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2 Introduction
Introduction

Iowa Administrative Code 641 - Chapter 132: Emergency Medical Services—Service Program Authorization

132.8(3) Service program operational requirements. Ambulance and non-transport service programs shall:

b. Utilize department protocols as the standard of care. The service program medical director may make changes to the department protocols provided the changes are within the EMS provider’s scope of practice and within acceptable medical practice. A copy of the changes shall be filed with the department.

132.9(2) The medical director’s duties include, but need not be limited to:

a. Developing, approving and updating protocols to be used by service program personnel that meet or exceed the minimum standard protocols developed by the department.

Purpose

The completed protocol approval page allows for a physician medical director to implement the use of the 2018 Iowa Statewide EMS Treatment Protocols for one or more service programs where they serve as the program’s medical director.

Instructions

Print or type the service name in the space provided. Next select each service’s corresponding service type and level of authorization. If the medical director makes any additions, subtractions, or other changes to the 2018 protocols the changes will need to be noted in the Protocol Revisions space and filed with the Department. This would include the addition, subtraction, or change of any medication listed within the 2018 protocols. If no changes are made to the 2018 protocols check the box for no changes. The service program will post the completed protocol approval document in the AMANDA folder.

Scope of Practice

The Iowa Emergency Medical Care Provider Scope of Practice document outlines the skills each level of certified EMS provider can perform. Some skills will require the approval of the service program’s physician medical director as well as documentation of additional training. Iowa EMS providers may not perform skills outside of their identified scope of practice as documented in the Iowa Emergency Medical Care Provider Scope of Practice. The most current version of the Iowa Emergency Medical Care Provider Scope of Practice document can be viewed and downloaded from the Bureau’s website at: http://idph.iowa.gov/bets/ems/scope-of-practice.

Recommendations It is recommended that each service program maintain records that document the review/education of all staff members on the program’s most current protocols and the most current version of the Iowa Emergency Medical Care Provider Scope of Practice document.
# 2018 Protocol Approval

<table>
<thead>
<tr>
<th>Service(s) Name</th>
<th>Iowa County Ambulance</th>
<th>Williamsburg First Responders</th>
<th>Amana, Kinze, Victor First Responders</th>
<th>Millersburg &amp; North English First Responders</th>
<th>Ladora First Responders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambulance</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non transport</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Service’s Level of Authorization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMR</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>EMT</td>
<td></td>
<td></td>
<td></td>
<td>X X</td>
<td></td>
</tr>
<tr>
<td>AEMT</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Paramedic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Pharmaceuticals

Check All Medications Carried by the Service

*Medication kit should contain only medications approved by the service’s Medical Director*

<table>
<thead>
<tr>
<th>OTC Medications</th>
<th>Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Aspirin</td>
<td>□ Adenosine</td>
</tr>
<tr>
<td>□ Activated Charcoal</td>
<td>□ Albuterol</td>
</tr>
<tr>
<td>□ Glucose Paste</td>
<td>□ Amiodarone</td>
</tr>
<tr>
<td>□ Patient Assisted Medications</td>
<td></td>
</tr>
<tr>
<td>□ Auto-injector Epinephrine</td>
<td>□ Atropine</td>
</tr>
<tr>
<td>□ Nitroglycerin</td>
<td>□ Diazepam</td>
</tr>
<tr>
<td>□ Inhaler</td>
<td>□ Diphenhydramine</td>
</tr>
<tr>
<td>□ IV Fluids</td>
<td>□ Dopamine</td>
</tr>
<tr>
<td>□ Normal Saline</td>
<td>□ Epinephrine</td>
</tr>
<tr>
<td>□ 5% Dextrose</td>
<td>□ Fentanyl</td>
</tr>
<tr>
<td></td>
<td>□ Glucagon</td>
</tr>
<tr>
<td></td>
<td>□ Ketamine</td>
</tr>
</tbody>
</table>

Medications Added by Service’s Medical Director

| □ DuoNeb           |
| □ Solu-Medrol      |

---

5 Introduction
2018 Protocol Approval

☐ No changes were made to the 2018 Iowa Statewide EMS Treatment Protocols

OR

List below or attach copies of all changes made by the physician medical director to the 2018 Iowa Statewide EMS Treatment Protocols.

<table>
<thead>
<tr>
<th>Page</th>
<th>Protocol Name</th>
<th>Changes Made</th>
</tr>
</thead>
<tbody>
<tr>
<td>97-125</td>
<td>Appendices</td>
<td>Procedure, special event &amp; fire rehab guidelines,</td>
</tr>
<tr>
<td>17</td>
<td>Asthma COPD</td>
<td>Added DuoNeb, Solu-Medrol &amp; Mag Sulfate</td>
</tr>
<tr>
<td>71</td>
<td>Poisoning</td>
<td>Non-Transport Services will not carry Activated Charcoal</td>
</tr>
<tr>
<td>46</td>
<td>Trauma</td>
<td>Non-Transport Services will only utilize backboards if available on the call.</td>
</tr>
</tbody>
</table>

Additional Skills for the EMR, EMT, AEMT

Approval of these additional skills must be within the Service Program’s Level of Authorization and the Iowa EMS Provider’s Scope of Practice.

Mark “Yes” if the skill is approved by the medical director to be performed by the identified certification level.

<table>
<thead>
<tr>
<th>Skill</th>
<th>Certification Level</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulse oximetry</td>
<td>EMR</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Glucose monitor</td>
<td>EMT</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Service carries auto-inject epi</td>
<td>EMT</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Central line access</td>
<td>AEMT</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>CPAP</td>
<td>EMT, AEMT</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Iowa’s Scope of Practice document requires medical director approval and documentation of additional training for these skills. Service program must maintain documentation of the additional training.

Medical Director Statement of Approval

As the physician medical director, I have reviewed both the 2018 Iowa Statewide EMS Treatment Protocols and the Iowa Emergency Medical Care Provider Scope of Practice document and approve the use of the skills, medications, and protocols with revisions as documented above for the authorized Iowa EMS program(s) listed within this document.

<table>
<thead>
<tr>
<th>Medical Director’s Printed Name</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
</table>
This page intentionally left blank.
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
   e. 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

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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. Onset of symptoms (circumstances surrounding onset such as gradual, or sudden onset)
   b. Provocation – location; any exacerbating or alleviating factors
   c. Quality of pain

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d. Radiation of pain  
e. Severity of symptoms – pain scale  
f. Time 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

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

<table>
<thead>
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<th>ADULT GLASGOW COMA SCALE</th>
<th>PEDIATRIC GLASGOW COMA SCALE</th>
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<tbody>
<tr>
<td><strong>Eye Opening (4)</strong></td>
<td><strong>Eye Opening (4)</strong></td>
</tr>
<tr>
<td>Spontaneous</td>
<td>Spontaneous</td>
</tr>
<tr>
<td>To Speech</td>
<td>To Speech</td>
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<tr>
<td>To Pain</td>
<td>To Pain</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td><strong>Best Motor Response (6)</strong></td>
<td><strong>Best Motor Response (6)</strong></td>
</tr>
<tr>
<td>Obey Commands</td>
<td>Spontaneous Movement</td>
</tr>
<tr>
<td>Localizes Pain</td>
<td>Withdraws to Touch</td>
</tr>
<tr>
<td>Withdraws from Pain</td>
<td>Withdraws from Pain</td>
</tr>
<tr>
<td>Abnormal Flexion</td>
<td>Abnormal Flexion</td>
</tr>
<tr>
<td>Abnormal Extension</td>
<td>Abnormal Extension</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
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<tr>
<td><strong>Verbal Response (5)</strong></td>
<td><strong>Verbal Response (5)</strong></td>
</tr>
<tr>
<td>Oriented</td>
<td>Coos, Babbles</td>
</tr>
<tr>
<td>Confused</td>
<td>Irritable Cry</td>
</tr>
<tr>
<td>Inappropriate</td>
<td>Cries to Pain</td>
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<td>Incomprehensible</td>
<td>Moans to Pain</td>
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<td><strong>Total</strong></td>
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13 Adult Treatment Protocols
# Abdominal Pain (Non-Traumatic)

Revised 2018

1. Follow initial patient care protocol

## Basic Care Guidelines

a) Give nothing by mouth

## Advanced Care Guidelines

b) Consider a fluid bolus if indicated
c) Consider pain and nausea control
Altered Mental Status

Revised 2017

1. Follow initial patient care protocol

Basic Care Guidelines

a) Obtain blood glucose

b) If conscious & able to swallow, administer glucose 15 gm by mouth

Advanced Care Guidelines

c) If blood sugar less than 60 mg/dL, administer D50 12.5 - 25 gm IV

d) If no vascular access, administer glucagon 1 mg IM

e) Evaluate the need for naloxone 0.4-1.0 mg IV/IO or intranasal. May repeat dosage in 3 minutes

f) Evaluate the need for intubation
AMPUTATED PART
Reviewed 2018

1. Follow initial patient care protocol
2. Follow Trauma protocol if indicated

BASIC CARE GUIDELINES

a) Locate amputated part if possible
b) Wrap amputated part in saline moistened gauze
c) Place wrapped amputated part in empty plastic bag
d) Place the plastic bag with the amputated part in a water and ice mixture
e) Do not use ice alone or dry ice
f) Label with patient name, the date, and time
g) Make sure the part is transported with the patient, if possible
ASTHMA AND COPD
Revised 2016

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) If patient has a physician prescribed hand-held metered dose inhaler:
   - Assist patient in administering a single dose if they have not done so already
   - Reassess patient and assist with second dose if necessary per medical direction

b) Evaluate the need for CPAP, if available

ADVANCED CARE GUIDELINES

a) Administer DuoNeb (Albuterol 2.5mg & Atrovent 0.5mg in 3cc NS) by nebulizer over 8LPM O2. May repeat DuoNeb or Albuterol up to 5.0 mg via nebulizer, repeat as needed

c) Evaluate the need for epinephrine 1:1,000 concentration 0.3 mg IM.

d) Evaluate the need for Solu-Medrol 40-125mg IV/IM

e) Evaluate the need for Magnesium Sulfate 2GM in 100ml NS given over 20 minutes.

f) Evaluate the need for intubation
**BEHAVIORAL EMERGENCIES**

Revised 2017

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**

c) For severe anxiety, consider a benzodiazepine such as:

- Valium 2mg IV/MAD every 5 minutes up to 10 mg maximum
  OR
- Valium 5-10mg IM

d) For excited delirium, consider medications such as:

- Ketamine 4 mg/kg IM or 1.5mg/kg IV/IO
BURNS
Revised 2017

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 B)

BASIC CARE GUIDELINES

a) Stop the burning process
b) Estimate percent of body surface area injured and depth of injury
c) If wound is less than 10% Body Surface Area, cool burn with Normal Saline
d) Remove smoldering clothing and jewelry and expose area
e) Cover the burned area with plastic wrap or a clean dry dressing

ADVANCED CARE GUIDELINES

f) Establish an IV of NS. For severe burns, consider administration of 500 ml bolus
g) Contact medical control for further fluid administration
h) Refer to Pain Control protocol

Chemical Burns

BASIC CARE GUIDELINES

a) Brush off powders prior to flushing. Lint roller may also be used to remove powders prior to flushing
b) Immediately begin to flush with large amounts of water
c) 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

**ADVANCED CARE GUIDELINES**

f) Refer to 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) Attempt to identify contaminant

**ADVANCED CARE GUIDELINES**

c) Establish a large bore IV if indicated and infuse as patient condition warrants

d) Refer to Pain Control protocol

**Electrical Burns**

**BASIC CARE GUIDELINES**

a) Treat soft tissue injuries associated with the burn with dry dressing

b) Treat for shock if indicated

**ADVANCED CARE GUIDELINES**

c) Refer to Pain Control protocol

d) Monitor EKG
CARDIAC ARRHYTHMIAS
Revised 2017

1. Follow initial patient care protocol

If No Pulse

BASIC CARE GUIDELINES

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

b) Compression-only CPR is appropriate if unable to support airway while applying and using AED

c) May place appropriate airway if unable to adequately ventilate patient noninvasively, if does not interrupt compressions, or after return of spontaneous circulation

d) May apply mechanical compression device (if available) after ensuring high quality compressions and application of AED. Emphasis on minimizing interruption of compressions.

ADVANCED CARE GUIDELINES

e) Perform high quality CPR immediately, apply monitor and check rhythm as soon as possible

VENTRICULAR FIBRILLATION OR VENTRICULAR TACHYCARDIA

f) Defibrillate at manufacturer’s specification, immediately resume CPR for two minutes

g) Evaluate and treat for underlying causes

h) Administer epinephrine 1:10,000 concentration 1 mg IV or IO every 3-5 minutes

i) Consider amiodarone for refractory pulseless V-Tach or V-Fib 300 mg IV or IO, repeat 150 mg in 5 minutes

j) Consider magnesium sulfate for Torsades de Pointes 1-2 g IV or IO, delivered over 5-20 minutes

ASYSTOLE/PEA

k) Evaluate for treatable causes

l) Administer epinephrine 1:10,000 concentration 1 mg IV or IO as soon as asystole or PEA is identified. Repeat every 3-5 minutes
(Cardiac Arrhythmias Continued)

**Cardiac Arrhythmias if Pulse**

**BASIC CARE GUIDELINES**

a) Follow- Chest Pain protocol

b) Assess and treat underlying causes

**ADVANCED CARE GUIDELINES**

**BRADYCARDIA**

c) If symptomatic, administer atropine 0.5 mg IV or IO every 3-5 minutes as needed to maximum dose of 3.0 mg

d) Initiate transcutaneous pacing if blood pressure less than 90 systolic, atropine unsuccessful or atropine administration not immediately available.

OR

e) Consider administering dopamine 2-10 mcg/kg/min IV or IO

OR

f) Consider administering epinephrine 2-10 mcg/min IV or IO

**TACHYCARDIA (Symptomatic-Rates greater than 150)**

g) If patient unstable:
   Perform synchronized cardioversion (consider sedation)

h) If patient stable with wide QRS:
   If regular and monomorphic, consider administration of adenosine 6 mg IV, may be repeated at 12 mg after two minutes
   OR
   Consider administration of amiodarone 150 mg over 10 minutes IV or IO

i) If patient is stable with narrow QRS
   Perform vagal maneuvers
   OR
   Consider administration of adenosine 6 mg IV, may be repeated at 12 mg after two minutes
CHEST PAIN

Updated 2017

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

   a) Place patient in position of comfort, loosen tight clothing and provide reassurance. If patient is complaining of shortness of breath, has signs of respiratory distress or pulse oximetry of less than 94%, titrate oxygen to symptom improvement or to maintain saturation of 94-99%.

   b) If capability exists, obtain a 12-lead EKG and transmit to the receiving facility and/or medical control for interpretation as soon as possible. An initial management goal is to identify STEMI and transport the patient with cardiac symptoms to the facility most appropriate to needs.

   c) If patient is alert and oriented and expresses no allergy to aspirin assist the patient by having them chew nonenteric aspirin 325 mg. Amount may be reduced as needed if patient has already taken aspirin within the past 12 hours so long as a total of 324mg has been taken

   d) Evaluate if erectile dysfunction or pulmonary hypertension medications have been taken in the past 24-48 hours including: Sildenafil (Viagra, Revatio), Vardenafil (Levitra, Staxyn), or Avanafil (Stendra), Tadalafil (Cialis, Adcirca).

   e) If the patient has not taken any of the medications in (d) in the last 48 hours and has a systolic blood pressure of 90 mmHg or above, assist the patient self-administer one dose of nitroglycerin (patient’s nitro dose only).

   f) Repeat one dose of nitroglycerin in 5 minutes if pain continues, systolic blood pressure is 90 mmHg or above, up to a maximum of three doses.

   g) Reassess patient and vital signs following each dose of nitroglycerin.
ADVANCED CARE GUIDELINES

h) Monitor EKG-evaluate for evidence of STEMI and treat dysrhythmias.
i) If STEMI is present, determine appropriate destination.
   ▪ If transport time to a facility capable of providing emergency PCI care is 60 minutes or less, it is recommended that all of these patients be transported directly to the emergency PCI capable facility.
   ▪ If transport time to a facility capable of providing emergency PCI care is between 60 - 90 minutes, transport to the PCI capable facility should be considered.

j) Establish IV access at TKO rate unless otherwise ordered or indicated.
k) Administer nitroglycerin (tab or spray) 0.4 mg sublingually if systolic blood pressure 90 mmHg or above for symptoms of chest pain or atypical cardiac pain. Repeat one dose in 5 minutes if pain continues and systolic blood pressure is 90 mmHg or above up to a maximum of three doses.

l) If pain continues after administration of nitroglycerin and systolic blood pressure remains above 90 mmHg administer:
   ▪ Morphine 2-4 mg IV may repeat every 5 minutes OR
   ▪ Fentanyl 25-50 mcg IV may repeat every 5 minutes
CHILD BIRTH

Revised 2017

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

Normal Delivery

a) If delivery is imminent with crowning, commit to delivery on site and contact medical control.

b) If the amniotic sac does not break, or has not broken, use a clamp to puncture the sac and push it away from the infant’s head and mouth as they appear.

c) Clamp cord with 2 clamps and cut the cord between the clamps.

d) For newborn management, see newborn resuscitation protocol.

Abnormal Delivery

Breech Delivery (Buttocks Presentation)

a) Allow spontaneous delivery.

b) Support infant's body as it’s delivered.

c) If head delivers spontaneously, proceed as in Section I (Normal Delivery).

d) If head does not deliver within 3 minutes, insert gloved hand into the vagina, keeping your palm toward baby's face; form a "V" with your fingers and push wall of vagina away from baby's face, thereby creating an airway for baby. Do not remove your hand until relieved by advanced EMS or hospital staff.

e) Contact medical control for any other issues.
**CONGESTIVE HEART FAILURE**
Revised 2017

1. Follow initial patient care protocol

**BASIC CARE GUIDELINES**

a) Maintain oxygen saturation 94% - 99%

b) If capability exists, obtain a 12-lead EKG and transmit it to the receiving facility and/or medical control for interpretation prior to patient’s arrival

c) Consider nitroglycerin (tab or spray) 0.4 mg sublingually (patients nitro only) if systolic blood pressure 90 mmHg or above. May repeat every 3 to 5 minutes. Maximum of 3 doses.

