulizer **X 1** for respiratory distress if  $\geq$  age 5 yrs  
**OR**
- h) **ALBUTEROL 2.5 mg** in 3.0mL by nebulizer for respiratory distress for patients age  $\leq$  5 yrs
- i) Evaluate the need for **EPINEPHRINE 1:1,000** IM concentration according to length/weight based tape. Dosage may be repeated once after 5 minutes.
- j) Evaluate the need for advanced airway, intubation preferred (see Airway Protocol)

## PEDIATRIC BEHAVIORAL EMERGENCIES

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1. Follow initial patient care protocol
2. If there is evidence of immediate danger, protect yourself and others by summoning law enforcement to help ensure safety

### BASIC CARE GUIDELINES

- a) Consider medical or traumatic causes of behavior problems
- b) Keep environment calm

### ADVANCED CARE GUIDELINES

- a) For severe anxiety or threat of safety to patient or crew, administer
  - i. **MIDAZOLAM** (Versed) 0.15 mg/kg IV, IO, IM, or Intranasal repeat as needed.  
  
**Or in the event of a medication shortage of midazolam**
  - ii. **DIAZEPAM** (Valium) IV: 0.2 mg/kg slow IV push 15 minutes up to 10mg maximum
- b) For Excited Delirium patients greater than 10 years of age, consider administering **KETAMINE**  
200 mg IM Injection up to 69kg  
300 mg IM Injection 70-89kg  
400 mg 90kg or greater  
May repeat once in 3-5 minutes if needed
- c) Excited delirium patients will be flushed, diaphoretic and hot to the touch and require medication if the patient is a risk to themselves or others.

When safe, Establish IV access and apply a cardiac monitor.

## PEDIATRIC BURNS

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1. Follow initial patient care protocol
2. Continually monitor the airway for evidence of obstruction
3. Do not use any type of ointment, lotion, or antiseptic
4. Maintain normal patient temperature
5. Transport according to the Out-of-Hospital Trauma Destination Decision Protocol (Appendix)

### **Thermal Burns**

#### BASIC CARE GUIDELINES

- a) Stop the burning process
- b) Remove smoldering clothing and jewelry
- c) Prevent further contamination of wounds
- d) Cover the burned area with a clean, dry dressing or plastic wrap
- e) Estimate percent of body surface area injured and estimate the depth of burn as superficial, partial thickness or full thickness

#### ADVANCED CARE GUIDELINES

- f) Establish an IV. For severe burns (defined as greater than 20% partial thickness or greater than 10% full thickness), administer normal saline
  - i. 10 ml/kg for ages 0-30 days
  - ii. 20ml/kg for ages greater than 30 daysUp to 500ml total volume.
- f) Contact medical control for further fluid administration
- g) Treat pain per pain protocol

## **PEDIATRIC BURNS CONTINUED**

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### **Chemical Burns**

#### **BASIC CARE GUIDELINES**

- a) Attempt to identify contaminant and consider need for Haz Mat response and refer to Haz Mat Protocol
- b) Brush off powders prior to flushing. Lint roller may also be used to remove powders prior to flushing
- c) Immediately begin to flush with large amounts of water. Continue flushing the contaminated area when en route to the receiving facility
- d) Do not contaminate uninjured areas while flushing
- e) Attempt to identify contaminant
- f) Transport according to the Out-of-Hospital Destination Decision Protocol (Appendix)
- g) Estimate percent of body surface area injured and estimate the depth of burn as superficial, partial thickness or full thickness

#### **ADVANCED CARE GUIDELINES**

- h) Treat pain per pain control protocol

### **Toxin in Eye**

#### **BASIC CARE GUIDELINES**

- a) Flood eye(s) with lukewarm water and have patient blink frequently during irrigation. Use caution to not contaminate other body areas
- b) Continue irrigation until advanced personnel take over
- c) Attempt to identify contaminant
- d) Transport to the most appropriate medical facility

#### **ADVANCED CARE GUIDELINES**

- e) Establish a large bore IV if indicated.
- f) Apply appropriate patches and monitor EKG.
- g) Treat pain per pain control protocol

