EMS System

Adult Pre-hospital Care Manual

January 2011
Updated November 2011 (Added ALS)
Updated August 2013
Updated March 2015
Updated Dec 2016
Updated Dec 2017
The format of the OSF Saint James Medical Center EMS System Pre-hospital Care Manuals has changed several times throughout the history of the System. The initial protocol manual was developed in spring of 1993. Changes in the national curriculums and our goal to be an aggressive EMS system have been the driving forces for past changes with our manual.

With the complexity of a tiered response system and with the growing demand that health care services are both effective and efficient, the format for providing medical direction and patient care guidelines were kept the same. The first section is the Adult Pre-hospital Care Manual and the second section is the Pediatric Pre-hospital Care Manual. The third section is the Procedure Manual. This manual has become the focal point for patient care for OSF Saint James Medical Center EMS System providers in the Pre-hospital setting.

The intent of this manual is to create a team approach to Pre-hospital care, resulting in optimum patient care that is both effective and efficient. The focus of this manual is on providing safe, well-planned care for the patients we serve as well as maintaining a safe environment for the Pre-hospital care provider. This manual is also meant to be used as a study guide and helpful reference when necessary.

All information contained herein is intended for use within the OSF Saint James EMS System. No other system’s protocols, policies, or procedures shall supersede the guidelines set forth in this manual or be utilized in place of this manual by a provider in the OSF Saint James EMS System without the approval of the EMS System Medical Director.
# Table of Contents

Levels of Prehospital Care .................................................................6  
Off-Line Medical Control, Standing Medical Orders & Protocols Policy ..........7  
On-Line Medical Control Policy ..........................................................8  
Radio Communications Procedure ......................................................12  
Patient Right of Refusal Policy ..........................................................13  

## General Patient Assessment & Management/EMS Operations ...............15
- General Patient Assessment & Initial Care Procedure ................................16
- Universal Patient Care Protocol ..........................................................19
- Pain Control Protocol ........................................................................21
- Oxygen Therapy Protocol ....................................................................24
- Basic Airway Control Procedure ........................................................26
- Airway Obstruction Procedure ............................................................28
- KING LTS-D Airway Procedure ...........................................................29
- Advanced Airway Control Policy (ILS & ALS only) ................................32
- Endotracheal Tube Introducer (Bougie) .................................................36
- Intravenous Cannulation Procedure ....................................................38
- Adult Intraosseous Cannulation Procedure (ALS only) ..........................41
- Medication Administration Procedure .................................................44

## Cardiac Care ......................................................................................48
- Universal Cardiac Care Protocol .........................................................49
- Cardiogenic Shock Protocol ..................................................................54
- Cardiac Arrest Protocol .........................................................................56
- High Performance CPR .........................................................................60
- Therapeutic Hypothermia ......................................................................61
- Resuscitation of Pulseless Rhythms Protocol .........................................62
- Termination of Resuscitation Protocol ..................................................69
- Unstable/Stable Bradycardia Protocol ...................................................70
- Narrow Complex Tachycardia Protocol ...............................................75
- Wide Complex Tachycardia Protocol ....................................................79
- Implantable Cardiac Defibrillator (AICD) Protocol ...............................83
- Manual Defibrillation Procedure .........................................................86
- Automated Defibrillation Procedure ....................................................87
- Transition of AED Care Procedure ......................................................89
- Cardioversion Procedure ......................................................................90
- Transcutaneous Pacing (TCP) Procedure ..............................................91
- 12-Lead EKG Procedure .....................................................................92
## Table of Contents

### Medical & Respiratory Protocols

- Respiratory Distress Protocol ................................................................. 93
- CPAP Procedure ....................................................................................... 94
- Altered Level of Consciousness (ALOC) Protocol ...................................... 96
- Suspected Stroke Protocol ......................................................................... 100
- Seizure Protocol ....................................................................................... 103
- Hypertensive Crisis Protocol ..................................................................... 106
- Acute Abdominal Pain Protocol ................................................................. 108
- Acute Nausea & Vomiting Protocol ......................................................... 111
- Sepsis Protocol ......................................................................................... 112
- Allergic Reaction / Anaphylaxis Protocol ............................................... 115
- Drug Overdose and Poisoning Protocol .................................................... 118
- Central Lines and Fistulas Procedure & Protocol ........................................ 121