Evaluate if Erectile Dysfunction or Pulmonary hypertension medications taken in the past 24 hours including: Sildenafil (Viagra, Revatio), Vardenafil (Levitra, Staxyn), or Avanafil (Stendra), Tadalafil (Cialis, Adcirca). Hold nitrates for 48 hours following the last dose

d) Reassess patient and vital signs after each dose of nitroglycerin

e) If capability exists, consider CPAP

**ADVANCED CARE GUIDELINES**

f) Monitor EKG and treat arrhythmias

g) Administer nitroglycerin (tab or spray) 0.4 mg sublingually if systolic blood pressure 90 mmHg or above. May repeat every 3 to 5 minutes. Maximum of 3 doses.
DETERMINATION OF DEATH--WITHHOLDING RESUSCITATIVE EFFORTS
Revised 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) present, when it:

- Conforms to the state specifications
- Is intact: it has not been cut, broken or shows signs of being repaired
- Displays the patient’s name and the physician’s name

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.
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
FROSTBITE

Revised 2018

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Remove the patient from the cold environment
b) Protect the cold injured extremity from further injury (manual stabilization)
c) Remove wet or restrictive clothing
d) Do not rub or massage
e) Do not re-expose to the cold
f) Remove jewelry
g) Cover with dry clothing or dressings

ADVANCED CARE GUIDELINES

h) Refer to pain control protocol
i) Establish IV access at a TKO rate. Use warmed IV fluid if possible
HEAT ILLNESS
Revised 2018

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Remove 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) Initially cool patient by fanning and cool mist if available

e) Consider cooling 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 or other fluids e.g. sports drinks

ADVANCED CARE GUIDELINES

g) Monitor EKG and treat dysrhythmias following the appropriate protocol(s)

h) Establish IV access at TKO or administer fluid bolus as indicated
HYPOTHERMIA

Updated 2018

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Remove wet clothing

b) If able, check core temperature

c) Handle patient very gently

d) Cover patient with blankets

e) EKG if available

ADVANCED CARE GUIDELINES

f) Administer warm IV fluids if available, do not administer cold fluids

g) Monitor EKG and treat dysrhythmias

h) If body temp is confirmed or suspected to be below 86 degrees Fahrenheit

  • ONLY give epinephrine every 8 minutes if indicated

  • Defibrillation is indicated ONLY once

  • Consider spacing other medications used for resuscitation
NAUSEA AND VOMITING

Revised 2018

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Limit oral intake to sips

ADVANCED CARE GUIDELINES

b) Consider fluid bolus IV/IO if evidence of hypovolemia and lung sounds are clear

i) If patient nauseated or is vomiting, consider anti-emetic medication such as ondansetron (Zofran) 4 mg IV or PO. May repeat x 1 after 5 minutes
PAIN CONTROL

Reviewed 2018

1. Follow initial patient care protocol

**BASIC CARE GUIDELINES**

a) Attempt to manage all painful conditions:

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

**ADVANCED CARE GUIDELINES**

b) 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%.

- Morphine 2-4 mg via IV/IM/IN, repeated in 5 min
- Fentanyl 25 to 50 mcg IV/IM/IN every 5 minutes

c) For severe pain consider anxiolytic medication

- Versed 0.5-2.5 mg IV/IM/IN repeated every 5 minutes as needed to a maximum of 5 mg
- Valium 2-5 mg IV/IM/IN repeated every 5 minutes as needed to a max of 10 mg
- Ketamine 0.1mg/kg IV/IO repeated once or 0.5 mg/kg IM/IN. May follow up with 1mg Versed if pt is presenting with post medication hallucinations.

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

e) After drug administration, reassess the patient using the appropriate pain scale
POISONING
Revised 2018

1. Follow initial patient care protocol

2. Identify contaminate and call Poison Control and follow directions given to provide care: 1-800-222-1222

3. Contact Medical Direction as soon as possible with information given by Poison Control and care given

BASIC CARE GUIDELINES

1. 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.

ADVANCED CARE GUIDELINES

Bradycardia with Unknown Overdose:
   a. Consider Atropine 0.5 mg IV every 5 minutes as needed up to total dose of 3 mg.
   b. Consider dopamine (Intropin) 5-15 mcg/kg/min
   c. Consider transcutaneous pacemaker

Tachycardia with Unknown Overdose:
   a. Provide IV fluid bolus with normal saline 1L
   b. Consider benzodiazepine such as
      1. Versed 0.5-2.5 mg IV /IM/IN repeated every 5 minutes as needed to a maximum of 5 mg OR
      2. Valium 2-5 mg IV /IM/IN repeated every 5 minutes as needed to a maximum of 10 mg
   c. AVOID lidocaine and beta-blockers, particularly Labetalol.
   d. Cool patients presenting with agitation, delirium, seizure and elevated body temperature
Suspected Opioid Overdose:
  e. Support ventilations via bag-valve-mask and oxygen while preparations are made for Naloxone (Narcan) administration
  f. Initial dose of Naloxone (Narcan) is 0.4 to 2 mg IV over 15-30 seconds or 0.4 to 4 mg IM/IN. Repeated doses maybe required

Calcium Channel Blocker (Norvasc, Cardizem) or Beta Blocker (Atenolol, Lopressor, Inderal) Overdose:
  g. Consider Glucagon 1-3 mg slow IV push over 1-2 minutes, may repeat in 10-15 minutes if no response is seen

Digitalis Overdose:
  h. Consider normal saline IV
  i. Consider Atropine 0.5 mg IV every 5 minutes as needed up to total dose of 3 mg
  j. Consider transcutaneous pacemaker
POST RESUSCITATION WITH RETURN OF SPONTANEOUS CIRCULATION

Revised 2017

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Maintain oxygen saturation between 94% - 99%

b) Attempt to maintain normal patient temperature

c) If available, obtain blood glucose and treat per altered mental status protocol

d) If capability exists, obtain a 12-lead EKG and transmit it to the receiving facility and/or medical control for interpretation prior to patient’s arrival

ADVANCED CARE GUIDELINES

e) If available, perform waveform capnography, maintaining PETCO2 35-40 mm Hg

f) Treat hypotension per shock protocol
SEIZURE
Revised 2017

1. Follow initial patient care protocol

Active Seizure

BASIC CARE GUIDELINES

a) Protect airway

ADVANCED CARE GUIDELINES

b) Administer benzodiazepine such as:
   ▪ Valium 2 mg IV/IN push until seizure stops or maximum dose of 10 mg is given
   OR
   ▪ Versed 2 mg IV/IN push until the seizure stops or until maximum dose of 10 mg is given

c) Check blood glucose level, if available, and treat hypoglycemia if present

Post Seizure

BASIC CARE GUIDELINES

a) Protect airway

b) Check blood sugar, if available, and treat hypoglycemia if present per altered mental status protocol

ADVANCED CARE GUIDELINES

a) Be prepared to treat repeated seizures and secure airway
SPINAL CARE
Revised 2018

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

1. Patient Presentation:
   a) This protocol is intended for patients who present with a traumatic mechanism of injury.
   b) Spinal motion restriction is contraindicated for patients who have penetrating trauma who do not have a neurological deficit.

2. Patient Management:
   a) Assessment while maintaining spinal alignment:
      ▪ mental status,
      ▪ neurological deficits,
      ▪ spinal pain,
      ▪ tenderness,
      ▪ evidence of intoxication,
      ▪ tenderness on palpation or deformities.
   b) Treatment and Interventions:
      Apply cervical restriction if there is any of the following:
      ▪ Patient complains of neck pain.
      ▪ Any neck tenderness on palpation.
      ▪ Any abnormal mental status, including extreme agitation, or neurological deficit.
      ▪ Any evidence of alcohol or drug intoxication
      ▪ There are other severe or painful injuries present.
      ▪ Any communication barrier that prevents accurate assessment.
SPINAL CARE CONTINUED

c) Spinal and cervical motion restriction 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

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 situation, long boards should be padded or have a vacuum mattress applied to minimize secondary injury to the patient.
SHOCK
Revised 2016
1. Follow initial patient care protocol
2. Maintain oxygen saturation between 94% - 99%

Hypovolemic External Bleeding

BASIC CARE GUIDELINES
a) Avoid further heat loss
b) Splint extremities as needed
c) Follow Hemorrhage Control Protocol
   ▪ Control bleeding with direct pressure. Large gaping wounds may need application of a bulky sterile gauze dressing and direct pressure by hand
   ▪ Consider application of tourniquet if unable to control hemorrhage with direct pressure

ADVANCED CARE GUIDELINES
d) Establish IV/IO access
e) If radial pulse is absent or systolic blood pressure is less than 90 mmHg, administer 20ml/kg, up to 250ml, NS. Repeat as needed to until radial pulse returns or systolic blood pressure reaches 90 mmHg.

Hypovolemic Internal Bleeding

BASIC CARE GUIDELINES
a) Place patient in supine position
b) Consider stabilizing lower extremity fractures
c) Consider use of pelvic stabilizer for pelvis fractures

ADVANCED CARE GUIDELINES
d) Establish IV/IO access
e) If radial pulse is absent or systolic blood pressure is less than 90 mmHg, administer 20ml/kg, up to 250ml, NS. Repeat as needed to until radial pulse returns or systolic blood pressure reaches 90 mmHg.

(SHOCK Continued)

**Cardiogenic**

**BASIC CARE GUIDELINES**

a) Place in position of comfort

b) If capability exists, obtain a 12-lead EKG and transmit it to the receiving facility and/or medical control for interpretation prior to patient’s arrival

**ADVANCED CARE GUIDELINES**

c) Establish IV/IO access
d) Obtain 12-lead EKG
e) Administer dopamine IV or IO at 10-20/mcg/kg/min

**Obstructive Shock: Tension Pneumothorax**

**BASIC CARE GUIDELINES**

a) Place in a position of comfort

**ADVANCED CARE GUIDELINES**

b) Perform needle decompression

**Obstructive Shock: Pericardial Tamponade**

**BASIC CARE GUIDELINES**

a) Place in a position of comfort

**ADVANCED CARE GUIDELINES**

b) The goal should be to minimize scene time with time critical injuries, including establishing IV access en route.

c) Administer 20 ml/kg, up to 500ml, NS. Repeat as needed to maintain a systolic pressure of 90 mmHg.
Obstructive Shock: Pulmonary Embolus

BASIC CARE GUIDELINES

a) Place in a position of comfort

b) Avoid further heat loss

ADVANCED CARE GUIDELINES

c) Administer 20 ml/kg, up to 500ml, NS. Repeat as needed to maintain a systolic pressure of 90 mmHg

d) If available, obtain 12-lead EKG

e) Evaluate the need for pain and nausea control

f) If patient is alert and oriented and expresses no allergy to aspirin, consider having patient chew nonenteric aspirin 160 – 325 mg

g) Consider administration of dopamine IV or IO at 10-20/mcg/kg/min if systolic blood pressure is less than 90 mmHg.

Distributive Shock: Neurogenic

BASIC CARE GUIDELINES

a) Place supine

b) Avoid further heat loss
(SHOCK Continued)

**ADVANCED CARE GUIDELINES**

a) Administer 20 ml/kg, up to 500 ml, NS. Repeat as needed to maintain a systolic pressure of 90 mmHg

c) Consider administering dopamine at 10-20 mcg/kg/min IV or IO

d) If symptomatic bradycardia is present and does not respond to the treatments above, consider:
   - Administering atropine 0.5 mg every 5 minutes, up to 3 mg OR
   - Transcutaneous pacing

**Distributive Shock: Anaphylactic**

**BASIC CARE GUIDELINES**

b) If the patient has a physician prescribed Auto-Inject Epinephrine assist with administering it for signs of anaphylaxis

**ADVANCED CARE GUIDELINES**

c) Administer epinephrine 1:1,000 concentration 0.01 mg/kg IM, up to a single dose of 0.5 mg. May repeat, maximum total dose 1 mg.

d) Administer diphenhydramine 25 – 50 mg IV/IM

e) Administer albuterol 2.5 mg by nebulizer if respiratory distress

f) Evaluate need for early intubation if severe anaphylaxis

g) For cases of severe anaphylaxis consider administration of epinephrine 1:10,000 concentration 0.3 mg - 0.5 mg IV/IO slowly over 3-5 minutes.
Distributive Shock: Septic

**BASIC CARE GUIDELINES**

a) Maintain oxygen saturation between 94% - 99%

b) Place patient in supine position

c) If temperature is over 102°F/38.9°C, cool patient (i.e. cool sponges)

**ADVANCED CARE GUIDELINES**

d) Administer 20 ml/kg, up to 500ml, NS. Repeat as needed to maintain a systolic pressure of 90 mmHg

e) If temperature is over 102°F/38.9°C, cool patient

f) Consider administering dopamine at 10-20 mcg/kg/min IV or IO

g) Consider administering diphenhydramine 25 – 50 mg IV/IM
**STROKE**
Revised 2017

1. Follow initial patient care protocol
2. Refer to Appendix G

**BASIC CARE GUIDELINES**

a) Complete a validated stroke exam such as the MEND exam. Notify receiving facility as soon as possible if stroke is suspected
b) Check blood glucose, if available
c) Place patient in position of comfort, loosen tight clothing and provide reassurance.
d) If patient is complaining of shortness of breath, has signs of respiratory distress and pulse oximetry of less than 94% then titrate oxygen to maintain a saturation of 94-99%

**ADVANCED CARE GUIDELINES**

a) If blood sugar less than 60 mg/dL administer D50 12.5 - 25 gm IV
   - If no vascular access, administer glucagon 1 mg IM
b) Monitor patient's level of consciousness and blood pressure every five (5) minutes, and keep patient as calm as possible
c) Obtain IV access and set rate to TKO
d) Obtain EKG
TERMINATION OF RESUSCITATIVE EFFORTS

Revised 2018

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

OR

2. Patient meets all criteria under ‘indications’ above and as applicable to scope of practice
   a. 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 J - EMS Provider Initiating Organ and Tissue Donation at the Scene of the Deceased.

45 Adult Treatment Protocols
TRAUMA
Revised 2016

1. Follow Initial Patient Protocol for all patients

2. Follow the Out-of-Hospital Trauma Triage Destination Decision Protocol for the identification of time-critical injuries, method of transport and destination decision for treatment of those injuries

3. The goal should be to minimize scene time with time critical injuries, including establishing IVs enroute.

Hemorrhage Control

BASIC CARE GUIDELINES

e) Control bleeding with direct pressure. Large gaping wounds may need application of a bulky sterile gauze dressing and direct pressure by hand

f) If direct pressure/pressure dressing is ineffective or impractical, apply a tourniquet to extremity

g) If bleeding site is not amenable to tourniquet placement (i.e. junctional injury), apply a topical hemostatic agent with direct pressure

ADVANCED CARE GUIDELINES

h) If radial pulse is absent or systolic blood pressure is less than 90 mmHg, administer 20ml/kg, up to 250ml, NS or LR. Repeat as needed to until radial pulse returns or systolic blood pressure reaches 90 mmHg.

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

(Trauma Continued)

**ADVANCED CARE GUIDELINES**

d) If concerned for symptomatic pneumothorax, perform needle decompression.

**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 left in place, 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.

c) Impaled objects in the cheek may be removed if causing airway problems, or you are having trouble controlling bleeding.

d) Reassess vitals and Glasgow Coma Score (GCS) frequently

e) 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**

f) Consider intubation if GCS is less than 8 or airway cannot be maintained

g) If patient is intubated or has an airway such as Combitube, King or LMA, the PETCO2 levels should be continually monitored and maintained at 33 – 43 mmHg if available
(Trauma Continued)

**Extremity Injuries**

**BASIC CARE GUIDELINES**

a) Assess extent of injury including presence or absence of pulse

b) Establish and maintain manual stabilization of injured extremity by supporting above and below the injury

c) Remove or cut away clothing and jewelry

d) Cover open wounds with a sterile dressing

e) Do not intentionally replace any protruding bones

f) Apply cold pack to area of pain or swelling

g) If severe deformity of the distal extremity is cyanotic or lacks pulses, align with gentle traction before splinting, and transport immediately
Iowa EMS Treatment Protocols

Pediatric Treatment Protocols

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Initial Patient Care Protocol-Adult and Pediatrics

This protocols 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
   e. 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 Pediatric 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

51 Pediatric Treatment Protocols
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. Glasgow Coma Score (GCS) (see chart below) or
      ii. AVPU (Alert, Verbal, Painful, Unresponsive)

   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. Onset of symptoms
   b. Provocation – location; any exacerbating or alleviating factors
   c. Quality of pain
   d. Radiation of pain
   e. Severity of symptoms – pain scale
f. **Time 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**
      In patients with syncope, seizure, altered mental status, or acute stroke, consider bringing the witness to the hospital or obtain their contact phone number to provide to ED care team

**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 and 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**

53 Pediatric Treatment Protocols
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:** ALWAYS use a weight-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

<table>
<thead>
<tr>
<th>Age</th>
<th>Pulse</th>
<th>Respiratory Rate</th>
<th>Systolic BP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preterm less than 1 kg</td>
<td>120-160</td>
<td>30-60</td>
<td>36-58</td>
</tr>
<tr>
<td>Preterm 1 kg</td>
<td>120-160</td>
<td>30-60</td>
<td>42-66</td>
</tr>
<tr>
<td>Preterm 2 kg</td>
<td>120-160</td>
<td>30-60</td>
<td>50-72</td>
</tr>
<tr>
<td>Newborn</td>
<td>120-160</td>
<td>30-60</td>
<td>60-70</td>
</tr>
<tr>
<td>Up to 1 year</td>
<td>100-140</td>
<td>30-60</td>
<td>70-80</td>
</tr>
<tr>
<td>1-3 years</td>
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<td>80-120</td>
<td>16-24</td>
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<td>90-120</td>
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<tr>
<td>13-14 years</td>
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<td>16-20</td>
<td>90-120</td>
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<td>15 years or older</td>
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Glasgow Coma Scale

<table>
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<th>PEDIATRIC GLASGOW COMA SCALE</th>
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<tr>
<td>Eye Opening (4)</td>
<td>Eye Opening (4)</td>
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<tr>
<td>Spontaneous</td>
<td>Spontaneous</td>
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<tr>
<td>To Speech</td>
<td>To Speech</td>
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<tr>
<td>To Pain</td>
<td>To Pain</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Best Motor Response (6)</td>
<td>Best Motor Response (6)</td>
</tr>
<tr>
<td>Obeys Commands</td>
<td>Spontaneous Movement</td>
</tr>
<tr>
<td>Localizes Pain</td>
<td>Withdraws to Touch</td>
</tr>
<tr>
<td>Withdraws from Pain</td>
<td>Withdraws from Pain</td>
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<td>Abnormal Flexion</td>
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<tr>
<td>Abnormal Extension</td>
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<td>Verbal Response (5)</td>
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<tr>
<td>Oriented</td>
<td>Coos, Babbles</td>
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<tr>
<td>Confused</td>
<td>Irritable Cry</td>
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<tr>
<td>Inappropriate</td>
<td>Cries to Pain</td>
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<tr>
<td>Incomprehensible</td>
<td>Moans to Pain</td>
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<tr>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
</tr>
</tbody>
</table>
PEDiatric Allergic Reaction
Reviewed 2018

1. Follow initial patient care protocol

BASIC CARE GUIDELINES

a) Assess airway

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

ADVANCED CARE GUIDELINES

c) Consider epinephrine 1:1,000 concentration IM per pediatric dosing guideline up to a maximum dose of 0.5 mg

d) Consider one repeat dose of epinephrine 1:1,000 concentration IM per pediatric dosing guideline up to a maximum dose of 0.5 mg

e) Consider diphenhydramine IV or IM per pediatric dosing guideline, up to a maximum dose of 50 mg

f) If after two doses of IM epinephrine with persistent signs and symptoms, administer intravenous epinephrine infusion per pediatric dosing guideline.

g) Consider albuterol 2.5 mg by nebulizer
**Pediatric Altered Mental Status**

Revised 2017

1. Follow initial patient care protocol

**Basic Care Guidelines**

a) Obtain blood glucose

b) If conscious & able to swallow, administer glucose 15 gm by mouth for children over 2 years of age.