## PEDIATRIC BURNS CONTINUED

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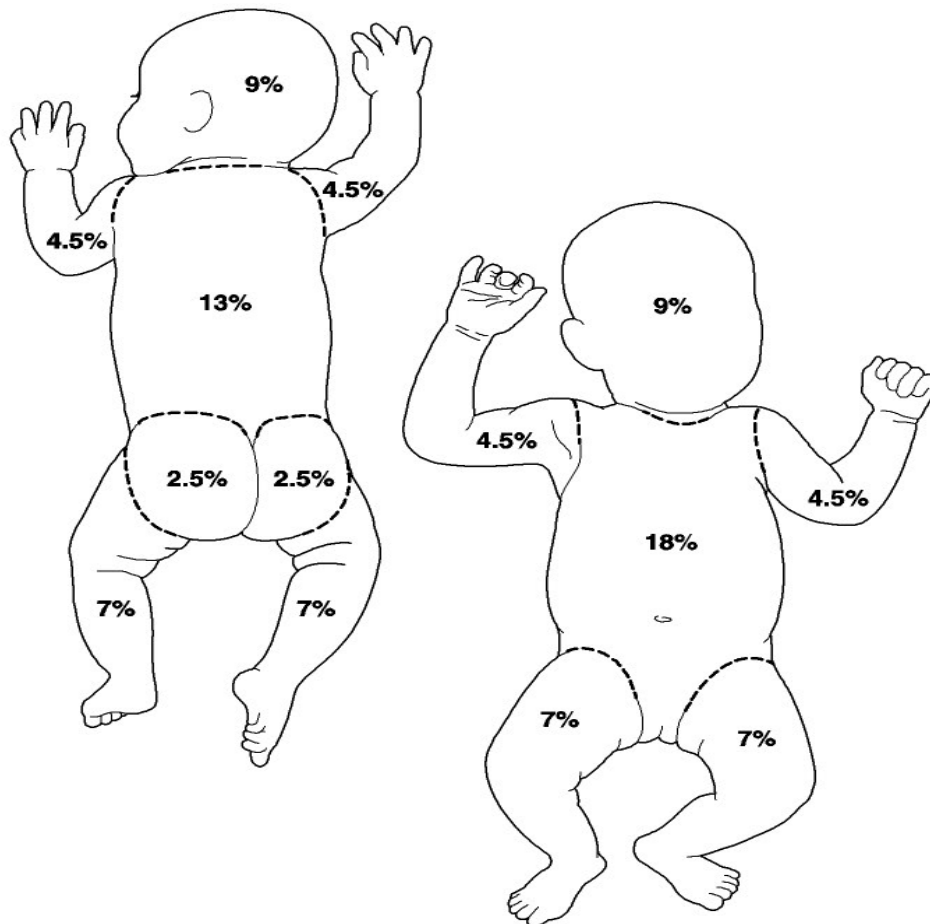
### Electrical Burns

#### BASIC CARE GUIDELINES

- a) Ensure source of electrical burns has been removed
- b) Treat soft tissue injuries associated with the burn with dry dressing
- c) Treat for shock if indicated
- d) Transport according to the Out-of-Hospital Destination Decision Protocol (Appendix B)
- e) Estimate percent of body surface area injured and estimate the depth of burn as superficial, partial thickness or full thickness

#### ADVANCED CARE GUIDELINES

- a) Establish a large bore IV if indicated.
- b) Apply appropriate patches and monitor EKG.
- c) Treat pain per pain control protocol



## **PEDIATRIC CARDIAC ARREST / ARRYTHMIA**

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1. Follow initial patient care protocol

### **If no pulse**

#### **BASIC CARE GUIDELINES**

- a) Perform high quality CPR immediately, apply AED and follow device prompts

#### **ADVANCED CARE GUIDELINES**

- b) Perform high quality CPR immediately, apply monitor and check rhythm as soon as possible
- c) Establish a large bore IV /IO.
- d) Administer **NALOXONE (Narcan)** according to Pediatric Dosing Reference IV or IO

### **Ventricular fibrillation or ventricular tachycardia**

- a) Defibrillate at 2J/kg, immediately resume CPR for two minutes
- b) Second defibrillation at 4 J/kg
- c) Subsequent defibrillations increasing by 2 J/kg, to a maximum of 10 J/kg, not to exceed maximum adult dose
- d) Evaluate and treat for underlying causes
- e) Administer **EPINEPHRINE** 1:10,000 according to Pediatric Dosing Reference every 3-5 minutes
- f) Administer **AMIODARONE** according to length/weight based tape, may repeat twice.