### Environmental Emergencies Protocols

- Hazardous Materials Exposure Protocol .................................................. 130
- Hypothermic Emergencies Protocol ............................................................ 133
- Heat-Related Emergencies Protocol ............................................................ 139
- Burn Protocol ............................................................................................. 142
- Smoke Inhalation / Cyanide Poisoning Protocol ........................................ 145
- Near-Drowning Protocol ........................................................................... 148

### Trauma Protocols

- Universal Trauma Care Protocol .............................................................. 153
- Shock Protocol .......................................................................................... 157
- Head Trauma Protocol .............................................................................. 160
- Spinal Trauma Protocol ............................................................................ 164
- Spinal Care Guidelines ............................................................................. 167
- Spinal Assessment Procedure ................................................................. 170
- Spinal Motion Restriction Procedure ....................................................... 173
- Traumatic Arrest Protocol ........................................................................ 176
- Field Triage Scheme .................................................................................. 179
- Extremitry Injury Protocol ......................................................................... 182
- Crush Injury Protocol ................................................................................ 185
- Needle Thoracentesis (Needle Chest Decompression) Procedure ............. 188

### OB/GYN Protocols

- Childbirth Protocol .................................................................................. 195
- Obstetrical Complications Protocol .......................................................... 198
- Abnormal Delivery Protocol ...................................................................... 201
- Rape/Sexual Sexual Assault Protocol ....................................................... 204

### Aberrant Situations

- Domestic Abuse & Elder Abuse/Neglect Protocol ..................................... 209
- Behavioral Emergencies/Chemical Restraint Protocol ................................ 212
- Petitioning an Emotionally Disturbed Patient Policy .................................. 215
- Patient Restraint Policy ............................................................................ 218
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than Lethal Weapons Protocol</td>
<td>212</td>
</tr>
<tr>
<td>Withholding Resuscitation / Criteria for Death</td>
<td>221</td>
</tr>
<tr>
<td>Coroner Notification Policy</td>
<td>223</td>
</tr>
<tr>
<td>Reporting &amp; Control of Suspected Crime Scenes Policy</td>
<td>224</td>
</tr>
<tr>
<td><strong>Vehicle Supplies</strong></td>
<td></td>
</tr>
<tr>
<td>EMR Med List</td>
<td>225</td>
</tr>
<tr>
<td>BLS Medication List</td>
<td>225</td>
</tr>
<tr>
<td>ILS Medication List</td>
<td>226</td>
</tr>
<tr>
<td>ALS Medication List</td>
<td>227</td>
</tr>
<tr>
<td>Intranasal Fentanyl Dosing Chart</td>
<td>228</td>
</tr>
<tr>
<td>Intranasal Versed (Midazolam) Dosing Chart</td>
<td>229</td>
</tr>
</tbody>
</table>
Emergency Medical Responder (EMR) Service defines a preliminary level of pre-hospital emergency care as outlined in the Emergency Medical Responder National Curriculum of the National Highway Transportation Safety Administration and any modification to that curriculum specified in rules adopted by IDPH pursuant to the EMS Act. Emergency Medical Responder care includes: CPR, AED services, monitoring vital signs, administration of oxygen and bleeding control, splinting. FRS services may be enhanced with the administration of System-approved medications.

Basic Life Support (BLS) Services defines a level of pre-hospital and inter-hospital medical services as outlined in the Basic Life Support National Curriculum of the National Highway Transportation Safety Administration and any modification to that curriculum specified in rules adopted by IDPH pursuant to the EMS Act. BLS emergency and non-emergency care includes but is not limited to: Basic airway management, CPR, AED services, cardiac monitoring, 12 lead acquisition, control of shock & bleeding and splinting of fractures. BLS services may be enhanced with the administration of System-approved medications and the KING LTS-D Airway.

Intermediate Life Support (ILS) Services defines a level of pre-hospital and inter-hospital medical services as outlined in the Intermediate Life Support National Curriculum of the National Highway Transportation Safety Administration and any modifications to that curriculum specified in rules adopted by IDPH pursuant to the EMS Act. ILS emergency and non-emergency care includes but is not limited to: Basic life support care, intravenous fluid therapy, oral intubation, EKG interpretation, 12-lead acquisition, defibrillation procedures and administration of System-approved medications.