**Advanced Care Guidelines**

c) If blood sugar less than 60 mg/dL administer Dextrose based on Pediatric Dosing Reference

d) If patient unconscious and no IV access; administer Glucagon 0.025 mg/kg IM up to 1 mg maximum

e) If no improvement in level of consciousness after glucose administration give naloxone 0.1 mg/kg IV/IM/MAD up to maximum dose of 2.0 mg per dose.
**PEDIATRIC ASTHMA**

Revised 2017

1. Follow initial patient care protocol

**BASIC CARE GUIDELINES**

a) Use Airway Protocol to evaluate the airway and adequacy of ventilation

b) If patient has a physician prescribed, hand-held metered dose inhaler, assist with administration

c) Reassess patient and repeat second dose if necessary per medical direction

**ADVANCED CARE GUIDELINES**

d) Administer bronchodilator via Nebulizer

e) Evaluate the need for IM epinephrine 1:1,000 concentration according to length/weight based device. Dosage may be repeated once after 5 minutes.

f) Evaluate the need for airway management.
PEDIATRIC BEHAVIORAL EMERGENCIES

New 2017

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

c) For severe anxiety, consider a benzodiazepine such as Diazepam, with dosages based on Pediatric Dosing Reference
PEDiATRIC BURNS
Revised 2016

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 B)

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 of NS. For severe burns, consider administration of 20 ml/kg, not to exceed 500 ml.
g) Contact medical control for further fluid administration
h) Treat pain per pain control protocol
(Pediatric Burns Continued)

**Chemical Burns**

**BASIC CARE GUIDELINES**

a) Brush off powders prior to flushing. Lint roller may also be used to remove powders prior to flushing

b) Immediately begin to flush with large amounts of water. Continue flushing the contaminated area when en route to the receiving facility

c) Do not contaminate uninjured areas while flushing

d) Attempt to identify contaminant

e) Transport according to the Out-of-Hospital Destination Decision Protocol (Appendix B)

**ADVANCED CARE GUIDELINES**

f) 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) Treat pain per pain control protocol
(Pediatric Burns Continued)

**Electrical Burns**

**BASIC CARE GUIDELINES**

a) Treat soft tissue injuries associated with the burn with dry dressing

b) Treat for shock if indicated

c) Transport according to the Out-of-Hospital Destination Decision Protocol (Appendix B)

d) Estimate percent of body surface area injured and estimate the depth of burn as superficial, partial thickness or full thickness

**ADVANCED CARE GUIDELINES**

f) Treat pain per pain control protocol
PEDiATRIC CARDIAC ARRHYTHMIA

Updated 2017

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

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 anti-arrhythmic

- Administer amiodarone according to Pediatric Dosing Reference, may repeat twice
- OR
- Administer lidocaine according to Pediatric Dosing Reference
**PEDIATRIC CARDIAC ARRHYTHMIA CONTINUED**

**ASYSTOLE/PEA**

a) Evaluate and treat for underlying causes

b) Administer epinephrine 1:10,000 according to Pediatric Dosing Reference every 3-5 minutes as needed

**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) Administer epinephrine 1:10,000 according to Pediatric Dosing Reference every 3-5 minutes

c) 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:

b) Perform synchronized cardioversion according to Pediatric Dosing Reference

c) Consider sedation according to Pediatric Dosing Reference

- 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

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**

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
**PEDIATRIC NAUSEA & VOMITING**

Revised 2018

1. Follow Initial Patient Care Protocol

**BASIC CARE GUIDELINES**

2. Limit oral intake to sips

**ADVANCED CARE GUIDELINES**

a) Consider fluid bolus if evidence of hypovolemia

b) If patient nauseated or is vomiting, consider anti-emetic medication such as ondansetron (Zofran) per pediatric dosing guideline. Consider a repeat dose after 5 minutes if necessary.
NEWBORN RESUSCITATION AND CARE

Revised 2017

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 inches 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

i) Begin chest compressions at a combined rate of 120/minute (three compressions to each ventilation)
ADVANCED CARE GUIDELINES

j) If there is no improvement in heart rate after 30 seconds. Perform endotracheal intubation
k) If there is no improvement in heart rate after intubation and ventilation, administer
   ▪ epinephrine 1:1000 concentration at 0.1 mg/kg (maximum individual dose 10.0 mg) via endotracheal tube,
   ▪ or 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
l) Initiate transport. Reassess heart rate and respirations enroute

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

n) Initiate transport. Reassess heart rate and respirations enroute

If the heart rate is between 80 & 100 beats per minute, initiate the following actions:
o) Continue assisted ventilation with high-flow, 100% concentration oxygen. Stimulate as previously described

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

If thick meconium is present:
r) Initiate endotracheal intubation before the infant takes a first breath. Suction the airway using an appropriate suction adapter while withdrawing the endotracheal tube. Repeat this procedure until the endotracheal tube is clear of meconium. If the infant’s heart rate slows, discontinue suctioning immediately and provide ventilation until the infant recovers

Note: If the infant is already breathing or crying, this step may be omitted
PEDIATRIC PAIN CONTROL
Revised 2018

1. Follow initial patient care protocol

2. First attempt to manage all painful conditions with basic care

BASIC CARE GUIDELINES

a) Place the patient in a position of comfort

ADVANCED CARE GUIDELINES

b) 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%

Consider:

- Morphine per pediatric dosing guideline
- Fentanyl per pediatric dosing guideline
- Ketamine 0.1 mg/kg-0.3 mg/kg IV or 0.5 mg/kg IM or IN

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

d) After drug administration, reassess the patient using the appropriate pain scale
PEDIATRIC POISONING
Reviewed 2018

1. Follow initial patient care protocol

2. Identify contaminate and call Poison Control and follow directions given to provide care: 1-800-222-1222

3. Contact Medical Direction as soon as possible with information given by Poison Control and care given

BASIC CARE GUIDELINES

1. 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.

ADVANCED CARE GUIDELINES

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

Tachycardia with Unknown Overdose:
   d. Consider benzodiazepine such as
      i. Versed per pediatric dosing guideline IV / IM repeated every 5 minutes as needed to a maximum of 5 mg
         OR
      ii. Valium per pediatric dosing guideline IV / IM repeated every 5 minutes as needed to a maximum of 10 mg

   e. AVOID lidocaine and beta-blockers, particularly Labetalol.
   f. Consider Sodium Bicarbonate if available, 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:
  
  h. Support ventilations via bag-valve-mask and oxygen while preparations are made for Naloxone (Narcan) administration.
  
  i. Consider Naloxone (Narcan) per pediatric dosing guideline

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

  j. Consider Calcium gluconate if available 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

  k. Consider Glucagon per pediatric dosing guideline slow IV push over 1-2 minutes, may repeat in 10-15 minutes if no response is seen.

  l. Consider Sodium bicarbonate if available per pediatric dosing guideline IV for wide complex QRS.

  m. Consider transcutaneous pacemaker

Digitalis Overdose:

  n. Consider Atropine per pediatric dosing guideline every 5 minutes as needed up to total dose of 0.04 mg/kg or 3 mg.

  o. Consider transcutaneous pacemaker

TCA (Elavil, Tofranil) Overdose:

  p. Consider Sodium bicarbonate if available per pediatric dosing guideline IV for wide complex QRS.

  q. Be cautious for seizures.
**PEDiATRIC SEIZURE**

Revised 2017

1. Follow initial patient care protocol

**Active Seizure**

**BASIC CARE GUIDELINES**

a) Protect airway

**ADVANCED CARE GUIDELINES**

b) Administer Benzodiazepine, dosage according to Pediatric Dosing Reference to stop seizure. May repeat dose in 5 minutes if still seizing

c) Check blood glucose level, if available, and treat hypoglycemia if present

**Post Seizure**

**BASIC CARE GUIDELINES**

a) Protect airway
**Pediatric Selective Spinal Care**

1. Follow Initial Patient Care Protocol

**Basic Care Guidelines**

1) Patient Presentation:
   
   a) This protocol is intended for patients who present with a traumatic mechanism of injury.
   
   b) Immobilization is contraindicated for patients who have penetrating trauma who do not have a neurological deficit.

2) Patient Management:
   
   a) Assessment while maintaining spinal alignment:
     
     - mental status,
     - neurological deficits,
     - spinal pain or tenderness, while maintaining spinal alignment, examine the spine for tenderness on palpation or deformities.
     - any evidence of intoxication,
     - or other severe injuries.

   b) Treatment and Interventions:

   Apply cervical restriction if there is any of the following:
   
   - Patient complains of neck pain.
   - Any neck tenderness on palpation.
   - Any abnormal mental status, including extreme agitation, or neurological deficit.
   - Any evidence of alcohol or drug intoxication
   - There are other severe or painful injuries present.
   - Any communication barrier that prevents accurate assessment.
(Pediatric Selective Spinal Immobilization continued)

c) Spinal and cervical restriction and long spine board, full body vacuum splint, scoop stretcher, or similar device if:
  ▪ Patient complains of midline back pain
  ▪ 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 situation, long boards should be padded or have a vacuum mattress applied to minimize secondary injury to the patient.
PEDIATRIC SHOCK

Revised 2012

1. Follow initial patient care protocol

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

i) Administer a fluid bolus of normal saline at 20 ml/kg over 10 to 15 minutes. Reassess patient after bolus. If signs of shock persist, bolus may be repeated at the same dose up to two additional times for a maximum total of 60 ml/kg
PEDIATRIC TRAUMA
Revised 2016

1. Follow initial patient care protocol

2. 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

3. The goal should be 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

c) If bleeding site is not amenable to tourniquet placement (i.e. junctional injury), apply a topical hemostatic agent with direct pressure

ADVANCED CARE GUIDELINES

d) Establish large bore IV

e) Cardiac monitor
(Pediatric Trauma continued)

**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

78 Pediatric Treatment Protocols
Iowa EMS Treatment Appendices

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Appendix A - EMS Out-of-Hospital Do-Not-Resuscitate Protocol

**Purpose**: This protocol is intended to avoid unwarranted resuscitation by emergency care providers in the out-of-hospital setting for a qualified patient. There must be a valid Out-Of-Hospital Do-Not-Resuscitate (OOH DNR) order signed by the qualified patient’s attending physician or the presence of the OOH DNR identifier indicating the existence of a valid OOH DNR order.

**No resuscitation**: Means withholding any medical intervention that utilizes mechanical or artificial means to sustain, restore, or supplant a spontaneous vital function, including but not limited to:

1. Chest compressions
2. Defibrillation,
3. Esophageal/tracheal/double-lumen airway; endotracheal intubation, or
4. Emergency drugs to alter cardiac or respiratory function or otherwise sustain life.

**Patient criteria**: The following patients are recognized as qualified patients to receive no resuscitation:

1. The presence of the uniform OOH DNR order or uniform OOH DNR identifier, or
2. The presence of the attending physician to provide direct verbal orders for care of the patient.

The presence of a signed physician order on a form other than the uniform OOH DNR order form approved by the department may be honored if approved by the service program EMS medical director. However, the immunities provided by law apply only in the presence of the uniform OOH DNR order or uniform OOH DNR identifier. When the uniform OOH DNR order or uniform OOH DNR identifier is not present contact must be made with on-line medical control and on-line medical control must concur that no resuscitation is appropriate.

**Revocation**: An OOH DNR order is deemed revoked at any time that a patient, or an individual authorized to act on the patient’s behalf as listed on the OOH DNR order, is able to communicate in any manner the intent that the order be revoked. The personal wishes of family members or other individuals who are not authorized in the order to act on the patient’s behalf shall not supersede a valid OOH DNR order.

**Comfort Care (♥)**: When a patient has met the criteria for no resuscitation under the foregoing information, the emergency care provider should continue to provide that care which is intended to make the patient comfortable (a.k.a. ♥ Comfort Care). Whether other types of care are indicated will depend upon individual circumstances for which medical control may be contacted by or through the responding ambulance service personnel.

♥ Comfort Care may include, but is not limited to:

1. Pain medication.
2. Fluid therapy.
3. Respiratory assistance (oxygen and suctioning).

*Qualified Patient* means an adult patient determined by an attending physician to be in a terminal condition for which the attending physician has issued an Out of Hospital DNR order in accordance with the law. Iowa Administrative Code 641-142.1 (144A) Definitions.
Appendix B: Adult Out-Of-Hospital Trauma Triage Destination Decision Protocol

The following criteria shall be utilized to assist the EMS provider in the identification of time critical injuries, method of transport and trauma care facility resources necessary for treatment of those injuries

**Step 1 - Assess for Time Critical Injuries: Level of Consciousness & Vital Signs**
- Glasgow Coma Score ≤13
- Respiratory rate <10 or >29 breaths per minute, or need for ventilatory support.
- Systolic B/P (mmHg) less than <90 mmHg

If ground transport time to a Resource (Level I) or Regional (Level II) Trauma Care Facility is less than 30 minutes, transport to the nearest Resource (Level I) or Regional (Level II) Trauma Care Facility. If greater than 30 minutes, ground transport time to Resource (Level I) or Regional (Level II) Trauma Care Facility, transport to the nearest appropriate Trauma Care Facility. If time can be saved or level of care needs exist, tier with ground or air ALS service program

If step 1 does not apply, move on to step 2

**Step 2 - Assess for Anatomy of an Injury**
- All penetrating injuries to head, neck, torso and extremities proximal to elbow or knee
- Chest wall instability or deformity (e.g., flail chest)
- Suspected two or more proximal long-bone fractures
- Suspected pelvic fractures
- Crushed, degloved, mangled, or pulseless extremity
- Open or depressed skull fracture
- Amputation proximal to wrist or ankle
- Paralysis or Paresthesia
- Partial or full thickness burns > 10% TBSA or involving face/airway

If ground transport time to a Resource (Level I) or Regional (Level II) Trauma Care Facility is less than 30 minutes, transport to the nearest Resource (Level I) or Regional (Level II) Trauma Care Facility. If greater than 30 minutes ground transport time to Resource (Level I) or Regional (Level II) Trauma Care Facility, transport to the nearest appropriate Trauma Care Facility. If time can be saved or level of care needs exist, tier with ground or air ALS service program

If step 2 does not apply, move on to step 3

**Step 3 - Consider Mechanism of Injury & High Energy Transfer**
- Falls
  - Adult: > 20 ft. (one story is equal to 10 feet)
- High-risk auto crash:
  - Interior compartment intrusion, including roof: >12 inches’ occupant site; >18 inches any site
  - Ejection (partial or complete) from automobile
- Death in same passenger compartment
- Vehicle telemetry data consistent with high risk of injury
- Auto vs. pedestrian/bicyclist thrown, run over, or with significant (>20 mph) impact
- Motorcycle crash >20 mph

Transport to the nearest appropriate Trauma Care Facility, need not be the highest level trauma care facility.

If step 3 does not apply, move on to step 4

**Step 4 - Consider risk factors:**
- Older adults
  - Risk of injury/death increases after age 55 years
  - SBP<110 might represent shock after age 65 years
- EMS provider judgment
- Low impact mechanisms (e.g. ground level falls) might result in severe injury
- ETOH/Drug use
- Pregnancy > 20 weeks
- Anticoagulants and bleeding disorders
- Patients with head injury are at high risk for rapid deterioration

Transport to the nearest appropriate Trauma Care Facility, need not be the highest level trauma care facility.

If none of the criteria in the above 4 steps are met, follow local protocol for patient disposition. When in doubt, transport to nearest trauma care facility for evaluation.

**For all Transported Trauma Patients:**
1. Patient report to include: MOI, Injuries, Vital Signs & GCS, Treatment, Age, Gender and ETA
2. Obtain further orders from medical control as needed.
Pediatric Out-Of-Hospital Trauma Triage Destination Decision Protocol

The following criteria shall be utilized to assist the EMS provider in the identification of time critical injuries, method of transport and trauma care facility resources necessary for treatment of those injuries.

**Step 1 - Assess for Time Critical Injuries: Level of Consciousness & Vital Signs**
- Abnormal Responsiveness: abnormal or absent cry or speech. Decreased response to parents or environmental stimuli. Floppy or rigid muscle tone or not moving. Verbal, Pain, or Unresponsive on AVPU scale.
- Airway/Breathing Compromise: obstruction to airflow, gurgling, stridor or noisy breathing. Increased/excessive retractions or abdominal muscle use, nasal flaring, wheezes, grunting, gasping, or gurgling. Decreased/absent respiratory effort or noisy breathing. Respiratory rate outside normal range.
- Circulatory Compromise: cyanosis, mottling, paleness/pallor or obvious significant bleeding. Absent or weak peripheral or central pulses; pulse or systolic BP outside normal range. Capillary refill > 2 seconds with other abnormal findings.
- Glasgow Coma Score ≤13

If ground transport time to a Resource (Level I) or Regional (Level II) Trauma Care Facility is less than 30 minutes, transport to the nearest Resource (Level I) or Regional (Level II) Trauma Care Facility. If greater than 30 minutes, ground transport time to Resource (Level I) or Regional (Level II) Trauma Care Facility, transport to the nearest appropriate Trauma Care Facility. If time can be saved or level of care needs exist, tier with ground or air ALS service program.