### **ASYSTOLE/PEA**

- a) Organize therapies such as rhythm and pulse checks, IV/IO access, medication administration and airway management around two minute cycles of High Quality CPR
- b) Evaluate and treat for underlying causes
- c) Administer **EPINEPHRINE** 1:10,000 according to Pediatric Dosing Reference every 3-5 minutes as needed



## PEDIATRIC CARDIAC ARRHYTHMIA CONTINUED

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### Cardiac arrhythmias if pulse

#### BASIC CARE GUIDELINES

- a) If patient is complaining of shortness of breath, has signs of respiratory distress, or pulse oximetry of less than 94% then titrate oxygen to symptom improvement or to maintain a saturation of 94-99%
- b) Evaluate and treat for underlying causes

### BRADYCARDIA WITH SIGNS OF POOR PERFUSION

#### BASIC CARE GUIDELINES

- a) Start CPR if pulse is less than 60 and altered mental status

#### ADVANCED CARE GUIDELINES

- b) Establish IV Access.
- c) Apply Appropriate patches and monitor EKG.
- d) Administer **EPINEPHRINE** 1:10,000 according to Pediatric Dosing Reference every 3-5 minutes
- e) Consider administration of **ATROPINE** according to Pediatric Dosing Reference

### TACHYCARDIA (RATES GREATER THAN 180 IN CHILDREN OR 210 IN INFANTS)

#### ADVANCED CARE GUIDELINES

- a) If patient unstable:
  - a. Perform synchronized cardioversion according to Pediatric Dosing Reference
  - b. Consider sedation according to Pediatric Dosing Reference
- b) If patient stable:
  - With wide QRS
    - If regular and monomorphic, consider administration of **ADENOSINE** according to Pediatric Dosing Reference
  - With narrow QRS
    - Perform vagal maneuvers
    - Consider administration of **ADENOSINE** according to Pediatric Dosing Reference

## **PEDIATRIC DETERMINATION OF DEATH / WITHHOLDING RESUSCITATIVE EFFORTS**

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Updated 2018

Follow initial patient care protocol

Resuscitation should be started on all patients who are found apneic and pulseless unless the following medical cause, traumatic injury or body condition clearly indicating biological death (irreversible brain death) such as:

- Signs of trauma are conclusively incompatible with life
  - Decapitation
  - Transection of the torso
  - 90% of the body surface area with full thickness burns
  - Massive crush injury
  - Apneic, pulseless and without other signs of life (movement, EKG activity, pupillary response)
- Cardiac and respiratory arrest with obvious signs of death including
  - Rigor mortis
  - Dependent lividity
- Physical decomposition of the body

**OR**

A valid DNR order (form, card, bracelet) or other actionable medical order (e.g. I-POLST form) that:

- Conforms to the state specifications

If apparent death is confirmed, continue as follows:

- a) The county Medical Examiner and law enforcement shall be contacted
- b) When possible, contact Iowa Donor Network at 1-800-831-4131.  
See Protocol Appendix
- c) At least one EMS provider should remain at the scene until the appropriate authority is present
- d) Provide psychological support for grieving survivors
- e) Document the reason(s) no resuscitation was initiated
- f) Preserve the crime scene if applicable

## **PEDIATRIC DROWNING**

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Revised 2018

Follow initial patient care protocol

### **BASIC CARE GUIDELINES**

- a) If cervical spine trauma is suspected-follow Spinal Care Protocol
- b) Treat for hypothermia if necessary

### **ADVANCED CARE GUIDELINES**

- c) Consider placing a gastric tube to decompress the stomach if available
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## **PEDIATRIC HEAT EMERGENCIES**

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1. Follow Initial Patient Care Protocol

### **BASIC CARE GUIDELINES**

- a) Remove the patient from the hot environment and place in a cool environment (back of air conditioned response vehicle).
- b) Loosen or remove clothing.
- c) Place in recovery position.
- d) Cool patient by fanning.
- e) Additionally cool patient with cold packs to neck, groin and axilla
- f) If alert, stable and not nauseated, you may have the patient slowly drink small sips of water.
- g) If the patient is unresponsive or is vomiting, transport to an appropriate medical facility with patient on their left side.

### **ADVANCED CARE GUIDELINES**

- h) If patient's condition indicates, establish IV or IO access.
- i) Apply appropriate patches monitor EKG and treat dysrhythmias following the appropriate protocol(s).