Advanced Life Support (ALS) Services defines a level of pre-hospital and inter-hospital medical services as outlined in the Paramedic Life Support National Curriculum of the National Highway Transportation Safety Administration and any modifications to that curriculum specified in the EMS Act. ALS emergency and non-emergency care includes but is not limited to: Basic and intermediate life support care, ACLS electrocardiography and resuscitation techniques, administration of medications, drugs & solutions, use of adjunctive medical devices, CPAP, chest decompression and intraosseous access.
The Pre-hospital Care Manual, developed by the EMS Medical Director reflects nationally recommended treatment modalities for providing patient care in the pre-hospital setting. This Pre-hospital Care Manual, containing Standing Medical Orders, Protocols, Policies & Procedures, is intended to establish the standard of care which is expected of the OSF St. James EMS System provider.

1. Standing Medical Orders, Protocols, Policies & Procedures contained in this Pre-hospital Care Manual are the written, established standard of care to be followed by all members of the OSF St. James EMS System for treatment of the acutely ill or injured patient.

2. The EMS provider will initiate patient care under these guidelines and contact Base Station Medical Control in a timely manner for those treatments which require on-line physician’s order. Diligent effort must be made to contact Medical Control in a timely manner via cellular telemetry, landline phone or VHF MERCI radio. Delay or failure to contact Medical Control for required on-line orders is a quality assurance indicator.

3. These Standing Medical Orders will be utilized as Off-Line Medical Control under the following circumstances:
   - In the event communication cannot be established or is disrupted between the Pre-hospital provider and Medical Control (or the receiving hospital).
   - In the event that establishing communications would cause an inadvisable delay in care that would increase life threat to the patient.
   - In the event the Medical Control physician is not immediately available for communication.
   - In the event of a disaster situation, where an immediate action to preserve and save lives supersedes the need to communicate with hospital-based personnel, or where such communication is not required by the disaster protocol.

4. Inability to contact Medical Control should not delay patient transport or the provision of life-saving therapies. Patient destination and transport decisions are set forth in these Standing Medical Orders / Protocols.
On-Line Medical Control Policy

On-Line Medical Control

Base Station Medical Control is designed to provide immediate medical direction and consultation to the Pre-hospital EMS provider in accordance with established patient treatment guidelines.

On-line Medical Control is utilized to involve the expertise of an Emergency Medical Physician in the treatment plans and decisions involving patient care in the Pre-hospital setting.

1. Voice communications shall be categorized as “MERCI” for calls that do not require medical orders and “Telemetry” for medical or trauma calls requiring medical orders or base station physician contact and/or consultation.

2. EMS communications requiring on-line contact with a base station physician shall be conducted using cellular telemetry.

3. Use of telemetry is required for patient care requiring interventions beyond the Universal BLS, ILS or ALS standing medical orders. Situations requiring Medical Control contact include, but are not limited to:
   - Anytime an order is required for BLS, ILS or ALS medications.
   - Anytime orders are needed for procedures.
   - Any instance an EMS provider desires physician involvement.
   - Any situation that involves bypassing a closer hospital.
   - Anytime an EMS provider feels a deferral is warranted.
   - Anytime a Field Training Instructor (FTI) feels a student needs to further develop communication skills.
   - Anytime a pre-hospital 2 lead or 12-Lead EKG is acquired and transmitted.
   - Suspected stroke patients.
   - Circumstances involving a Death at Scene (DAS) or cases involving advanced directives (DNR et al).
On-Line Medical Control Policy

On-Line Medical Control (Continued)

- **High risk refusals** (see next page).

- **Emergency Medical Responder low risk refusals** (see item #10 of this policy).

- Use of restraints (including handcuffs).

- **Trauma** cases or **potential trauma cases** (based on mechanism of injury).

4. “Telemetry” calls include all medical complaints requiring Medical Control contact, refusals, traumas and consultations.

5. “Trauma Traffic” includes calls that are related to injuries or mechanisms of injury that meet (or potentially meet) Minimum Trauma Field Triage Criteria (see Critical Trauma Procedure). Trauma traffic does not include refusals (including accident refusals).

6. “MERCI” calls are made via MERCI radio and called directly to the receiving hospital (or in cases where telemetry communication is not possible and consult with a physician is necessary). MERCI communication is adequate for patient care that does not require interventions beyond Universal BLS, ILS or ALS Care. Specifically, patients that have received only oxygen, monitor, IV and/or medications without the need for additional orders or in cases where Medical Control contact is not required.

- If MERCI traffic prevents contact with the receiving hospital, Medical Communications should be contacted at the Resource Hospital (OSF St. James Medical Center) for assistance in proper routing of communications.

- If the receiving hospital deems that further care is necessary or requests additional interventions be performed, the EMS provider should contact Medical Control.