*If step 1 does not apply, move on to step 2*

**Step 2 - Assess for Anatomy of an Injury**
- All penetrating injuries to head, neck, torso and extremities proximal to elbow or knee
- Chest wall instability or deformity (e.g., flail chest)
- Suspected two or more proximal long-bone fractures
- Suspected pelvic fractures
- Crushed, degloved, mangled, or pulseless extremity
- Open or depressed skull fracture
- Amputation proximal to wrist or ankle
- Paralysis or Paresthesia
- Partial or full thickness burns > 10% TBSA or involving face/airway
- Death in same passenger compartment
- Vehicle telemetry data consistent with high risk of injury
- Auto vs. pedestrian/bicyclist thrown, run over, or with significant (>20 mph) impact
- Motorcycle crash >20 mph

If ground transport time to a Resource (Level I) or Regional (Level II) Trauma Care Facility is less than 30 minutes, transport to the nearest Resource (Level I) or Regional (Level II) Trauma Care Facility. If greater than 30 minutes ground transport time to Resource (Level I) or Regional (Level II) Trauma Care Facility, transport to the nearest appropriate Trauma Care Facility. If time can be saved or level of care needs exist, tier with ground or air ALS service program.

*If step 2 does not apply, move on to step 3*

**Step 3 - Consider Mechanism of Injury & High Energy Transfer**
- Falls
- >10 feet or two times the height of the child
- High-risk auto crash:
  - Interior compartment intrusion, including roof: >12 inches occupant site; >18 inches any site
  - Ejection (partial or complete) from automobile
- Death in same passenger compartment
- Vehicle telemetry data consistent with high risk of injury
- Auto vs. pedestrian/bicyclist thrown, run over, or with significant (>20 mph) impact
- Motorcycle crash >20 mph

Transport to the nearest appropriate Trauma Care Facility, need not be the highest level trauma care facility.

*If step 3 does not apply, move on to step 4*

**Step 4 - Consider risk factors:**
- Pregnancy > 20 weeks
- Anticoagulants and bleeding disorders
- Patients with head injury are at high risk for rapid deterioration
- EMS provider Judgment
- ETOH/Drug use

Transport to the nearest (Any Level) Trauma Care Facility.

*If none of the criteria in the above 4 steps are met, follow local protocol for patient disposition. When in doubt, transport to nearest trauma care facility for evaluation.*

For all Transported Trauma Patients:
1. Patient report to include: MOI, Injuries, Vital Signs & GCS, Treatment, Age, Gender and ETA
2. Obtain further orders from medical control as needed
Appendix C: Physician on Scene

Your offer of assistance is appreciated. However, this EMS service, under law and in accordance with nationally recognized standards of care in Emergency Medicine, operates under the direct authority of a Physician Medical Director. Our Medical Director and physician designees have already established a physician-patient relationship with this patient. To ensure the best possible patient care, and to prevent inadvertent patient abandonment or interference with an established physician-patient relationship, please comply with our established protocols.

Please review the following if you wish to assume responsibility for this patient:

1. You must be recognized or identify yourself as a qualified physician.
2. You must be able to provide proof of licensure and identify your specialty.
3. If requested, you must speak directly with the on-line medical control physician to verify transfer of responsibility for the patient from that physician to you.
4. EMS personnel, in accordance with state law, can only follow orders that are consistent with the approved protocols.
5. You must accompany this patient to the hospital, unless the on-line medical control physician agrees to re-assume responsibility for this patient prior to transport.
Appendix D: Air Medical Transport - Utilization Guidelines for Scene Response

These guidelines have been developed to assist with the decision making for use of air medical transport by the emergency medical services community. The goal is to match the patient’s needs to the timely availability of resources in order to improve the care and outcome of the patient from injury or illness.

Clinical indicators:

1. Advanced level of care need (skills or medications) exists that could be made available more promptly with an air medical tier versus tiering with ground ALS service, and further delay would likely jeopardize the outcome of the patient

2. Transport time to definitive care hospital can be significantly reduced for a critically ill or injured patient where saving time is in the best interest of the patient

3. Multiple critically ill or injured patients at the scene where the needs exceed the means available

4. EMS Provider ‘index of suspicion’ based upon mechanism of injury and patient assessment

Difficult access situations:

1. Wilderness or water rescue assistance needed

2. Road conditions impaired due to weather, traffic, or road construction / repair

3. Other locations difficult to access

The local EMS provider must have a good understanding of regional EMS resources and strive to integrate resources to assure that ground and air services cooperate as efficiently and effectively as possible in the best interest of the patient.

Medical directors for ambulance services should assure that EMS providers are aware of their own service’s abilities and limitations given the level of care and geographic response area being served. Audits should be conducted on an ongoing basis to assure that utilization of regional resources (ground and air) is appropriate in order to provide the level of care needed on a timely basis.
Appendix E: Intentionally Blank
Appendix F: Fibrinolytic Checklist

This checklist should be completed for patients suffering from Acute Coronary Syndromes and/or STEMI. This tool will be used to triage patients to the appropriate receiving facility, and provide a template for passing information on to the receiving facility. Fibrinolytic screening may be done at the EMT level; however, the decision to bypass a local hospital to transport to a Percutaneous Coronary Intervention (PCI) capable facility is reserved for the Paramedic level.

Any YES findings will be relayed to medical control. Absolute Contraindications preclude the use of fibrinolytics. Relative Contraindications require consultation with medical control.

<table>
<thead>
<tr>
<th>DATE:</th>
<th>PATIENT AGE:</th>
<th>MALE</th>
<th>FEMALE</th>
<th>INCIDENT/RECORD #:</th>
<th>YES</th>
<th>NO</th>
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<tbody>
<tr>
<td><strong>ABSOLUTE CONTRAINDICATIONS</strong></td>
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<tr>
<td>Any known intracranial hemorrhage?</td>
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<td>Known structural cerebral vascular lesion?</td>
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<td>Ischemic stroke within 3 months EXCEPT acute ischemic stroke within 3 hours?</td>
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<td>Suspected aortic dissection?</td>
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<td>Active bleeding or bleeding diathesis (excluding menses)?</td>
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<td>Significant closed head trauma or facial trauma within 3 months?</td>
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<td><strong>RELATIVE CONTRAINDICATIONS</strong></td>
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<td>History of chronic, severe, poorly controlled hypertension?</td>
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<td>Severe, uncontrolled hypertension on presentation (S &gt;180mmHg or D&gt;110mmHg)</td>
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<td>History of prior ischemic stroke &gt;3 months, dementia, or known intracranial pathology?</td>
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<td>Traumatic or prolonged (&gt;10 min) CPR or major surgery (&lt;3 weeks)</td>
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<td>Non-compressible vascular punctures?</td>
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<td>Pregnancy?</td>
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<td>Active peptic ulcer?</td>
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<td>Current use of anticoagulants?</td>
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</table>

EMS Provider Print Name:                                                    Signature:
Appendix G: Strategies for Reperfusion Therapy: Acute Stroke
Revised 2017

Reperfusion Therapy Screening Not Limited to Paramedic Level

This appendix should be used for suspected acute stroke. This tool will be used to triage patients to the appropriate receiving facility, and provide a template for passing information to the receiving facility.

1. Perform a validated stroke assessment such as the MEND exam.

2. If assessment is positive for stroke, and onset of symptoms can be established within the past 4.5 hours, then determine the appropriate destination:
   a. If transport time to a Primary Stroke Center is less than 30 minutes, it is recommended that all of these patients be transported directly to the Primary Stroke Center
   b. If transport time to a Primary Stroke Center is greater than 30 minutes, then transport to the nearest stroke capable hospital.

3. Consider the use of air transport if it will facilitate the arrival of the acute stroke patient for treatment within 4.5 hours to a Primary Stroke Center or stroke capable hospital.

4. If transport to a Primary Stroke Center or stroke capable hospital cannot be achieved to arrive within 4.5 hours, then transport to the closest appropriate facility.

5. In all instances, those patients requiring immediate hemodynamic or airway stabilization should be transported to the closest appropriate facility.

6. Complete the fibrinolytic checklist-Appendix F

Levels of Stroke Care Capacity:

**Comprehensive Stroke Center:** Hospitals that have been certified by the Joint Commission-accredited acute care hospitals and must meet all the criteria for Primary Stroke Certification

**Primary Stroke Center:** Hospitals that have been certified by the Joint Commission on Hospital Accreditation or an equivalent agency to meet Brain Attack Coalition and American Stroke Association guidelines for stroke care

**Stroke capable hospital:** Hospitals that have the following:

- rt-PA readily available for administration
- Head CT, laboratory and EKG capabilities 24/7
- Process in place for transporting appropriate patients to a Primary Stroke Center
- Stroke protocol in place that follows American Stroke Association guidelines
- Emergency department coverage by physician, or advanced practitioner
Appendix H: Simple Triage and Rapid Treatment (START)

START

The following are guidelines for initial tactical triage using the START method. START is most useful in initially clearing the disaster zone where there are numerous casualties. It focuses on respiration rate, perfusion, and mental status and takes under one minute to complete. Once the patient moves toward a higher level of care (evacuation), a more detailed approach to triage may be needed.

<table>
<thead>
<tr>
<th>Respiration</th>
<th>Green   = Minor/Ambulatory</th>
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<tbody>
<tr>
<td>Perfusion</td>
<td>Yellow  = Delayed</td>
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<tr>
<td>Mental Status</td>
<td>Red    = Immediate</td>
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<tr>
<td></td>
<td>Black   = Deceased/Expectant</td>
</tr>
</tbody>
</table>
Simple Triage and Rapid Treatment – Pediatric JumpSTART

Able to walk?

YES

MINOR

Secondary Triage*

NO

Breathing?

NO

Position upper airway

BREATHING

IMMEDIATE

APNEIC

NO

DECEASED

Palpable pulse?

NO

DECEASED

YES

5 rescue breaths

APNEIC

DECEASED

BREATHING

IMMEDIATE

Respiratory Rate

<15 OR >45

IMMEDIATE

15-45

NO

IMMEDIATE

Palpable Pulse?

YES

TIM (INAPPROPRIATE), POSTURING OR "U"

IMMEDIATE

"A", "V" OR "P" (APPROPRIATE)

DELAYED

* Evaluate infants first in secondary triage using the entire JS algorithm

© Lou Romig MD, 2002
Appendix I: Suspected Abuse/Assault/Neglect/Maltreatment

a) Provide reassurance
b) Contact local law enforcement if not present
c) Provide appropriate medical care per protocol
d) Do not burden patient with questions about the details of the assault
e) Be alert to immediate scene and document what you see.
f) Touch only what you need to touch at the scene
g) Do not disturb any evidence unless necessary for treatment of patient. (If necessary to disturb evidence, document why and how it was disturbed.)
h) Preserve evidence; such as clothing you may have had to remove for treatment, and make sure that it is never left unattended at any time, to preserve "chain of evidence"
i) Provide local referrals as available
j) Communicate vital information only – additional info can be given to receiving RN and/or Physician on arrival
k) Record observations and factual information on run report

Pediatric Considerations:

a) Approach child slowly in order to establish rapport (except in life-threatening situations), then perform exam
b) Provide appropriate medical care per protocol
c) Genital exam only if indicated in the presence of blood, known or obvious injury and or trauma
d) Interview parents separate from child, if possible
e) Transport if permitted by parents
f) If parents do not allow transport, notify law enforcement for assistance

Report all suspected abuse to the pediatric and dependent adult hotline at 1-800-362-2178 within 24 hours of your contact of the patient. This will be an oral report only. Within 48 hours of oral reporting, you must submit a written report for all suspected abuse to the Iowa Department of Human Services
Appendix J: Guidelines for EMS Provider Initiating Organ and Tissue Donation at the Scene of the Deceased

1. All appropriate patient care protocols will be enacted to assure patient care is provided according to prevailing standards.

2. If resuscitation efforts are unsuccessful or if upon arrival the patient is deceased and without indications to initiate resuscitation, then on-line medical direction will be contacted to confirm that no further medical care is to be given.

3. As per Iowa Code 142C.7 a medical examiner or a medical examiner’s designee, peace officer, fire fighter, or emergency medical care provider may release an individual’s information to an organ procurement organization, donor registry, or bank or storage organization to determine if the individual is a donor.

4. As per Iowa Code 142C.7 any information regarding a patient, including the patient’s identity, however, constitutes confidential medical information and under any other circumstances is prohibited from disclosure without the written consent of the patient or the patient’s legal representative.

5. At least one EMS provider should remain at the scene until the appropriate authority (medical examiner, funeral home, public safety, etc.) is present.

6. Contact Iowa Donor Network at 800-831-4131
Appendix K: Guidelines for EMS Providers Responding to a patient with special needs

This protocol is not intended for interfacility transfers.

These guidelines should be used when an EMS provider, responding to a call, is confronted with a patient using specialized medical equipment that the EMS provider has not been trained to use, and the operation of that equipment is outside of the EMS provider’s scope of practice. The EMS provider may treat and transport the patient, as long as the EMS provider doesn’t monitor or operate the equipment in any way while providing care.

When providing care to patients with special needs, EMS personnel should provide the level of care necessary, within their level of training and certification. When possible, the EMS provider should consider utilizing a family member or caregiver who has been using this equipment to help with monitoring and operating the special medical equipment if necessary during transport.

Some examples of special medical devices:

- PCA (patient controlled analgesic)
- Chest Tube
### Appendix L: EMS Approved Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>â</td>
<td>before</td>
</tr>
<tr>
<td>ABC</td>
<td>airway, breathing, circulation</td>
</tr>
<tr>
<td>ALS</td>
<td>advanced life support</td>
</tr>
<tr>
<td>AMI</td>
<td>acute myocardial infarction</td>
</tr>
<tr>
<td>amps</td>
<td>ampules</td>
</tr>
<tr>
<td>ASA</td>
<td>aspirin</td>
</tr>
<tr>
<td>AT</td>
<td>atrial tachycardia</td>
</tr>
<tr>
<td>AV</td>
<td>atrioventricular</td>
</tr>
<tr>
<td>bicarb</td>
<td>sodium bicarbonate</td>
</tr>
<tr>
<td>BID</td>
<td>twice a day</td>
</tr>
<tr>
<td>BLA</td>
<td>basic life support</td>
</tr>
<tr>
<td>BP</td>
<td>blood pressure</td>
</tr>
<tr>
<td>BS</td>
<td>blood sugar</td>
</tr>
<tr>
<td>CAD</td>
<td>coronary artery disease</td>
</tr>
<tr>
<td>CC</td>
<td>chief complaint</td>
</tr>
<tr>
<td>cc</td>
<td>cubic centimeter</td>
</tr>
<tr>
<td>CCU</td>
<td>coronary care unit</td>
</tr>
<tr>
<td>CHB</td>
<td>complete heart block</td>
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<tr>
<td>CHF</td>
<td>congestive heart failure</td>
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<tr>
<td>cm</td>
<td>centimeter</td>
</tr>
<tr>
<td>CNS</td>
<td>central nervous system</td>
</tr>
<tr>
<td>c/o</td>
<td>complains of</td>
</tr>
<tr>
<td>CO</td>
<td>carbon monoxide</td>
</tr>
<tr>
<td>CO2</td>
<td>carbon dioxide</td>
</tr>
<tr>
<td>COPD</td>
<td>chronic obstructive pulmonary disease</td>
</tr>
<tr>
<td>CPR</td>
<td>cardiopulmonary resuscitation</td>
</tr>
<tr>
<td>CSF</td>
<td>cerebral spinal fluid</td>
</tr>
<tr>
<td>CVA</td>
<td>cerebral vascular accident</td>
</tr>
<tr>
<td>D/C</td>
<td>discontinue</td>
</tr>
<tr>
<td>DOA</td>
<td>dead on arrival</td>
</tr>
<tr>
<td>DSW</td>
<td>5% dextrose in water</td>
</tr>
<tr>
<td>Dx</td>
<td>diagnoses</td>
</tr>
<tr>
<td>ED</td>
<td>emergency department</td>
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<tr>
<td>EKG/ECG</td>
<td>electrocardiogram</td>
</tr>
<tr>
<td>Epi</td>
<td>epinephrine</td>
</tr>
<tr>
<td>ER</td>
<td>emergency room</td>
</tr>
<tr>
<td>ET</td>
<td>endotracheal</td>
</tr>
<tr>
<td>ETOH</td>
<td>alcohol</td>
</tr>
<tr>
<td>fibr</td>
<td>fibrillation</td>
</tr>
<tr>
<td>fl</td>
<td>fluid</td>
</tr>
<tr>
<td>fx</td>
<td>fracture</td>
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<tr>
<td>GI</td>
<td>gastrointestinal</td>
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<td>gm</td>
<td>gram</td>
</tr>
<tr>
<td>gr</td>
<td>grain</td>
</tr>
<tr>
<td>KVO</td>
<td>keep vein open</td>
</tr>
<tr>
<td>L</td>
<td>liter</td>
</tr>
<tr>
<td>LOC</td>
<td>level of consciousness</td>
</tr>
<tr>
<td>LR</td>
<td>lactated ringers</td>
</tr>
<tr>
<td>Mm</td>
<td>millimeter</td>
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<tr>
<td>mg</td>
<td>milligram</td>
</tr>
<tr>
<td>MI</td>
<td>myocardial infarction</td>
</tr>
<tr>
<td>NaCl</td>
<td>sodium chloride</td>
</tr>
<tr>
<td>NaHCO3</td>
<td>sodium bicarbonate</td>
</tr>
<tr>
<td>NG,N/G</td>
<td>nasogastric</td>
</tr>
<tr>
<td>nitro</td>
<td>nitroglycerine</td>
</tr>
<tr>
<td>NPO</td>
<td>nothing by mouth</td>
</tr>
<tr>
<td>NS</td>
<td>normal saline</td>
</tr>
<tr>
<td>NTG</td>
<td>normal sinus rhythm</td>
</tr>
<tr>
<td>O2</td>
<td>oxygen</td>
</tr>
<tr>
<td>OB</td>
<td>obstetrics</td>
</tr>
<tr>
<td>OD</td>
<td>overdose</td>
</tr>
<tr>
<td>OR</td>
<td>operating room</td>
</tr>
<tr>
<td>P</td>
<td>pulse</td>
</tr>
<tr>
<td>p</td>
<td>after</td>
</tr>
<tr>
<td>PAC</td>
<td>premature atrial contraction</td>
</tr>
<tr>
<td>PAT</td>
<td>paroxysmal atrial tachycardia</td>
</tr>
<tr>
<td>PCR</td>
<td>patient care record</td>
</tr>
<tr>
<td>PE</td>
<td>physical exam, pulmonary edema</td>
</tr>
<tr>
<td>pedi</td>
<td>pediatric</td>
</tr>
<tr>
<td>PERL</td>
<td>pupils equal, reactive to light</td>
</tr>
<tr>
<td>PJC</td>
<td>premature junctional</td>
</tr>
<tr>
<td>po</td>
<td>by mouth</td>
</tr>
<tr>
<td>pr</td>
<td>per rectum</td>
</tr>
<tr>
<td>prn</td>
<td>whenever necessary, as needed</td>
</tr>
<tr>
<td>PVC</td>
<td>premature ventricular contraction</td>
</tr>
<tr>
<td>q</td>
<td>every</td>
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<tr>
<td>QID</td>
<td>four times a day</td>
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<tr>
<td>R</td>
<td>respirations</td>
</tr>
<tr>
<td>R/O</td>
<td>rule out</td>
</tr>
<tr>
<td>RN</td>
<td>registered nurse</td>
</tr>
<tr>
<td>Rx</td>
<td>treatment</td>
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<tr>
<td>S</td>
<td>without</td>
</tr>
<tr>
<td>SC</td>
<td>subcutaneous</td>
</tr>
<tr>
<td>Sec</td>
<td>second</td>
</tr>
<tr>
<td>SL</td>
<td>sublingual</td>
</tr>
<tr>
<td>SOB</td>
<td>shortness of breath</td>
</tr>
<tr>
<td>SQ</td>
<td>subcutaneous</td>
</tr>
<tr>
<td>STAT</td>
<td>immediately</td>
</tr>
<tr>
<td>s/s</td>
<td>sign, symptoms</td>
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<tr>
<td>SVT</td>
<td>supraventricular tachycardia</td>
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<tr>
<td>Sx</td>
<td>symptoms</td>
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<tr>
<td>TIA</td>
<td>transient ischemic attack</td>
</tr>
<tr>
<td>TID</td>
<td>three times a day</td>
</tr>
<tr>
<td>TKO</td>
<td>to keep open</td>
</tr>
<tr>
<td>VF</td>
<td>ventricular fibrillation</td>
</tr>
<tr>
<td>w/s</td>
<td>watt second setting</td>
</tr>
<tr>
<td>x</td>
<td>times</td>
</tr>
<tr>
<td>y/o</td>
<td>years old</td>
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</table>
Appendix M: Guidelines for New Protocol Development