## **PEDIATRIC HYPOTHERMIA**

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1. Follow initial patient care protocol

### **BASIC CARE GUIDELINES**

- a) Remove the patient from the cold environment - protect from further heat loss.
- b) Remove wet clothing and cover with blanket and keep warm.
- c) Handle the patient gently.
- d) If temperature less than 95 degrees F, hypothermia is confirmed.

### **ADVANCED CARE GUIDELINES**

- e) Establish IV access. Use warmed IV fluid if possible
- f) Apply appropriate patches and monitor EKG and treat dysrhythmias following appropriate protocol.
- g) Avoid defibrillation until core temp is greater than 86 degrees Fahrenheit.

## PEDIATRIC NAUSEA AND VOMITING

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1. Follow initial patient care protocol

### BASIC CARE GUIDELINES

- a) Limit oral intake to sips
- b) Transport in position of comfort

### ADVANCED CARE GUIDELINES

- a) Initiate IV access
- b) Apply appropriate patches and monitor EKG.
- c) Consider fluid bolus if evidence of hypovolemia
- d) If patient nauseated or is vomiting administer anti-emetic medication such as **ONDANSETRON (ZOFTRAN)** 0.1 mg/kg IV up to 4 mg maximum
- e) Consider intubating patients with altered mental status who are vomiting and can't protect their airway

## NEWBORN RESUSCITATION AND CARE

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1. Follow initial patient care protocol

### BASIC CARE GUIDELINES

- a) Suction the airway using a bulb syringe as soon as the head is delivered and before delivery of the body. Suction the mouth first, then the nose
- b) Once the body is fully delivered, dry the baby, replace wet towels with dry ones, and wrap the baby in a thermal blanket or dry towel. Cover the scalp to preserve warmth
- c) Open and position the airway. Suction the airway again using a bulb syringe. Suction the mouth first, then the nose
- d) Assess breathing and adequacy of ventilation
- e) If ventilation is inadequate, stimulate by gently rubbing the back and flicking the soles of the feet
- f) If ventilation is still inadequate after brief stimulation, begin assisted ventilation at 40 to 60 breaths per minute using a bag-valve-mask device with room air. If no improvement after 30-60 seconds, apply 100% oxygen
- g) If ventilation is adequate and the infant displays central cyanosis, administer oxygen at 5 L via blow-by. Hold the tubing 1/2 to 1 inch from the nose
- h) If the heart rate is slower than 60 beats per minute after 30 seconds of assisted ventilation with high-flow, oxygen:
  - Begin chest compressions at a combined rate of 120/minute (three compressions to each ventilation)

## NEWBORN RESUSCITATION AND CARE CONTINUED

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### ADVANCED CARE GUIDELINES

- i) If there is no improvement in heart rate after 30 seconds. Place advanced airway.
- j) Initiate IV access
- k) Apply appropriate patches and monitor EKG.
- l) If there is no improvement in heart rate after intubation and ventilation, administer **EPINEPHRINE 1:10,000** concentration at 0.01 mg/kg (maximum individual dose 1.0 mg) IV/IO
  - Repeat epinephrine at the same dose every 3 to 5 minutes as needed
- k) Initiate transport. Reassess heart rate and respirations enroute

#### **If the heart rate is between 60 & 80 beats per minute, initiate the following actions:**

- a) Continue assisted ventilation with high-flow, 100% concentration oxygen. If there is no improvement in heart rate after 30 seconds, initiate management sequence described in step H above, beginning with chest compressions
- b) Initiate transport. Reassess heart rate and respirations enroute

#### **If the heart rate is between 80 & 100 beats per minute, initiate the following actions:**

- a) Continue assisted ventilation with high-flow, 100% concentration oxygen. Stimulate as previously described
- b) Initiate transport. Reassess heart rate after 15 to 30 seconds

#### **If the heart rate is faster than 100 beats per minute, initiate the following actions:**

- a) Assess skin color. If central cyanosis is still present, continue blow by oxygen. Initiate transport. Reassess heart rate and respirations enroute

#### **APGAR SCORING ( OBTAIN AT 1 & 5 MINUTES)**

Criteria	0	1	2
<b>Appearance</b>	Entire body blue or pale	Pink core, blue limbs	Completely pink
<b>Pulse</b>	No pulse	< 100	> 100
<b>Grimace</b>	None	Slight facial grimace	Grimace, coughs, sneezes, cries
<b>Activity</b>	Limp	Slight flexion	Active movement
<b>Respiration</b>	None	Slow, weak cry	Good respirations, strong cry



## PEDIATRIC OVERDOSE

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1. Follow Initial Patient Care Protocol

### BASIC CARE GUIDELINES

- a) Obtain blood glucose

### ADVANCED CARE GUIDELINES

- b) Establish IV access.
- c) Monitor EKG and treat dysrhythmias following the appropriate protocol(s).
- d) If blood sugar is less than 60 mg/dL administer **DEXTROSE** 0.5g/kg slowly IV/IO up to 25 grams If unable to obtain IV access give **GLUCAGON** 0.5-1mg IM up to 1 mg maximum
- f) Evaluate the need for **NALOXONE** 0.1 mg/kg IV up to maximum dose of 2.0 mg per dose
- g) Evaluate the need for intubation
- e) If there is evidence of shock or a history of dehydration, administer a fluid bolus of normal saline at 10 ml/kg if age 0-30 days or 20 ml/kg ages 30 days to puberty, over 10-15 minutes
- f) Reassess patient, if signs of shock persist, bolus may be repeated at the same dose up to two times for a maximum total of 60 ml/kg.

## PEDIATRIC PAIN CONTROL

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1. Follow initial patient care protocol
2. First attempt to manage all painful conditions with basic care

### BASIC CARE GUIDELINES

- a) Splint extremity injuries
- b) Place the patient in a position of comfort

### ADVANCED CARE GUIDELINES

- c) Initiate IV access if indicated
- d) Apply appropriate patches and monitor EKG.
- e) Consider administration of pain medications for patients that have significant pain, do not have a decreased level of consciousness, are hemodynamically stable, and have oxygen saturations above 94% medication

Examples:

- **FENTANYL** 1.0 mcg/kg (maximum individual dose 100 mcg) via IV/Intranasal route  
OR
- **MORPHINE** 0.1 mg/kg (maximum individual dose 10 mg) via intravenous or IM

f) Monitor O2 saturations

g) The patient must have vital signs taken prior to each dose and be monitored closely.

Administration of narcotic medication must stop if at any time there is a

- decreased level of consciousness,
- decrease in oxygen saturation below 92%
- blood pressure drops to 100 mmHg or less

b) Consider administration of **ONDANSATRON (ZOFRAN)** 0.1mg/kg IV up to 4mg slow IV push after Morphine or Fentanyl to reduce nausea from the medication administration.

c) Give **NALOXONE (NARCAN)** 0.1mg/ kg IV, IM or Intranasal up to 1mg for respiratory depression from narcotics. May repeat x 1 if needed

After drug administration, reassess the patient using the appropriate pain scale



## **PEDIATRIC POISONING**

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1. Follow initial patient care protocol
2. Identify contaminate and call Poison Control and follow directions given to provide care: 1-800-222-1222 or 1-800-352-2222
3. Contact Medical Direction as soon as possible with information given by Poison Control and care given

### **BASIC CARE GUIDELINES**

Attempt to identify substances ingested or exposed by interviewing witnesses. Try to establish the exact time of ingestion, as well as the amount and type of ingestion. Medication containers or chemical labels should be taken with you.

#### **Ingested Poisons**

- a) Identify and estimate amount of substance ingested
- b) DO NOT induce vomiting unless directed to do so by Medical Direction.

#### **Inhaled Poisons:**

- a) Remove patient to fresh air
- b) Administer high flow oxygen
- c) Identify substance inhaled. Bring all containers, bottles, labels etc. of poison agents to receiving facility if safe to do so.
- d) Estimate duration of exposure to inhaled poison

#### **Absorbed Poisons**

- a) If it will be a hazard to you, use protective clothing and extreme caution

#### **Injected Poisons**

- a) Be alert for respiratory difficulty. Maintain airway and give high flow oxygen
- b) Check patient for marks, rashes, or welts

### **ADVANCED CARE GUIDELINES**

- a) Initiate IV access

Apply appropriate patches and monitor EKG. Bradycardia with Unknown Overdose:

- a. Consider **Atropine** per pediatric dosing guideline every 5 minutes as needed up to total dose of 3 mg.
- b. Consider **dopamine (Intropin)** per pediatric dosing guideline
- c. Consider **transcutaneous pacemaker**

## PEDIATRIC POISONING CONTINUED

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### Tachycardia with Unknown Overdose:

- d. Consider benzodiazepine such as
  - i. Midazolam per pediatric dosing guideline IV / IM repeated every 5 minutes as needed to a maximum of 5 mg  
OR
  - ii. Diazepam per pediatric dosing guideline IV / IM repeated every 5 minutes as needed to a maximum of 10 mg  
OR
  - iii. Lorazepam per pediatric dosing guideline, repeated every 30 minutes as needed to a maximum of 4 mg. Use for long transports
- e. AVOID lidocaine and beta-blockers, particularly Labetalol.
- f. Consider Sodium Bicarbonate per pediatric dosing guideline IV for dysrhythmias refractory to benzodiazepines (especially those with a wide QRS complex or prolonged QT).
- g. Cool patients presenting with agitation, delirium, seizure and elevated body temperature.

### Suspected Opioid Overdose:

- a. Support ventilations via bag-valve-mask and oxygen while preparations are made for Naloxone (Narcan) administration.
- b. Consider Naloxone (Narcan) per pediatric dosing guideline

### Calcium Channel Blocker (Norvasc, Cardizem) or Beta Blocker (Atenolol, Lopressor, Inderal) Overdose :

- c. Consider Calcium gluconate 10% per pediatric dosing guideline IV over 5 minutes
  - i. May repeat x 1 in 5 minutes if persistent EKG changes
  - ii. Calcium therapy is contraindicated for patients taking digitalis
- d. Consider **Glucagon** per pediatric dosing guideline slow IV push over 1-2 minutes, may repeat in 10-15 minutes if no response is seen.
- e. Consider Sodium bicarbonate per pediatric dosing guideline IV for wide complex QRS.
- f. Consider transcutaneous pacemaker

### Digitalis Overdose:

- g. Consider **Atropine** per pediatric dosing guideline every 5 minutes as needed up to total dose of 0.04 mg/kg or 3 mg.
- h. Consider **transcutaneous pacemaker**

### TCA (Elavil, Tofranil) Overdose:

- i. Consider Sodium bicarbonate per pediatric dosing guideline IV for wide complex QRS.
- j. Be cautious for seizures.

## PEDIATRIC SEIZURE

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1. Follow initial patient care protocol

### Active Seizure

#### BASIC CARE GUIDELINES

- a) Protect airway
- b) Protect patient from injury, by clearing area of all possible hazards.
- c) Monitor duration and type of seizure
- d) Check blood glucose level, if available, and treat hypoglycemia if present

#### ADVANCED CARE GUIDELINES

- e) Monitor EKG and treat dysrhythmias if indicated following the appropriate protocol.
- f) Initiate IV access
- g) Administer **MIDAZOLAM (Versed)** 0.15mg/kg up to 5mg IV, IM, IO or Intranasal via MAD device according to the pediatric dosing reference.

In the event that MIDAZOLAM is unavailable.

- h) Consider **DIAZEPAM (Valium)** 0.2mg/kg up to 2.5mg PER DOSE slow IV / IO push titrated for response up to a maximum dose of 10 mg according to the pediatric dosing reference.

### Post Seizure

#### BASIC CARE GUIDELINES

- a) Protect / Open Airway and place Pt in recovery position.
- b) Check blood sugar level, if available, and treat hypoglycemia if present

#### ADVANCED CARE GUIDELINES

- a) Establish IV access. Monitor EKG and treat dysrhythmias following the appropriate protocol(s).
- b) Administer **DEXTROSE** 0.5g/kg of 25% dextrose IV/IO push if blood sugar less than 60 mg/dL, especially if no prior history of seizure disorder.

## PEDIATRIC SPINAL CARE

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1. Follow initial patient care protocol

### BASIC CARE GUIDELINES

2. Patient Presentation:
  - a) This protocol is intended for patients who present with a traumatic mechanism of injury.
  - b) Immobilization may not be necessary for patients who have penetrating trauma who do not have a suspected spine related neurological deficit.
3. Patient Management:
  - c) Assessment:
    - i. Assess for mental status, neurological deficits, spinal pain, tenderness, any evidence of intoxication, or other severe injuries.
    - ii. While maintaining spinal alignment, examine the spine for tenderness on palpation or deformities.
  - d) Treatment and Interventions:
    - i. Apply cervical restriction if there is any of the following:**
      1. Patient complains of neck pain.
      2. Any neck tenderness on palpation.
      3. Any abnormal mental status, including extreme agitation, or neurological deficit.
      4. Any evidence of alcohol or drug intoxication
      5. There are other severe or painful injuries present.
      6. Any communication barrier that prevents accurate assessment.
    - ii. Immobilize Patient with cervical collar and a long spine board, full body vacuum splint, scoop stretcher, or similar device if:**
      1. Patient complains of midline back pain
      2. Any midline back tenderness

Note 1: Distracting injuries or altered mental status does not necessitate long spine board use.