Making a decision to develop a new protocol or evaluate an existing one should be based on a rational process. Questions that should be asked and answered when considering a new drug therapy or procedure are as follows:

**Key Questions for any New Protocol**

1. Is the drug therapy or procedure medically indicated and safe?
2. Is it within the scope of practice for the provider?
3. How specifically will this protocol benefit patient care?
4. What specifically is needed to implement this protocol (education/training, medical director protocol development/authorization, equipment needs, etc.)?
5. How will this protocol impact operation?
6. What is the opinion of providers concerning this protocol?
7. Does the medical community support this protocol change?
8. What are all the costs versus benefits associated with implementation and maintenance?
9. What are the medical-legal implications?
10. What ongoing provider involvement such as skills maintenance and continuous quality improvement is necessary?
11. How will success be measured?

**Rational Protocol Development Process to Make the Right Protocol Decision**

1. Study the issue thoroughly
2. Identify key questions
3. Compare with goals
4. Assess fit with system
5. Cost benefit analysis
6. Identify measuring tools

**Stakeholders in this process are recognized to include, but not be limited to:**

1. Medical direction (on-line and off-line)
2. Educators/training programs
3. Regulators of policy and rules
4. Service directors
5. Service providers
6. Consumers
7. Third party payers
APPENDIX N (Procedure Reference)

EZ-IO AD & EZ-IO PD Infusion System

TRAINING:
The EZ-IO AD & EZ-IO PD infusion systems require specific training prior to use.

INDICATIONS:
EZ-IO AD (40kg and over) EZ-IO PD (3-39kg)

1) Immediate vascular access in emergencies.

2) Intravenous fluids or medications are urgently needed and peripheral IV cannot be established in 2 attempts or 90 seconds AND the patient exhibits one or more of the following:
   a. An altered mental status (GCS of 8 or less)
   b. Respiratory compromise (SaO2 90% or less after appropriate oxygen therapy, respiratory rate of <10 or >40 min.
   c. Hemodynamic instability (Systolic BP of <90)

3) EZ-IO AD & EZ-IO PD should be considered PRIOR to peripheral IV attempts in the following situations:
   a) Cardiac arrest (medical or trauma)
   b) Profound hypovolemia with alteration of mental status
   c) Patient with immediate need for delivery of medications or fluids.

CONTRAINDICATIONS
   a) Fracture of the bone selected for IO infusion. (Consider alternate site)
   b) Excessive tissue at insertion site with the absence of anatomical landmarks.
   c) Previous significant orthopedic procedures. (IO within 24 hours, prosthesis)
   d) Infection at the site selected for insertion. (Consider alternate site)
   e) Previous failed IO attempts in same bone
CONSIDERATIONS

**Flow rate:** Due to the anatomy of the IO space, flow rates may appear to be slower than those achieved with an IV catheter.

- Ensure the administration of an appropriate rapid SYRINGE BOLUS (flush) prior to infusion. **NO FLUSH= NO FLOW**
  - Rapid syringe bolus (flush) the EZ-IO AD with 10 ml of normal saline
  - Rapid syringe bolus (flush) the EZ-IO PD with 5 ml of normal saline
  - Repeat bolus flush as needed

- To improve continuous flow rates always use a syringe, pressure bag or infusion pump

**Pain:** Insertion of the EZ-IO AD & EZ-IO PD in conscious patients has been noted to cause mild to moderate discomfort (usually no more painful then a large bore IV) However, IO infusion for conscious patients has been noted to cause severe discomfort.

- Prior to IO syringe bolus (flush) or continuous infusion in alert patients, SLOWLY administer Lidocaine 2% through the EZ-IO hub. Ensure that patient has no allergies or sensitivity to Lidocaine.
  - EZ-IO AD SLOWLY administer 20-40mg Lidocaine 2%
  - EZ-IO PD SLOWLY administer 0.5mg/kg Lidocaine 2%

**PRECAUTIONS:**
The EZ-IO AD & the EZ-IO PD are not intended for prophylactic use

**EQUIPMENT:**
EZ-IO Driver
EZ-IO AD or EZ-IO PD Needle Set
Alcohol or Betadine Swab
EZ-Connect or Standard Extension Set
10ml Syringe
Normal Saline (or suitable sterile fluid)
Pressure Bag or Infusion Pump
2% Lidocaine

EZ-IO Yellow wristband

**PROCEDURE:** If the patient is conscious advise of EMERGENT NEED for this procedure and obtain informed consent

1. Wear appropriate BSI precautions
2. Determine EZ-IO AD or EZ-IO PD indications
3. Rule out contraindications
4. Locate appropriate insertion site (Proximal Tibia, Distal Tibia or Proximal Humerus)
5. Prepare insertion site using aseptic technique
6. Prepare the EZ-IO driver and appropriate needle set
7. Stabilize site and insert appropriate needle set
8. Remove EZ-IO driver from needle set while stabilizing catheter hub
9. Remove stylet from catheter, place stylet in shuttle or approved sharps container
10. Confirm placement
11. Connect primed EZ-Connect
12. Slowly administer appropriate dose of Lidocaine 2% IO to conscious patients
13. Syringe bolus (flush) the EZ-IO catheter with the appropriate amount of normal saline
14. Utilize pressure (syringe bolus, pressure bag or infusion pump) for continuous infusions where applicable
15. Begin infusion
16. Dress site, secure tubing and apply wristband as directed
17. Monitor EZ-IO site and patient condition
18. Remove Catheter within 24 Hour
1. **Indications**

A. A need to secure an airway and provide ventilation for patients who are unconscious, have no gag reflex and are over 4 feet tall (sizes 3, 4 & 5).

B. This is a secondary/bridge device for the EMT-P/PS levels to be used when attempts to manage the airway with endotracheal intubation are unsuccessful or improbable.

C. This is the primary airway device for FR-EMT-I levels. In the event the King LTS-D cannot be successfully placed, a combitube should be inserted.

D. EMT-P/PS levels: if this device has been placed upon your arrival to the scene it shall be the primary airway of choice for patients in cardiac arrest. Should the device be improperly placed or inadequate to secure the patients airway, orotracheal intubation may then be attempted or a combitube may be used. Orotracheal intubation remains the primary airway of choice for all other patients.

2. **Procedure**

A. Choose the correct size airway, based on patient height.
   1. Size 3(yellow) 4-5 feet tall.
   2. Size 4(red) 5-6 feet tall.
   3. Size 5(purple) greater than 6 feet tall.

B. Test the cuff inflation system by injecting the maximum recommended volume of air into the cuffs. Remove all air from both cuffs prior to insertion.
   1. Size 3- 60ml.
   2. Size 4- 80ml.
   3. Size 5- 90ml.

C. Apply a water-based lubricant as needed to the beveled distal tip and posterior aspect of the tube taking care to avoid introduction of lubricant in or near the ventilatory openings.

D. Have a spare King LTS-D ready and prepared for immediate use.

E. Pre-oxygenate / ventilate the patient.

F. Ensure gag reflex is not intact.

G. Position the head. The ideal position is the “sniffing position”, however in cases of trauma neutral position is acceptable.
H. Hold the airway at the connector with the dominant hand. With non-dominant hand, hold mouth open and apply tongue/jaw lift.

I. With the airway rotated 45-90 degrees laterally (outward), introduce the device in to the corner of the mouth and advance until the tip is under the base of the tongue. Rotate the airway medially back to upright position and in to the midline position in the mouth. Advance the airway, without using excessive force, until the base of the colored connector is even with the teeth/gums. It is better to insert the device too deep initially and withdraw as needed for proper ventilation.

J. Inflate the cuffs to 50-70 ml. Using a standard luer-tipped syringe, use minimum amount of pressure necessary to seal the airway at the peak ventilatory pressure employed.(See maximum amounts above.)

K. Check lung ventilation by auscultation, chest movement and verification of CO2 by capnography or CO2 detector if available. Bagging should be able to be done with relative ease.

L. If ventilation is not sufficient, gently retract the airway 1cm at a time to achieve optimal ventilation and easy bagging. Add 10-20 ml of additional cuff volume as needed to ensure proper seal. Do not exceed the maximum cuff volume indicated for each size.

M. Depth markings are provided at the proximal end of the airway which refers to the distance from the distal ventilatory opening. When properly placed, with the distal tip and cuff in the esophagus, and the ventilatory openings aligned with the opening to the larynx, the depth markings give an indication of the distance, in centimeters, from the vocal cords to the teeth.

N. Secure the airway using an appropriate tube holder such as the Thomas ET holder.

O. Monitor End Tidal CO2 if available

3. Removal

A. Removal should always be carried out with suction equipment and intubation equipment readily available for use.

B. It is important that both cuffs are completely deflated before removal.

4. Contraindications

A. Responsive patients with an intact gag reflex.

B. Patients with known esophageal disease.

C. Patients who have ingested caustic substances.

5. Considerations

A. The King LT does not protect the airway from the effects of regurgitation and aspiration.

B. Intubation of the trachea cannot be ruled out as a potential complication.

C. Lubricate only the posterior surface of the airway.

D. Medications cannot be given down this airway
OROTRACHEAL INTUBATION

1. Assemble all equipment (ET tube, blades/handle, syringe, stylette, lubricant, confirmation devices, bag-valve, suction)

2. Position patient supine with head hyperextended (maintain manual in-line stabilization for suspected/know cervical spine trauma)

3. Hyper oxygenate the patient with 100% oxygen for at least one minute; avoid excessive tidal volumes

4. May consider directing an assistant to perform a Sellick maneuver

5. Insert the laryngoscope blade into right side of the mouth, sweeping the tongue to the left, and lift to visualize the vocal cords; avoid a rocking motion/contact with the upper teeth

6. Insert the endotracheal tube under direct visualization, seeing the tube pass through the vocal cords, and advancing it so the cuff lies just below the vocal cords, if difficulty in visualization exists, consider use of bougie device.

7. Inflate the cuff.

8. Confirm placement of the endotracheal tube
   
   **Primary Confirmation Techniques**
   
   A. Direct visualization of tube passing through the vocal cords

   B. Observation of bilateral chest rise and fall with each ventilation and exhalation and ABSENCE of breath sounds over the epigastric region

   C. Auscultation with a stethoscope to verify the presence of breath sounds with each ventilation over:
      - Right and left sides of the anterior chest
      - Right and left midaxillary lines

   **Secondary Confirmation Techniques**

   A. Positive end-tidal capnography/capnometry

   B. Esophageal detector device (immediate re-expansion of deflated bulb attached to ET tube; false positives may occur with the morbidly obese/late pregnancy patient, copious tracheal secretions, status asthmaticus, or gastric inflation from BVM)

   C. In the event that esophageal placement is suspected, IMMEDIATELY remove the tube and provide BVM until tracheal intubation or alternative airway placement (i.e., Combitube, KING) can be achieved

9. Prevent dislodgement by securing the endotracheal tube with a commercial tracheal tube holder; note/document placement at the front teeth (typically approx. 22 cm.) and at commercial tube holder

10. Apply cervical collar and place patient on long spineboard with head blocks to prevent dislodgement

11. A maximum of 3 intubation attempts may be made, depending upon the patient’s clinical situation. In the event that endotracheal intubation is NOT achieved and the patient has no contraindications, place a Combitube or KING airway

12. Monitor End Tidal CO2 if available
BLOOD GLUCOSE MONITORING

Services who choose to provide Glucose Monitoring shall follow the guidelines set out by the Clinical Laboratory Improvement Amendment (CLIA) and follow a protocol approved by the service program's medical director. To order a C.L.I.A. waiver form call 319-335-4500.

Indications:
1. Known diabetic with signs & symptoms of blood sugar derangements
2. Altered mental status
3. Signs/symptoms of a stroke, to rule out hypoglycemia

Precautions:
1. Use approved procedure to minimize exposure to infectious agents by the patient and the provider
2. Correlate reading with patient’s clinical condition

Procedure:
Obtain a fresh blood sample from the patient by either of the following:

1. Capillary technique
   a. Clean fingertip thoroughly with alcohol pad
   b. Puncture fingertip and allow a large drop of blood to form
   c. Wipe puncture site with clean, dry 2x2
   d. Allow large drop of blood to form again to place on reagent/test strip

2. Venous technique
   a. Using sterile procedure, draw/acquire small blood sample from the IV catheter/needle for testing

Interpretation:
1. Visual: perform visual interpretation according to manufacturer’s guidelines
2. Metered: obtain metered reading according to manufacturer’s guidelines
3. Correlate reading with the patient’s clinical condition
PULSE OXIMETRY PROCEDURE

Application of the pulse oximeter is not a priority in the initial management of the critically ill or injured patient. The pulse oximeter can be used to help monitor the patient’s oxygenation after the usual procedures to stabilize the patient are completed (ABC’s management).

Procedure/Treatment:

1. Start treatment based on initial assessment to stabilize the patient while applying pulse oximeter.
2. Position patient comfortably and support dependent extremity to be used for monitoring.
3. Remove finger nail polish. Polish can falsely alter saturation.
4. Attach sensor probe to finger or bridge of nose. May also use the earlobe or toes.
5. Oxygen should be titrated to maintain a reading of 94-99%

Potential problems:

1. Inaccuracy if O2 saturation less than 70%.
2. Possible interference with ambient light.
3. Presence of carboxyhemoglobin will produce normal reading in the presence of severe tissue hypoxemia.

Measurements can be difficult to get in the presence of vasoconstriction, hypotension and anemia.
MAINTENANCE OF NON-MEDICATED IVs

I. DISCONTINUING AN IV:

A. Procedure

1. Advise or receive orders from medical direction to discontinue IV.
2. Take appropriate BSI precautions.
3. Explain procedure to the patient and/or family members.
4. Turn off IV fluid by closing pressure wheel on administrative tubing.
5. Remove tape and other securing material from IV tubing and catheter.
6. Remove IV catheter and administration tubing still connected.
7. Cover the puncture site with an alcohol wipe, 2x2, or 4x4 and hold pressure until bleeding stops.
8. Cover wound with appropriate dressing (Band-Aid).
9. Discard IV administration set, fluid, and catheter in an approved fashion.
10. Document discontinuance of IV.

II. CHANGING IV FLUIDS:

A. Rationale

1. During long distance transfers.
2. Change of fluids by medical direction.

B. Procedure

1. Check orders/authorization for change of IV fluids from medical direction.
2. Check for correct IV fluid.
3. Take appropriate BSI precautions.
4. Prepare new IV solution, remove covers.
5. Turn off IV flow rate by closing pressure wheel on administration tubing.
6. Invert IV container, remove the IV container to be changed from the administration set, maintaining a sterile environment.
7. Invert the new solution container; puncture the replacement solution container with spike of administration set.
8. Turn IV container over (upright).
9. Fill drip chamber of administration set to marked line if needed.
10. Adjust IV flow rate to desired amount.
11. Reassess IV site and flow.
12. Discard used IV container in an appropriate manner.

**III. Precautions**

1. Do not allow an IV to "run dry".
2. If the drip chamber is empty, will need to "bleed" air from the tubing before adjusting the IV flow rate.
12-LEAD ELECTROCARDIOGRAM ACQUISITION

**Purpose:**
1. To obtain a diagnostic quality 12 Lead ECG for the patient with a suspected acute cardiac event.

**Indications:**
1. Chest pain or pressure in any patient over age 25
2. Syncopal episode in any patient over age 25
3. Unexplained respiratory distress
4. Atypical cardiac pain (i.e., shoulder, arm, or jaw pain in absence of chest pain, especially in patients with past cardiac history or irregular pulse. Check for history of illicit drugs such as cocaine and methamphetamine use
5. Suspected Stroke

**Precautions:**
1. Care must be taken to avoid an unnecessary extension of scene time
2. Obvious ECG changes may or may not be present in the patient experiencing an acute myocardial infarction. Patients on whom a 12 Lead ECG is performed should be strongly encouraged to accept transport by ambulance to a hospital.