Note 2: Patients should not routinely be transported on long boards, unless the clinical situation warrants long board use. An example of this may be facilitation of multiple extremity injuries or an unstable patient where removal of a board will delay transport and/or other treatment priorities. In these rare situations, long boards should be padded or have a vacuum mattress applied to minimize secondary injury to the patient.

- ii. Immobilize Patient with cervical collar and a long spine board, full body vacuum splint, scoop stretcher, or similar device if:
  - Patient complains of midline back pain
  - Any midline back tenderness

## PEDIATRIC SEPSIS

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1. Follow initial patient care protocol

### I. Suspected/Known Sepsis

- A. Follow Initial Protocols for All Patients

- B. Emergency Medical Care:

1. If medical or trauma emergency, refer to appropriate protocol.
2. Allow position of comfort.
3. Take proper body substance isolation.
4. Give nothing by mouth.

#### Sepsis Box #1-Risk Factors for Sepsis

- \*Nursing Home Resident
- \*Recent influenza/viral illness
- \*Immunosuppression
- \*Splenectomy
- \*Recent surgery/invasive procedure
- \*Recent hospitalization
- \*Productive cough
- \*Diarrhea
- \*Fever, chills, rigors
- \*Alteration in mental status

*If patient presents with a Risk Factor for Sepsis, proceed to Box #2 additional "History Questions"*

#### Sepsis (Suspected or Known)

#### Sepsis Box #2-History Questions Suggestive of New Infection

1. Pneumonia?
2. UTI/Urinary bladder catheter?
3. Acute abdominal infection?
4. Meningitis?
5. Skin/soft tissue/wound infection?
6. Bone/joint infection?
7. Peripheral IV/PICC line infection
8. Endocarditis
9. Implantable device infection

*If "yes" to any of the above "History Questions" proceed to Box #3, SIRS criteria*

#### Sepsis Box #3- Systemic Inflammatory Response Syndrome (SIRS) Criteria

1. Temperature > 100.9 or < 96.8F?
2. End tidal CO<sub>2</sub> of < 32 mm Hg?
3. HR > 90/min?
4. RR > 20/min?
5. Acutely altered mental status?
6. Glucose > 120 mg/dL?

### Special Considerations

Advise the receiving facility of a “Sepsis Alert” if the answer is “YES” to at least one question in each of the first two Sepsis boxes, and at least two questions in the third box.

### BASIC CARE GUIDELINES

- a) Transport in position of comfort. Place patient on oxygen if patients condition warrants

### ADVANCED CARE GUIDELINES

- b) Establish IV access and administer **NORMAL SALINE:**
  - 10 mL/kg for patients 0-30 days, or
  - 20 mL/kg for patients 30 days or greater
- c) Initiate IO access if unable to establish IV access
- d) Monitor EKG and treat dysrhythmias following the appropriate protocol(s).



## PEDIATRIC SHOCK

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1. Follow initial patient care protocol
2. Consider etiology of shock, refer to Allergic Reaction protocol as appropriate

### BASIC CARE GUIDELINES

- a) Assess airway via Airway Protocol
- b) Assess circulation and perfusion
- c) Control external bleeding
- d) Assess mental status
- e) Expose the child only as necessary to perform further assessments. Maintain the child's body temperature throughout the examination
- f) Initiate transport. Perform focused history and detailed physical examination en route to the hospital if patient status and management of resources permit

### ADVANCED CARE GUIDELINES

- g) Initiate cardiac monitoring
- h) Establish IV access using an age-appropriate large-bore catheter with large-caliber tubing. If intravenous access cannot be obtained in a child younger than six years, proceed with intraosseous access. Do not delay transport to obtain vascular access
- e) Administer **NORMAL SALINE** for fluid bolus:
  - 10 mL/kg for patients 0-30 days, or
  - 20 mL/kg for patients 30 days or greater
  - Reassess patient after fluid bolus. If signs of shock persist, fluid bolus may be repeated up to two times