**Contraindications:**
1. On scene 12 Lead ECG acquisition of the unstable patient
2. On scene 12 Lead ECG acquisition of the critically unstable trauma patient

**Procedure:**
1. Turn monitor “ON”
2. Assure limb and precordial leads are appropriately connected to monitor
3. Prepare patient’s skin for electrode application by:
   a. Shaving excessive hair at the electrode site
   b. Cleaning oily or dirty skin with an alcohol pad, then drying briskly
4. Avoid locating electrodes over tendons and major muscle masses
5. Identify electrode sites and apply electrodes as follows:
   a. RUE or RA-right arm
b. LUE or LA-left arm

c. RLE or RL-right leg

d. LLE or LL-left leg

Precordial Lead Placement

1. V1-Fourth intercostal space to the right of the sternum
2. V2-Fourth intercostal space to the left of the sternum
3. V3-Directly between leads V2 and V4
4. V4-Left fifth intercostal space, midclavicular line
5. V5-Level with V4, left anterior axillary line
6. V6-Level with V5, left midaxillary line

Acquisition

1. Encourage the patient to relax all muscles and remain as still as possible; prevent any tension on ECG cable
2. Be sure patients correct age and sex are entered in the monitor, push acquire; acquisition takes approximately 10 seconds
   a. 12 Lead ECG will automatically print
   b. Avoid acquiring ECG in a moving vehicle unless pt is unstable
3. Activate a “Cardiac Alert” in patients with 12 Lead ECG ST elevation of > 1mm in 2 or more contiguous leads and transport the patient lights and sirens to a receiving facility with interventional cath lab capabilities.
4. If capability exists, transmit the 12 Lead ECG to the receiving hospital
ELECTRICAL CARDIOVERSION

**Purpose:**
To restore an effective heart rhythm in the *hemodynamically unstable* patient with tachycardia. The unstable condition MUST be related to the tachycardia.

Signs and symptoms of instability may include:
1. Chest pain
2. Shortness of breath
3. Decreased level of consciousness
4. Hypotension
5. Shock
6. Pulmonary congestion; CHF
7. Acute MI

**Indications:**
1. Ventricular Tachycardia with a pulse
2. Supraventricular tachycardia
3. Atrial Fibrillation/Atrial Flutter

**Precautions:**
1. Delay of cardioversion because of problems with synchronization resulting in worsening patient condition
2. Risk of thromboembolic complications (i.e., stroke) in patients with history of atrial fibrillation duration > 48 hours

**Procedure:**
1. Consider sedation for the alert patient such as Morphine 2-5mg slow IVP, Valium 5-10mg slow IVP, or other benzodiazepines.
2. Turn on defibrillator
3. Attach monitor leads to the patient
4. Place defibrillation pads on the patient as directed by the manufacturer
5. Engage the synchronization mode by pressing the “sync” control button

6. Look for markers on the “R” waves indicating sync mode

7. If necessary, adjust monitor gain/EKG size until sync markers occur with each R wave

8. Set initial joules to:
   - 50-100J for SVT or A-Flutter
   - 100J for Ventricular Tachycardia
   - 120J for Uncontrolled A-fib

   Announce to team members: “Charging defibrillator…stand clear”

9. Press “Charge” button

10. When the defibrillator is charged, announce the shock

11. Press and hold the “shock” button

12. Check the monitor. If tachycardia persists, increase the joules in a stepwise fashion, 100J, 120J, 150J, 200J and consult medical direction.

13. Remember to reset the sync mode after EACH synchronized cardioversion; most defibrillators default back to the unsynchronized mode. This default allows an immediate shock if the cardioversion produces VF. If sync is retained remember to shut it off if VF presents.
PACING, EXTERNAL DEMAND CARDIAC

**INDICATIONS:** A qualified EMS provider* may use this skill for the following:

a. Profound bradycardia with hemodynamic compromise.

**PRECAUTIONS:**

a. Not to be used on children under 12 unless Medical Control ordered.

b. The patient must be monitored with both the defibrillation/pacing pads and the patient electrode cable.

**CONTRAINDICATIONS:** Noninvasive pacing is contraindicated for the treatment of ventricular fibrillation. Severe hypothermia is a relative contraindication to pacing a patient with bradycardia.

**SPECIAL CONSIDERATION:** Patients with implantable pacemakers may require higher energy and rate.

**PROCEDURE:**

**BRADYCARDIC PATIENTS**

1. Turn on pacemaker

2. Set the rate @ 60-80 BPM start the amperage @ 0mA

3. Assess the patient for both mechanical and electrical capture.

4. Increase the output in 10 mA increments until mechanical capture occurs; this will be dependent upon the electrical resistance of the patient. Following capture, back amperage down in increments of 2-5 mA to ensure lowest possible setting.

5. The patient will experience pain or discomfort with this and treat as appropriate with

   - **Morphine** 2-5 mg IV slow over 2-3 minutes maybe repeated in 5-10 min increments to a total of 10mg
   - **Diazepam (Valium)** 5-10mg IV slow, or other benzodiazepines

6. The adjustment of the amperage to maintain capture maybe necessary with prolonged use or with increased discomfort of the patient.

If at any point the **BRADYCARDIA** paced patient goes into either V-fib or V-tach, immediately shut pacer off and proceed to deliver defibrillation as normal with the defibrillator portion of the unit.
NEEDLE CRICOTHYROTOMY

Indications: A trained Paramedic may use this skill when unable to gain airway access by other means, or there is an upper airway obstruction.

Contraindications:
1. Pre-existing laryngeal pathology.
2. Anatomical barriers
3. Anticoagulation therapy.

Complications:
1. Injury to surrounding tissue.
2. Hemorrhage.
3. Infection.
4. Edema.
5. Aspiration of blood.

Procedure/Treatment:
1. Stabilize the patient’s head in the neutral position.
2. Identify the cricothyroid membrane and prepare the skin.
3. Stabilize the cricoid and thyroid cartilages with the nondominant hand.
4. Once the cricothyroid membrane has been identified, insert the 14 or smaller gauge (larger diameter) gauge over-the needle catheter device just below the midpoint of the cricothyroid membrane with the needle angled at 45 degrees caudally.
5. Withdraw the needle carefully while advancing the plastic catheter caudally into the trachea.
6. Aspirate with the attached 10 cc syringe.
7. Attach the hub of the catheter to a prepared ventilation device.

Prepared Ventilation Device
A. While the end of a #3 ETT tube is the preferred device, one prong of a nasal cannula may be attached as a last resort or if a #3 ETT end is not readily available, occlude the other prong of the nasal cannula during ventilation.
B. Turn oxygen to 15 liters per min
C. Ventilate with a #3 ETT connected and ventilation rate of 12/min. at a 1:4 ratio to allow for exhalation.
NEEDLE THORACOSTOMY

**Indications:** A trained Paramedic may use this skill for respiratory compromise associated with one or more of the following:

1. Tension Pneumothorax.
2. Absent or greatly decreased breath sounds over the hemothorax area.
3. Trachea shifted to unaffected side and/or JVD.
4. Subcutaneous emphysema.
5. Multiple rib fractures.

**Procedure/Treatment:**

1. If at all possible, perform this procedure when en route to the receiving facility, lights and sirens.
2. Expose and cleanse anterior chest at level of the 2nd intercostal space on the affected side.
3. Find 2nd intercostal space midclavicular line with gloved finger.
4. Using 14 gauge over-the-needle catheter and syringe attached direct needle **over** the third rib into the 2nd intercostal space.
5. Apply enough pressure to push the needle through the intercostal muscle and into the pleural cavity.
6. You should pull back air in the syringe or if no syringe on the needle you should hear a rush of air, either of these should be considered a positive placement.
7. Remove the needle leaving catheter in place and securing with tape.
8. Connect to one-way valve.
9. Assess patient for improvement in status.
CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

Purpose:
Continuous Positive Airway Pressure has been shown to rapidly improve vital signs, gas exchange, the work of breathing, decrease the sense of dyspnea, and decrease the need for endotracheal intubation in the patients who suffer from shortness of breath from congestive heart failure and acute carcinogenic pulmonary edema. CPAP is also shown to improve dyspnea associated with pneumonia, (COPD) chronic obstructive pulmonary disease (asthma, bronchitis, & emphysema). In patients with CHF, CPAP improves hemodynamics by reducing preload and afterload.

Indications:
Dyspnea / Hypoxemia secondary to congestive heart failure (CHF), acute carcinogenic pulmonary edema pneumonia, (COPD) - chronic obstructive pulmonary disease (asthma, bronchitis, emphysema) and:

A. Any patient who is complaining of shortness of breath for reasons other than pneumothorax
B. Is awake and oriented
C. Has the ability to maintain an open airway (GCS>10)
D. Has a systolic blood pressure above 90 mmHg
E. Uses accessory muscles during respirations
F. Sign and Symptoms consistent with asthma, COPD, pulmonary edema, CHF, or pneumonia

Contraindications
Do NOT use if patient has:
1. Pneumothorax
2. Tracheostomy
3. Respiratory arrest
4. Agonal respirations
5. Unconscious
6. Shock associated with cardiac insufficiency
7. Penetrating chest trauma
8. Persistent nausea/vomiting
9. Facial anomalies / stroke obtundation / facial trauma
10. Pediatrics – Do not use for children under 12 years of age

Precautions:
Use care if patient:

A. Has impaired mental status and is not able to cooperate with the procedure
B. Had failed at past attempts at non-invasive ventilation
C. Has active upper GI bleeding or history of recent gastric surgery
D. Complains of nausea or vomiting
E. Has inadequate respiratory effort
F. Has excessive secretions
G. Has facial deformity that prevents the use of CPAP mask
H. CPAP should not be used with portable O2 because of the large amount of oxygen it takes to operate the device
I. Use Intubation if:
   a. Respiratory or cardiac arrest
   b. Unresponsive to verbal stimuli (GCS is <9)

Procedure:
1. Make sure the patient does not have a pneumothorax!
2. Place patient in a sitting position
3. Assess vital signs and SpO2 q5 min
4. Attach heart monitor and pulse oximeter (SA02)
5. If BP <90 systolic contact Medical Control prior to beginning CPAP
6. Use 1-10cmH2O

7. Explain the procedure to the patient:
   i. Patient requires “verbal sedation” to be used effectively.
      a. Example: “You are going to feel some pressure from the mask but this will help you breath easier.”
ii. Place delivery device over mouth and nose.

iii. Instruct patient to breath in through their nose slowly and exhale through their mouth as long as possible (count slowly and aloud to four, then instruct to inhale slowly).

8. Check for air leaks

9. Treatment should be given continuously throughout transport to ED.

10. Continue to coach patient to keep mask in place and readjust as needed

11. If respiratory status / level of consciousness deteriorate, remove device and consider bag valve mask ventilation and/or endotracheal intubation (see intubation protocol)

12. Documentation on the patient care record should include:
   a. CPAP level →(10cmH2O) or “PEEP”
   b. F\textsubscript{O}2 →(100%)
   c. SpO2 q5 minutes
   d. Vital Sign q5 minutes
   e. Response to treatment
   f. Any adverse reactions

**Special Notes:**

1. Advise receiving hospital as soon as possible so they can prepare for the patient’s arrival

2. Do not remove CPAP until hospital therapy is ready to be placed on the patient

3. Most patients will improve in 5-10 minutes. If no improvement, consider positive pressure ventilation

4. Monitor patient for gastric distension which may lead to vomiting

5. Use nitroglycerine tablets if needed – this avoids nitroglycerine spray from being dispersed on patient/EMS crew

6. May be the treatment of choice for a patient with a DNR order
Mucosal Atomization Device

Procedure

-Step 1: Assess the patient to ensure the nasal cavity is free of blood or mucous. If these are present you can:
  - Choose a different method to deliver the drug
  - Suction the nose prior to drug delivery

-Step 2:
Draw up a weight based dose of medication using the most concentrated form of the drug available. Include MAD nasal dead space of (0.01ml) in your volume.

-Step 3:
Insert MAD nasal into nostril apply half the drug to one nostril, repeat in other nostril with remainder of the drug. Be sure to briskly compress the syringe. Failure to briskly compress will fail to atomize the medication resulting in a steady flow of liquid which will run into the throat. Gently place your hand on the patients head to help control any movement.

-Step 4:
Assess patients’ response to the medication and repeat therapy or choose an alternate treatment if needed. Onset is usually within 3-5 minutes with a peak in 10-20 minutes.

-Step 5:
Consider the need for IV/IO access if vital signs become unstable or pt has an immediate need for other medications or fluids.

Indications for Use

Drugs delivered with this method are absorbed via the nasal mucosa. Use of a MAD is a safe alternative for delivery of certain medications when IV/IO access is not available, not practical or not needed for long term pt care. Medications which may be administered via this method are Ativan, Fentanyl, Morphine, Narcan, Valium and Versed. All approved medications can be administered via MAD regardless of patient age.

Typical applications might include:

- Overdose with no IV access
- Pain control with no IV access
- Seizures
- Sedation for medical procedures or Behavioral Problems
Contraindications

- Excessive blood in or bleeding from the nose
- Each administration may not exceed 1 ml per nare with a preference of only 0.5 ml per nare.
- Diluted medications

Side Effects

Normal side effects of each drug remain a possibility. Some drugs especially Versed may cause an uncomfortable burning sensation in the nares which generally resolve in 30-45 seconds and should be explained to the patient.

Materials Needed for Procedure

- MAD Nasal Device
- Syringe
- Needle or method of drawing up the medication
- Full Concentration Medication
APPENDIX O
MEDICATION ASSISTED INTUBATION

ATTEMPT TO CONTACT MEDICAL CONTROL PRIOR TO PREFORMING PROCEDURE

INDICATIONS

- Uncontrolled, obstructed or inadequate airway secondary to trauma or overdose when further sedation is needed.
- Decreased level of consciousness, combativeness or severe agitation secondary to trauma or suspected CVA.
- Combative or uncontrollable head trauma patient that presents potential for injury to self or others.
- CHF, COPD, or asthma patient with hypoxia and or respiratory exhaustion who cannot be easily orally intubated.
- Burn patient with potential or existing respiratory compromise

CONTRAINDICATIONS:

- Hypersensitivity to medications that would be used, (i.e., VERSED, KETAMINE, FENTANYL).
- Patients with tissue destructive conditions: crushing injuries>72 hrs old, sepsis
- Patients with muscle wasting conditions: e.g. Parkinson’s, Muscular Dystrophy, pre-existing spinal cord injuries resulting in paralysis.

PROCEDURE

Ensure all equipment is set up for intubation. Ensure adequate spinal precautions are taken. Pre-oxygenate with high flow oxygen by mask. Excessive manual ventilation may result in gastric distention with vomiting and aspiration. Be prepared to suction as needed.

If needed, sedate the patient with Fentanyl 2.0 mcg/kg IV, max dose of 250 mcg.

Administer Versed 2-5mg IV.

Administer Ketamine 1-2mg/kg IV/IO

If bradycardia occurs associated with intubation, temporarily halt attempt and oxygenate the patient with BVM and 100% oxygen. If the patient remains bradycardic, consider ATROPINE 0.5 mg IV.

Continuation of sedation Versed 2-5 mg slowly over 1-2 min to desired effect, max of 10 mg. No more than 10 mg used in 30 min period from initial dose.
APPENDIX P

Emergency Incident Rehabilitation AKA Firefighter Rehab

Fire departments wishing to participate in the firefighter rehab program must submit this request in writing and have an agreement for such service on file with the providing agency and the Iowa County Ambulance Service. Fire departments shall utilize their local QRS groups for this service. If no QRS group is available the Iowa County Ambulance Service may provide this service if they are available, i.e. not out on calls. The following general Policy shall be used and may be edited upon medical director approval:

Emergency Incident Rehabilitation

1. PURPOSE
To ensure that the physical and mental condition of members operating at the scene of an emergency or a training exercise does not deteriorate to a point that affects the safety of each member or that jeopardizes the safety and integrity of the operation.

2. SCOPE.
This procedure shall apply to all emergency operations and training exercises where strenuous physical activity or exposure to heat or cold exists.

3. RESPONSIBILITIES.
   Incident Commander. The Incident Commander shall consider the circumstances of each incident and make adequate provisions early in the incident for the rest and rehabilitation for all members operating at the scene. These provisions shall include: medical evaluation, treatment and monitoring; food and fluid replenishment; mental rest; and relief from extreme climatic conditions and the other environmental parameters of the incident. The rehabilitation shall include the provision of Emergency Medical Services (EMS) at the Basic Life Support (BLS) level or higher.

   Personnel. During periods of hot weather, members shall be encouraged to drink water and activity beverages throughout the workday. During any emergency incident or training evolution, all members shall advise their supervisor when they believe that their level of fatigue or exposure to heat or cold is approaching a level that could affect themselves, their crew, or the operation in which they are involved. Members shall also remain aware of the health and safety of other members of their crew.

4. ESTABLISHMENT OF REHABILITATION AREA.
   Responsibility. The Incident Commander will establish a Rehabilitation Area when conditions indicate that rest and rehabilitation is needed for personnel operating at an incident scene or training evolution. An Iowa County EMS Staff member will be placed in charge of the sector and shall be known as the Rehab Officer. The Rehab Officer will typically report to the Logistics Officer in the framework of the incident management system. If no Logistics Officer then report to Incident Commander

   Location. The Incident Commander will normally designate the location for the Rehabilitation Area. If a specific location has not been designated, the Rehab Officer shall select an appropriate location based on the site characteristics and designations below

   Site Characteristics.
   (1) It should be in a location that will provide physical rest by allowing the body to recuperate from the demands and hazards of the emergency operation or training evolution.
(2) It should be far enough away from the scene that members may safely remove their turnout gear and SCBA and be afforded mental rest from the stress and pressure of the emergency operation or training evolution.

(3) It should provide suitable protection from the prevailing environmental conditions. During hot weather, it should be in a cool, shaded area. During cold weather, it should be in a warm, dry area.

(4) It should enable members to be free of exhaust fumes from apparatus, vehicles, or equipment (including those involved in the Rehabilitation Operations).

(5) It should be large enough to accommodate multiple crews, based on the size of the incident.

(6) It should be easily accessible by EMS units.

(7) It should allow prompt reentry back into the emergency operation upon complete recuperation.

**Site Designation.**

(1) A nearby garage, building lobby, or other structure.

(2) Several floors below a fire in a high rise building.

(3) A school bus, municipal bus, or bookmobile.

(4) Fire apparatus, ambulance, or other emergency vehicles at the scene or called to the scene.

(5) Retired fire apparatus or surplus government vehicle that has been renovated as a Rehabilitation Unit. (This unit could respond by request or be dispatched during certain weather conditions.)

(6) An open area in which a rehab Area can be created using tarps, fans, etc.

**Resources.**

The Rehab Officer shall secure all necessary resources required to adequately staff and supply the Rehabilitation Area. The supplies should include the items listed below:

(1) Fluids - water, activity beverage, oral electrolyte solutions and ice.

(2) Food - soup, broth, or stew in hot/cold cups.

(3) Medical - blood pressure cuffs, stethoscopes, oxygen administration devices, cardiac monitors, intravenous solutions and thermometers.”

(4) Other - awnings, fans, tarps, smoke ejectors, heaters, dry clothing, extra equipment, floodlights, blankets and towels, traffic cones and fire line tape (to identify the entrance and exit of the Rehabilitation Area).

5. **GUIDELINES.**

a. **Rehabilitation Area Establishment.**

Rehabilitation should be considered by staff officers during the initial planning stages of an emergency response. However, the climatic or environmental conditions of the emergency scene should not be the sole justification for establishing a Rehabilitation Area. Any activity/incident that is large in size, long in duration, and/or labor intensive will rapidly deplete the energy and strength of personnel and therefore merits consideration for rehabilitation. Climatic or environmental conditions that indicate the need to establish a Rehabilitation Area are a heat stress index above 90 F (see table 1-1) or wind chill index below 10F (see table 1-2).
b. **Hydration.**

A critical factor in the prevention of heat injury is the maintenance of water and electrolytes. Water must be replaced during exercise periods and at emergency incidents. During heat stress, the member should consume at least one quart of water per hour. The re-hydration solution should be a 50/50 mixture of water and a commercially prepared activity beverage and administered at about 40 F. Re-hydration is important even during cold weather operations where, despite the outside temperature, heat stress may occur during firefighting or other strenuous activity when protective equipment is worn. Alcohol and caffeine beverages should be avoided before and during heat stress because both interfere with the body’s water conservation mechanisms. Carbonated beverages should also be avoided.

c. **Nourishment.**

The department shall provide food at the scene of an extended incident when units are engaged for three or more hours. A cup of soup, broth, or stew is highly recommended because it is digested much faster than sandwiches and fastfood products. In addition, foods such as apples, oranges, and bananas provide supplemental forms of energy replacement. Fatty and/or salty foods should be avoided.

d. **Rest.**

The “two air bottle rule,” or 45 minutes of work-time, is recommended as an acceptable level prior to mandatory rehabilitation. Members shall re-hydrate (at least eight ounces) while SCBA cylinders are being changed. Firefighters having worked for two full 30-minute rated bottles, or 45 minutes, shall be immediately placed in the Rehabilitation Area for rest and evaluation. In all cases, the objective evaluation of a member’s fatigue level shall be the criteria for rehab time. Rest shall not be less than ten minutes and may exceed an hour as determined by the Rehab Officer. Fresh crews, or crews released from the Rehabilitation Area, shall be available in the Staging Area to ensure that fatigued members are not required to return to duty before they are rested, evaluated, and released by the Rehab Officer.

e. **Recovery.**

5. Members in the Rehabilitation Area should maintain a high level of hydration. Members should not be moved from a hot environment directly into an air conditioned area because the body’s cooling system can shut down in response to the external cooling. An air conditioned environment is acceptable after a cool-down period at ambient temperature with sufficient air movement. Certain drugs impair the body’s ability to sweat and extreme caution must be exercised if the member has taken antihistamines, such as Actifed or Benadryl, or has taken diuretics or stimulants.

f. **Medical Evaluation.**

1. Emergency Medical Services (EMS) shall evaluate vital signs, examine members, and make proper disposition (return to duty, continued rehabilitation, or medical treatment and transport to medical facility). Continued rehabilitation should consist of additional monitoring of vital signs, providing rest, and providing fluids for rehydration. Medical treatment for members whose signs and/or symptoms indicate potential problems, should be provided in accordance with medical control procedures. EMS personnel shall be assertive in an effort to find potential medical problems early.

2. Heart Rate and Temperature-The heart rate should be measured for 30 seconds as early as possible in the rest period. If a member’s heart rate exceeds 110 beats per minute, an oral temperature should be taken. If the member’s temperature exceeds 100.6F, he/she should not be permitted to wear protective equipment. If it is below 100.6 F and the heart rate remains above 110 beats per minute, rehabilitation time should be increased. If the heart rate is less than 110 beats per minute, the chance of heat stress is negligible. (3) Documentation-All medical evaluations shall be recorded on standard forms along with the member’s name and complaints. The EMS Rehab Log will be submitted to the Fire Chief/Incident Commander.
APPENDIX Q

Special Event Guidelines

**Purpose:** To provide some guidance for EMS providers when providing on site medical coverage for special events such as recreational events and community celebrations.

If emergency treatment is needed or requested an ambulance should be requested immediately if not already present.

If the EMS provider feels a patient needs treatment at a hospital or treated/transported by ambulance and the patient refuses; a patient refusal form and patient care report needs to be completed.

**Assessment:** The EMS provider shall assess the patient as the patient condition indicates and to the EMS provider’s level of training. All patients exhibiting changes in mental status or abnormal vital signs shall have a Paramedic assessment and/or ambulance requested.

**First Aid Treatment:** Only treatment that could be performed by a person with minimal medical training such as a First Aid Training.

**First Aid Supplies:** Only supplies and medications that could be obtained over the counter or in a basic first aid kit.

**First Aid Log:** When possible first aid treatment shall be documented in a First Aid Log to include patients’ name, address, complaint, vital signs, treatment, and disposition.

**OTC Medications:** At certain special events we may have OTC medications available. These shall be documented in the First Aid OTC Log. We are only providing these as a courtesy and shall not assist the patient with administration when providing First Aid.

**Patient Care Reports and Dispatch #’s:** Anytime a patient refusal is necessary or ambulance transport is required a complete PCR shall be completed and assigned a Dispatch #.

**Special Event Reports:** A Special Event Report should be completed following each event and submitted to the EMS Director. The report should include at a minimum: EMS Service, EMS and First Aid providers, number of patients including complaints & treatments or attach log, supplies used, date of event, location of event, and time event started/ended.
ACTIVATED CHARCOAL

MECHANISMS OF ACTION
Activated Charcoal is a fine black powder with a large surface area. It binds and absorbs ingested toxins still present in the gastrointestinal tract following emesis. Once bound to the activated charcoal, the combined complex is excreted.

THERAPEUTIC EFFECTS
Onset immediate upon contact. Peak and duration not applicable because drug is not absorbed.

INDICATIONS
Activated Charcoal is indicated in poisoning (following emesis or in cases where emesis may be contraindicated).

CONTRAINDICATIONS
There are no major contraindications to the use of activated charcoal in severe poisoning, unless the airway cannot be adequately controlled.

ADVERSE REACTIONS
GI: black stools, nausea, constipation. Activated Charcoal should only be administered either after emesis has been induced with Syrup of Ipecac or in those cases in which emesis is contraindicated.

DOSAGE AND ADMINISTRATION
The standard dosage in the management of poisoning is two tablespoons (50 grams) mixed with a glass of water. This is then administered orally or through a nasogastric tube. Activated Charcoal should only be administered orally in a slurry solution made with water.
ADENOSINE

MECHANISMS OF ACTION
ADENOSINE is a natural occurring nucleoside. In the heart it acts on the AV NODE to slow conduction and inhibits reentry pathways, it is also helpful in treatment of PSVT.

THERAPEUTIC EFFECTS
May cause conversion of PSVT to SINUS RHYTHM.

INDICATIONS
Use in Stable PSVT to convert to SINUS RHYTHM, or use as a trial dose prior to synchronized cardioversion in UNSTABLE PSVT.

CONTRAINDICATIONS
In patient with ATRIAL FLUTTER, ATRIAL FIBRILLATION AND VENTRICULAR TACHYCARDIA. Should not be used in patient with 2ND and 3RD HEART BLOCK and patients who are allergic to the drug.

ADVERSE REACTIONS
Can cause blurred vision; numbness and tingling in arms; headache; hypotension; palpitations; sweating; nausea; shortness of breath and hyperventilation.

DOSAGE AND ADMINISTRATION
INITIAL DOSE - 6 MG RAPID IV PUSH OVER 1-2 SECONDS FOLLOWED IMMEDIATELY BY RAPID NORMAL SALINE BOLUS. If tachyarythmia not eliminated in 1-2 minutes, REPEAT AT 12 MG RAPID IV PUSH OVER 1-2 SECONDS.
ALBUTEROL
Proventil

MECHANISMS OF ACTION
Relaxes bronchial and smooth muscle by acting on beta adrenergic receptor.

INDICATIONS
Prevention and treatment of bronchospasm in patients with reversible obstructive airway.

CONTRAINDICATIONS
Should not be used in patients with cardiovascular disorders, patients with hypertension and hyperthyroidism.

ADVERSE REACTIONS
May cause tremor, dizziness, headache, tachycardia, hypertension, nausea, vomiting and muscle cramps.

DOSAGE AND ADMINISTRATION
Premixed PROVENTIL/NS 3 ml unit dose. Nebulizer treatment with 8 l/m oxygen times 8 minutes.

Unconscious patient 3 ml unit dose. Mechanical ventilation of nebulizer treatment with 8 l/m oxygen for 8 minutes with bag valve at 10 – 15 l/m via endotracheal tube.
**AMIODARONE**
(Cordarone)

**MECHANISMS OF ACTION**

Considered class III antiarrhythmic, but possessed characteristics of all classes, thought to prolong the refractory period and action potential duration.

**THERAPEUTIC EFFECTS**

Inhibits abnormal automaticity, increases refractory period in all conduction system, anti-anginal effects.

Atrial effects: slow sinus node rate and atrioventricular node conduction.

Ventricular effects: Prolongs QT interval and QRS duration and has Peripheral vascular dilation.

**INDICATIONS**

**AMIODARONE** is indicated for recurrent v-fib, recurrent hemodynamically unstable v-tach. Refractory to other antiarrhythmics.

**CONTRAINDICATIONS**

AMIODARONE is contraindicated in patients with hypersensitivity to drug and in those with severe SA node disease resulting in preexisting bradycardia. Unless artificial pacemaker is present, drug is also contraindicated in patients with cardiogenic shock or 2\(^{nd}\) or 3\(^{rd}\) degree A\(v\) blocks and in those in whom bradycardia has caused syncope.

**ADVERSE REACTIONS**

Hypotension, usually rate related, PR and QT intervals prolongation, bradycardia, and AV block. GI disturbance, constipation.

**DOSAGE AND ADMINISTRATION**

Arrest; Pulseless VT/VF 300mg IVP; Repeat once at 150 mg IVP in 3-5 minutes to total dosage of 2200 mg /24hr period, as indicated per AHA guidelines.

Supplemental dose: 150mg/100ml of D5w or normal saline over 10 minutes as needed for recurrent VT with pulses or within AHA guidelines.
ATROPINE SULFATE

MECHANISMS OF ACTION

ATROPINE SULFATE is an anti-cholenergic drug. ATROPINE produces stimulation of the medulla and higher cerebral centers manifested by mild central vagal excitation and moderate respiratory stimulation.

THERAPEUTIC EFFECTS

1. ATROPINE has two actions: The most important therapeutic action is the inhibition of smooth muscle and glands innervated by postganglionic cholenergic nerves. ATROPINE also has central nervous system activity, which may be stimulating or depressing depending on the dose.
2. It acts peripherally as a competitive antagonist of acetylcholine. These actions include: vasodilatation, drying of the mouth, increased pulse rate, inhibition of contractions of the gastrointestinal tract, ureter, and bladder, and reduction of salivary, bronchial, gastric, and sweat gland secretions. With larger doses: dilation of pupils and increased intraocular pressure.

INDICATIONS

ATROPINE is useful in the treatment of severe sinus bradycardia that is accompanied by hemodynamically significant hypotension or that is likely to impair coronary blood flow and/or when accompanied by frequent ventricular ectopic beats. ATROPINE is also indicated in poisoning by organic phosphate cholinesterase inhibitors found in certain insecticides.

CONTRAINDICATIONS

ATROPINE is contraindicated for use in patients with glaucoma and asthma. It has been suggested that ATROPINE be used with caution in Type II AV block and New 3rd Degree AV block.

DOSAGE AND ADMINISTRATION

0.5 mg IV max 3mg for adult bradycardia. Contact medical control for organic phosphate dosing.
BABY ASPIRIN

MECHANISMS OF ACTION AND THERAPEUTIC EFFECT
Prevention of Transient Ischemia Attacks by effectively inhibiting platelet aggregation.

INDICATIONS
Aspirin is indicated to prevent Myocardial Infarction with unstable angina pectoris and to prevent recurrence of myocardial infarction with history of Myocardial Infarction.

CONTRAINDICATIONS
Do not use in patients with history of severe sensitivity to aspirin, nasal polyps, asthma, GI bleed, children less than 12 years, children with fever or flu like s/s, pregnancy, lactation Vitamin K deficiency, peptic ulcer.

ADVERSE REACTIONS
Potential side effects are allergic reaction, increased bleeding, and gastrointestinal toxicity.

DOSAGE AND ADMINISTRATION
4 x 81 mg tablets (total 324 mg). Chew and swallow. Dose may be reduced if patient has already taken ASA in the past 12 hours so long as patient receives a total of 324mg.
**BENADRYL**  
(Diphenhydramine)

**MECHANISMS OF ACTION AND THERAPEUTIC EFFECTS**

Competes with histamine for H (1) receptor sites on the effector cells. Prevents but does not reverse histamine mediated responses particularly histamine’s effects on smooth muscle of the bronchial tubes. Also suppresses the cough reflex by a direct effect in the medulla of the brain.

**INDICATIONS**

**BENADRYL** can be used for allergy symptoms, anaphylactic shock, motion sickness.

**CONTRAINDICATIONS**

**BENADRYL** is contraindicated in acute asthmatic attacks. Should be used with caution in patient with glaucoma, prostatic hypertrophy, newborns, hypertensive, or cardiac patients.

**ADVERSE REACTIONS**

**BENADRYL** may cause drowsiness, confusion, insomnia, headache, vertigo, palpitations, photosensitivity, nasal stuffiness, dry mouth, nausea and/or vomiting, urine retention, uticaria, diarrhea, constipation.

**DOSAGE AND ADMINISTRATION**

In anaphylactic shock in adults the dosage is 25-50 mg IM in the deltoid or IV. In children under the age of 12, the dosage is 1 mg/kg in the deltoid.
DEXTROSE 50%

MECHANISMS OF ACTION AND THERAPEUTIC EFFECTS
Dextrose 50% restores circulating blood sugar level toward normal in states of hypoglycemia.

INDICATIONS
Dextrose 50% is indicated in treatment of: Coma due hypoglycemia, coma due to unknown etiology, to treat status epilepticus of uncertain etiology, and in conjunction with other medications.
Dextrose 50% may also be indicated during cardiac arrest, and known or suspected CVA’s.

CONTRAINDICATIONS
Dextrose is contraindicated for treatment of known diabetic ketoacidosis.
Otherwise, none for field use.

ADVERSE REACTIONS
None for field use.

DOSAGE AND ADMINISTRATION
Dextrose (D50) is supplied in 50 ml syringes containing 25 gm of Dextrose. 12.5gm-25gm given IV push.
DOPAMINE
(Intropin)

MECHANISM OF ACTION
Exerts an inotropic effect on the myocardium resulting in an increased cardiac output.

THERAPEUTIC EFFECTS
Increases systolic and pulse pressure. Blood flow to peripheral vascular beds may decrease while mesenteric flow increases and it has been reported to dilate renal vasculature therefore increasing renal blood flow, sodium excretion, and urinary output.

INDICATIONS
DOPAMINE is indicated for the correction of hemodynamic imbalances present in the shock syndrome due to: myocardial infarctions, trauma, endotoxic septicemia, renal failure, and chronic cardiac decompensation as in congestive heart failure. Where appropriate, restoration of blood volume should be instituted prior to administration of DOPAMINE.

CONTRAINDICATIONS
DOPAMINE is contraindicated for use in patients with known pheochromocytoma.
DOPAMINE should not be administered in the presence of uncorrected tachy-arrhythmia or ventricular fibrillation, and has not been proven safe for use in pregnancy unless in the judgment of the physician where the potential benefits outweigh the possible hazards.

ADVERSE REACTIONS
The most frequent adverse reactions observed include ectopic beats, nausea, vomiting, tachycardia, angina, palpitations, dyspnea, headache, hypotension, and vasoconstriction. Other reactions reported infrequently include aberrant conduction, bradycardia, widened QRS complexes, and elevated blood pressure.

DOSAGE AND ADMINISTRATION
WARNING: DOPAMINE is a potent drug and must be diluted prior to administration.
DOPAMINE should be infused into a large vein whenever possible to prevent possible extravasation into the tissue. Extravasation may cause necrosis and sloughing to surrounding tissue. DO NOT add DOPAMINE to 5% Sodium Bicarbonate or other alkaline intravenous solutions.

See DOPAMINE Dosage Schedule on next page.
DOPAMINE DOSAGE SCHEDULE

**DOPAMINE** 400 mg in 250 cc D5W (concentration of 1600 mcg/ml). The usual dose range is 10 mcg/kg/min. The calculated rate of administration is based on a minimum of 0.75 x wt (kg) = ml/hour (ugtts/min).

<table>
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<th>Patients weight (lbs)</th>
<th>Rate-gtts/min (60 uggts/ml)</th>
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All rate calculations are rounded to the nearest full number.
**DuoNeb**  
(*Ipratropium Bromide 0.5mg & Albuterol Sulfate 3mg*)

**MECHANISMS OF ACTION**

Ipratropium Bromide & Albuterol Sulfate inhalation solution is expected to maximize the response to treatment in patients with COPD by reducing bronchospasm through two distinctively different mechanisms. Simultaneous administration of both these medications is designed to produce greater bronchodilation effects than when either drug is utilized alone.