## **TERMINATION OF RESUSCITATIVE EFFORTS**

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### **Indications to consider termination of resuscitation:**

1. Advanced level care (Paramedic level) has been instituted to include rhythm analysis and defibrillation if indicated, airway management, and medications given per protocol
2. No return of spontaneous circulation or respiration
3. Correctable causes or special resuscitation circumstances have been considered and addressed
4. Patient does not have profound hypothermia
5. Patient has no other signs of life (no response to pain, non-reactive pupils, no spontaneous movement)

### **Termination of resuscitation:**

1. A valid DNR order, such as IPOST, is obtained by the EMS provider at any level
  - a. Patient meets all criteria under 'indications' above and as applicable to scope of practice  
*On-line medical direction* is contacted (while advanced care continues) to discuss any further appropriate actions.
  - b. Advanced care may be discontinued if *physician on-line medical direction* authorizes.

### **Other considerations:**

1. Documentation must reflect that the decision to terminate resuscitation was determined by *physician on-line medical direction*.
  2. An EMS/health care provider must attend the deceased until the appropriate authorities arrive.
  3. All IVs, tubes, etc. should be left in place until the medical examiner authorizes removal.
  4. Implement survivor support plans related to coroner notification, funeral home transfer, leaving the body at the scene, and death notification/grief counseling for survivors.
  5. See Appendix for EMS Provider Initiating Organ and Tissue Donation at the Scene of the Deceased.
-

## **PEDIATRIC TRAUMA**

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1. Follow initial patient care protocol  
Follow the Out-of-Hospital Trauma Triage Destination Decision Protocol for the identification of time critical injuries, method of transport and trauma facility resources necessary for treatment of those injuries
2. The goal is to minimize scene time with time critical injuries, including establishing IVs en route.

### **BASIC CARE GUIDELINES**

- a) Follow Shock Protocol if shock is present

### **Hemorrhage Control**

#### **BASIC CARE GUIDELINES**

- a) Control bleeding with direct pressure. Large gaping wounds may need application of a bulky sterile gauze dressing and direct pressure by hand
- b) If direct pressure/pressure dressing is ineffective or impractical, apply a tourniquet to extremity proximal to the injury site
- c) If bleeding site is not amenable to tourniquet placement (i.e. junctional injury), apply a topical hemostatic agent with direct pressure

## **PEDIATRIC TRAUMA CONTINUED**

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### **Chest Trauma**

#### **BASIC CARE GUIDELINES**

- a) Seal open chest wounds immediately. Use occlusive dressing taped down. If the breathing becomes worse, loosen one side of the dressing to release pressure and then reseal
- b) Impaled objects must be left in place and should be stabilized by building up around the object with multiple trauma dressings or other cushioning material
- c) Take care that the penetrating object is not allowed to do further damage

### **Abdominal Trauma**

#### **BASIC CARE GUIDELINES**

- a) Control external bleeding. Dress open wounds to prevent further contamination
- b) Evisceration should be covered with a sterile saline soaked occlusive dressing
- c) Impaled objects should be stabilized with bulky dressings for transport

### **Head, Neck, and Face Trauma**

#### **BASIC CARE GUIDELINES**

- a) Place the head in a neutral in-line position unless the patient complains of pain or the head does not easily move into this position
- b) Closely monitor the airway. Provide suctioning of secretions or vomit as needed. Be prepared to log roll the patient if they vomit. Maintain manual spinal stabilization if patient is log rolled
- c) Reassess vitals, GCS and pupillary response frequently
- d) Consider eye shield for any significant eye trauma. If the globe is avulsed, do not put it back into socket; cover with moist saline dressing and then place cup over it

#### **ADVANCED CARE GUIDELINES FOR ALL TYPES OF TRAUMA**

- e) Establish large bore IV if time permits
- f) Apply appropriate patches and monitor EKG if time permits
- g) Start second large bore IV if patient condition warrants
- h) IV lines should be started en-route to the hospital, except when there is an unavoidable delay as a result of a prolonged extrication, etc.
- i) Monitor EKG if possible and treat dysrhythmias if indicated following the appropriate protocol.
- j) Activate a Field Trauma Alert if patient condition meets Trauma Alert Criteria (Appendix)
- k) For Chest Trauma consider needle chest decompression for signs and symptoms of a pneumothorax (Procedure)