**INDICATIONS**

Bronchospasm associated with Asthma, Chronic Bronchitis, COPD and Emphysema.

**CONTRAINDICATIONS**

Should not be used in patients with history of hypersensitivity to the drug or to Atropine and its derivatives.

**ADVERSE REACTIONS**

May cause anxiety, dizziness, headache, hypertension, nervousness, palpations, temporary vision changes.

**DOSAGE AND ADMINISTRATION**

Ipratropium Bromide 0.5mg & Albuterol 3mg in 3ml placed in small volume nebulizer over 8LPM O2
EPINEPHRINE

MECHANISM OF ACTION
Indigenous catecholamine with alpha and beta receptor stimulating actions. Usefulness in cardiac arrest with the following cardiovascular responses expected from dosages used during resuscitation.
  o Increased heart rate.
  o Increased myocardial contractile force.
  o Increased systemic vascular resistance.
  o Increased arterial blood pressure.
  o Increased myocardial oxygen consumption.
  o Increased automaticity.

THERAPEUTIC EFFECTS
CARDIAC ARREST
Clinically, EPINEPHRINE elevates perfusion pressure generated during chest compression, improves myocardial contractile state, and stimulates spontaneous contraction (eg. in ventricular stand still). Converts fine, low amplitude fibrillation to coarse, higher amplitude activity more susceptible to countershock.

ANAPHYLAXIS & ASTHMA
Acts chiefly as a bronchodilator through beta action and maintains blood pressure through alpha effects.

INDICATIONS
In cardiac arrest, to restore electrical activity in asystole, and to enhance defibrillation in Ventricular Fibrillation. Also to increase perfusion pressure in cardiac arrest. In pulseless idioventricular rhythms and other forms of electro mechanical uncoupling. EPINEPHRINE may, in some instances, restore sufficient contractile force to generate a pulse and blood pressure. To treat life-threatening symptoms of anaphylaxis. To treat acute asthmatic attacks.

CONTRAINDICATIONS
Used with extreme caution in patients with angina, hypertension, hyperthyroidism. EPINEPHRINE should not be added directly to a sodium bicarbonate solution. No contraindications in cardiac arrest or anaphylactic shock.

ADVERSE REACTIONS
In a conscious patient, may cause palpitations from tachycardia or ectopic beats and elevation of blood pressure (may not be desirable if patient is already hypertensive). The asthmatic with pre-existing heart disease may experience dysrhythmias on treatment with EPINEPHRINE.
EPINEPHRINE (cont.)

DOSAGE AND ADMINISTRATION

CARDIAC ARREST IN ADULTS: 1mg every 3-5 minutes

ANAPHYLACTIC REACTION: 0.3-0.5mg IM Adults

EPINEPHRINE DRIP

MECHANISM OF ACTION
EPINEPHRINE stimulates alpha and beta adrenergic receptors, cardiac stimulation.

INDICATIONS
To be administered if serious signs/symptoms persist in Bradycardia.

CONTRAINDICATIONS
Use with extreme caution in patients with angina, hypertension and hyperthyroidism.

ADVERSE REACTION
May cause palpitation from tachycardia or ectopic beats; increase blood pressure. Also may worsen effects of Parkinson’s Disease because the drug temporarily increases rigidity or tremors.

PREPARATION
MIX 4 MG OF 1:1000 IN A 1000 ML BAG OF NORMAL SALINE UTILIZE A 60GTT DRIP SET.

ADMINISTRATION

INFUSE AT 1-4 MEG/MIN

1 MEG/MIN = 15 GTT 
2 MEG/MIN = 30 GTT 
3 MEG/MIN = 45 GTT 
4 MEG/MIN = 60 GTT
**FENTANYL**
(Sublimaze)

**MECHANISMS OF ACTION**
Synthetic, potent narcotic agonist analgesic with actions similar to morphine but much more potent and less prolonged. Less emetic and vasodilator effects than with morphine. Binds with opiate receptors at many sites in the CNS, altering both perception of and emotional response to pain through an unknown mechanism.

**THERAPEUTIC EFFECTS**
Fentanyl inhibits pain pathways in the central nervous center and increases the pain threshold in people. It also alters the pain perception.

**INDICATIONS**
FENTANYL is used for pain control it is 10 times stronger than morphine, also used for sedation during intubations.

**CONTRAINdications**
Contraindicated in patients who have received MAO inhibitors within 14 days. Also in those with myasthenia gravis. Use cautiously in head injury, increased cerebrospinal fluid pressure, asthma, chronic obstructive pulmonary disease, respiratory depression, alcoholism, CNS depression, and shock.

**ADVERSE REACTIONS**
Reactions can be heavy sedation, nausea, respiratory depression, miosis, and hypotension. Rapid administration may result in chest wall rigidity that will not respond to neuromuscular blockage. There also can be dizziness, delirium, euphoria, and blurred vision.

**DOSAGE AND ADMINISTRATION**
Adult dosage 25-50 mcg to a total of 200mcg IVP slow. Also can be given IM at 50-100 mcg.

25mcq of Fentanyl is about the equivalent of 2.5mg of Morphine. Effects of Fentanyl typically wear off in about 30 minutes making it ideal for the pre-hospital setting.

In the event of acute adverse reactions, Fentanyl effects can be reversed with **NARCAN**
GLUCOSE PASTE

MECHANISM OF ACTION AND THERAPEUTIC EFFECTS
Glucose paste when smeared across the buccal mucosa will reverse the signs and symptoms related to hypoglycemia.

INDICATIONS
Indicated for the hypoglycemic patient when patient is conscious, comatose, stuporous, or having seizures and when an IV cannot be started.

CONTRAINDICATIONS
Contraindicated in confirmed diabetic ketoacidosis.

ADVERSE REACTIONS
None in the field. Caution should be used to maintain a patent airway when using glucose paste in stuporous, comatose, or seizure patient.

DOSAGE AND ADMINISTRATION
If unable to start IV, administer 1 Single Dose tube to buccal mucosa of patient’s cheek.
GLUCAGON

MECHANISM OF ACTION AND THERAPEUTIC EFFECTS

GLUCAGON raises blood glucose levels by promoting catalytic depolymerization of hepatic glycogen to glucose.

INDICATIONS

GLUCAGON can be used in patients with hypoglycemia.

CONTRAINDICATIONS

GLUCAGON is contraindicated in patients with hypersensitivity to GLUCAGON or patients with pheochromytemo.

ADVERSE REACTIONS

GLUCAGON may cause hypotension, nausea, vomiting, respiratory distress, hypersensitivity reaction (Bronchospasm), rash, dizziness, light-headedness.

DOSAGE AND ADMINISTRATION

In Hypoglycemia, 1 mg s.c. or IM for adults and children weighing more than 20 kg. For children weighing less than 20 kg, give 0.5 mg s.c. or IM.
KETAMINE

MECHANISM OF ACTION AND THERAPEUTIC EFFECTS
Nonbarbituate Anesthetic. Central Nervous System Agent. Chemical restraint for psychotic and/or combative patients. Medication assisted intubation. Pain control. Onset IV, 30-60 seconds. IM, up to 4 minutes. Duration, IV 5-10 minutes. IM, 12-25 minutes.

INDICATIONS
Agitation/combativeness, Pain Management, Medication Assisted Intubation.

CONTRAINDICATIONS
Conditions where significant elevations in blood pressure would be a serious hazard. Known allergies to the drug.

PRECAUTIONS
Hypertension, cardiac decompensation, alcohol intoxication, use of multiple analgesic agents.

ADVERSE REACTIONS
Bradyarrhythmia, Cardiac Dysrhythmia, Hypertension, Hypotension, Tachycardia, Malignant Hyperthermia, Excessive Salivation, Nausea, Vomiting, Muscle Spasms, Emergence Phenomenon, Increased Intracranial Pressure, Diplopia, Nystagmus, Apnea, Laryngeal Spasm, Pulmonary Edema and Respiratory Depression.

DOSAGE AND ADMINISTRATION
Agitation/Combative 1-4mg/kg IM or 1.5/kg IV/IO
Medication Assisted Intubation 1-2 mg/kg IV/IO
Pain Management 0.1mg/kg IV/IO may repeat 1 time.
**Magnesium Sulfate**

**MECHANISMS OF ACTION**
Smooth muscle relaxant

**THERAPEUTIC EFFECTS**
Onset immediate. Peak 1-2 min, duration 30 min.

**INDICATIONS**
Acute respiratory distress/bronchospasm refractory to inhalation therapy

**CONTRAINDICATIONS**
Heart blocks, symptomatic bradycardia and hypotension. Maintain urine output >25mlhr.

**ADVERSE REACTIONS**
Magnesium is a potent CNS depressant. Observe for LOC, respirations, BP, ECG, Loss of deep tendon reflexes, hypotension, N/V and flushing. Watch ECG for signs of hypocalcemia.

**DOSAGE AND ADMINISTRATION**
2 G in 100Ml over 20 min
MORPHINE

MECHANISMS OF ACTION

Analgesic action of pain accompanying myocardial infarction. Hemodynamic action through an action on central nervous system by a sympatholytic mechanism.

THERAPEUTIC EFFECTS

It increases venous capacitance, thereby pooling peripherally and decreasing venous return. This helps to relieve pulmonary congestion and reducing left ventricular and diastolic dimensions and wall stress, which results in decreased myocardial oxygen requirement. It also reduces systemic vascular resistance at the arteriolar level which also tends to decrease myocardial oxygen consumption.

INDICATIONS

Its hemodynamic actions along with its analgesic and sedative effects are of considerable usefulness in both acute myocardial infarction and acute pulmonary edema.

CONTRAINDICATIONS

Do not administer in patients with low blood pressure due to its hemodynamic effect, except patients with acute pulmonary edema. Also morphine, like other narcotic analgesics, is a respiratory depressant. So caution must be used in patients with difficulty in breathing.

DOSAGE ADMINISTRATION

2 - 4mg slow IV push to a Max of 10mg Titrate to effect.

In the event of acute adverse reactions, morphine effects can be reversed with NARCAN.
NARCAN
(Naloxone)

MECHANISMS OF ACTION

NARCAN is essentially a pure narcotic antagonist. It does not produce respiratory depression or pupillary constriction. In the absence of narcotics, it exhibits essentially no pharmacologic activity.

THERAPEUTIC EFFECT

In the presence of physical dependence on narcotics, NARCAN will produce withdrawal symptoms. When administered intravenously, the onset of action is generally apparent within two minutes. The requirement for repeated doses of NARCAN will be dependent upon the amount, type, and route of administration.

INDICATIONS

NARCAN is indicated for the complete or partial reversal of narcotic depression, including respiratory depression induced by opioids. It is also indicated for suspected acute opioid overdose in the comatose patient.

CONTRAINDICATIONS

NARCAN is contraindicated in patients known to be hypersensitive to NARCAN.

ADVERSE REACTIONS

Abrupt reversal of narcotic depression may result in nausea, vomiting, sweating, tachycardia, increased blood pressure, and tremulousness. In some cardiac patients, the resultant hypertension and tachycardia may result in left ventricular failure and pulmonary edema. In addition to NARCAN, other resuscitative measures, such as maintenance of airway, artificial ventilation, and vasopressor agents should be available and employed when necessary.

DOSAGE AND ADMINISTRATION

The initial adult dose is 0.4mg-2.0 mg (1 ml) of NARCAN administered IV push slowly over one minute or until respirations improve. If no results, repeat immediately. If unable to obtain an intravenous line, NARCAN may be given intramuscular or intranasally. NARCAN may be repeated to maintain adequate respirations as needed.
NITROGLYCERIN

MECHANISMS OF ACTION AND THERAPEUTIC EFFECT

Reduces cardiac oxygen demand by decreasing left ventricular and diastolic pressure (preload) and, to a lesser extent, systemic vascular resistance (afterload). Also increases blood flow through the collateral coronary vessels.

INDICATIONS

NITROGLYCERIN is useful in the treatment of acute situations of angina pectoris. It is also used to treat acute hypertension and CHF associated with myocardial infarction.

CONTRAINDICATIONS

NITROGLYCERIN is contraindicated if hypersensitivity to nitrates, head trauma, cerebral hemorrhage, hypertrophic cardiomyopathy, or severe anemia. Use with caution in hypotension.

ADVERSE REACTIONS

NITROGLYCERIN may cause headache, sometimes with throbbing, dizziness, weakness, orthostatic hypotension, tachycardia, flushing, palpitations, fainting, nausea, vomiting, cutaneous vasodilatation, sublingual burning, and hypersensitivity reactions.

DOSAGE AND ADMINISTRATION

0.4 mg sublingual tablet or metered spray repeated every 5 minutes up to 3 doses or as ordered by medical control.

WATCH BLOOD PRESSURE CAREFULLY!!!
**SOLU-MEDROL**

**MECHANISMS OF ACTION**
Corticosteroid

**THERAPEUTIC EFFECTS**
Onset 2-5 min, peak effect <1 hr, Duration 12-24 hrs

**INDICATIONS**
Acute bronchospasm, status asthmaticus

**CONTRAINDICATIONS**
Viral/fungal/tubercular skin lesions, admin of live virus vaccinations and serious infections (except sepsis). Use Caution in patients with hyperthyroidism, cirrhosis, ulcerative colitis, HTN, Osteoporosis, CHF, HTN, seizures, myasthenia gravis, thrombophlebitis, peptic ulcer or diabetes.

**ADVERSE REACTIONS**
This dosing is for acute status asthmaticus/acute bronchospasm, not for spinal injury, or anti-inflammatory regiments.

**DOSAGE AND ADMINISTRATION**
Adult: 2mg/kg IVP loading dose
Peds: see adult dosing
**VALIUM**  
(Diazepam)

**MECHANISMS OF ACTION**

Diazepam is a benzodiazepine derivative. In animals, it appears to act on parts of the limbic system, the thalamus, and hypothalamus and induces calming effects.

**THERAPEUTIC EFFECTS**

Diazepam has no demonstratable peripheral autonomic blocking action, nor does it produce extrapyramidal side effects. It was found to have transient cardiovascular depressor effects in dogs.

**INDICATIONS**

**VALIUM** is indicated for the management of anxiety disorders or for the short term relief of the symptoms of anxiety. Injectable **VALIUM** is a useful adjunct in status epilepticus and severe recurrent convulsive seizures. It is also a useful premedication for relief of anxiety and tension in patients prior to cardioversion and to diminish the patient’s recall of the procedure.

**CONTRAINDICATIONS**

Injectable **VALIUM** is contraindicated in patients with a known hypersensitivity to the drug and patients with acute narrow angle glaucoma. **VALIUM** is not recommended for use in pregnant or possibly pregnant women. Injectable **VALIUM** should not be administered to patients in shock, coma, or in acute alcoholic intoxication with depressed vital signs.

**ADVERSE REACTIONS**

Side effects most commonly reported are drowsiness, fatigue and ataxia, venous thrombosis and phlebitis at IV site. Other reactions less commonly reported include confusion, depression, headache, slurred speech, syncope, tremor, vertigo, bradycardia, cardiovascular collapse, hiccups, change in salivation, minor changes in EKG. Injectable **VALIUM** to the elderly, to the very ill patient, and to those with limited pulmonary reserve should be used with extreme care due to the increased risk of apnea and/or cardiac arrest. Resuscitation equipment should be readily available.

**DOSAGE AND ADMINISTRATION**

When used intravenously: to reduce the possibility of venous thrombosis, phlebitis, local irritation, swelling - the solution should be injected slowly, taking at least 1 minute for each 5 mg (1 ml) given.

DO NOT use small veins such as those on the dorsum of hand or wrist. DO NOT mix or dilute **VALIUM** with other solutions or drugs. If is not feasible to administer **VALIUM** direct IV, it may be injected slowly through the infusion tubing as close as possible to the vein insertion. The usual recommended dose is 2-20 mg IM, IN, or IV.
VERSED
(Midazolam)

MECHANISMS OF ACTION AND THERAPEUTIC EFFECT
VERSED is a short acting benzodiazepine CNS depressant. The effects of VERSED on the CNS are dependent on the dose administered, the route and the presence or absence of other pre-medications. Provides sedation without loss of consciousness and also provides relief of anxiety and partial or complete impairment of recall within 1-5 minutes of IV administration and generally persists for 20-40 minutes after IV injection of a single dose.

INDICATIONS
Conscious sedation and reduction of anxiety
Diminish recall of events associated with certain procedures. IE External Cardiac Pacing, Electrical Cardioversion, conscious intubations, etc.

CONTRAINDICATIONS
Known Hypersensitivity to benzodiazepines or specifically VERSED.
Pregnancy, acute alcohol intoxication, shock and coma.
Acute narrow angle glaucoma
Use with caution in Elderly, patients with renal impairment and CHF.

ADVERSE REACTIONS
Decreased total lung volume and or respiratory rate and apnea
Variations in Blood Pressure and heart rate
Cardio/Respiratory Arrest
Hiccoughs, nausea, vomiting, coughing, headache, drowsiness

DOSAGE AND ADMINISTRATION
For I.M. administration, Midazolam (VERSED) is injected into a large muscle mass.
For I.V. administration, Midazolam (VERSED) is injected in incremental doses. Intranasal administration is also accepted. For conscious sedation prior to short procedures (e.g., cardioversion). Administer slowly IV immediately before the procedure, 1mg, over 2 minutes to desired effect—DO NOT EXCEED 2.5 mg of VERSED AS AN INITIAL DOSE for procedural sedation.

Additional dosing, if necessary should be at 2-5 minute intervals. A total of 5mg of VERSED generally is adequate for conscious sedation in an average, healthy adult less than 60 years of age.
ZOFTRAN
(ondansetron)

MECHANISMS OF ACTION AND THERAPEUTIC EFFECT
A selective antagonist of a specific type of serotonin receptor which is located in the CNS that causes vomiting.

INDICATIONS
Nausea and vomiting. Motion sickness

CONTRAINDICATIONS
The only absolute contraindication is hypersensitivity. Patients taking medications like theophylline, phenytoin or warfarin should have their levels followed.

ADVERSE REACTIONS
Dizzy, transient blurred vision and drowsiness after administration.

DOSAGE AND ADMINISTRATION
Adults: 4mg IVP over 2 to 5 minutes – not less than 30 seconds. May repeat on medical control order only. It can also be administered 4mg IM.

Children 1- month to 12 years: 0.1mg/kg IVP over 2 to 5 minutes. It can also be administered 0.1mg/kg IM.