- If the receiving hospital requests discontinuation of treatment established by the prehospital provider, Medical Control contact should be established.
7. **High Risk Refusals** require Medical Control consultation prior to securing and accepting the refusal and terminating patient contact. High risk refusals involve cases where the patient’s condition may warrant delivery of care in accordance with implied consent of the *Emergency Doctrine* or other statutory provision. **High risk refusals** include, but are not limited to:

- Head injury (based on mechanism or signs & symptoms)
- Presence of alcohol and/or drugs
- Anytime medications are given and patient refuses transport
- Significant mechanism of injury (*e.g.* rollover MVA)
- Altered level of consciousness or impaired judgment
- Minors (17 years old or younger, regardless of injury)
- Situations that involve bypassing a closer hospital

8. **Low Risk Refusals** do not require Medical Control consultation (for BLS, ILS & ALS levels) if the pre-hospital provider determines that the patient meets the **Low Risk Criteria** and there is no doubt that the patient understands the risk of refusal. The patient cannot be impaired and must be able to consent to the refusal. Medical Control should be contacted if there are any concerns about the patient’s ability to refuse. **Low risk** refusals may include:

- Slow speed auto accidents *without* injury
- Isolated injuries not related to an auto accident or other significant mechanism of injury
- False calls or “third party” calls where no illness, injury or mechanism of injury is apparent.
- Lifting assistance or “public assist” calls (for which EMS is called for assistance in moving a patient from chair to bed, floor to bed, car to home, etc.). This assumes the EMS agency is routinely called to assist this patient, the patient is assessed to ensure there is no complaint or injury and there has been no significant change in the patient’s condition. EMS crews must complete a patient care report indicating all assessment findings and assistance rendered.
9. If the EMS provider has not been able to contact Medical Control via cellular telemetry, telephone or MERCI radio, the EMS provider will initiate the appropriate protocol(s). Upon arrival at the receiving hospital, an incident report must be completed and forwarded to the EMS Office within 24 hours of the occurrence. This report should document all aspects of the run with specific details of the radio/communications failure and initiation of the OSF St. James EMS System Standing Medical Orders and Standard Operating Procedures.

10. EMR’s may handle low risk refusals only (as defined above). However, EMR’s must contact Medical Control via cellular telemetry at (815) 842-4987. Under no circumstance should a EMR obtain a high risk refusal.
Radio Communications Protocol

Radio communications is a vital component of pre-hospital care. Information reported should be concise and provide an accurate description of the patient’s condition as well as treatment rendered. Therefore, **a complete patient assessment and set of vital signs should be completed prior to contacting Medical Control or the receiving hospital.**

Regardless of the destination, **early and timely** notification of Medical Control or the receiving hospital is essential for prompt care to be delivered by all involved.

**Components of the Patient Report**

- Unit identification
- Destination & ETA
- Age/sex
- Chief complaint
- Assessment (General appearance, degree of distress & level of consciousness)
- Vital signs:
  1. Blood pressure *(auscultated* {or palpated if unable to auscultate})*
  2. Pulse (rate, quality, regularity)
  3. Respirations (rate, pattern, depth)
  4. Pulse oximetry, if indicated
  5. Pupils (size & reactivity)
  6. Skin (color, temperature, moisture)
- Pertinent physical examination findings
- SAMPLE History
- Treatment rendered and patient response to treatment

**NOTE:** Items listed in **red** should be transmitted without delay.

If Medical Control contact is necessary to obtain physician orders (where indicated by protocol), diligent attempts must be made to establish base station contact via:

1. Telephone landline direct to OSF St. James
2. MERCI radio

If unable to establish contact, then initiate protocol. If Medical Control contact is **not** necessary, contact the receiving hospital via MERCI.
A patient may refuse medical help and/or transportation. Once the patient has received treatment, he/she may refuse to be transported if he/she does not appear to be a threat to themselves or others. *Any person refusing treatment must be informed of the risks of not receiving emergency medical care and/or transportation.* NOTE: Family members cannot refuse transportation of a patient to a hospital unless they can produce a copy of a *Durable Power of Attorney for Healthcare*.

### Refusal Process

1. Assure an accurate patient assessment has been conducted to include the patient’s chief complaint, history, objective findings and the patient’s ability to make sound decisions.

2. Explain to the patient the risk associated with his/her decision to refuse treatment and transportation.

3. Secure Medical Control approval of **high risk refusals** (low risk refusals for Emergency Medical Responders) in accordance with the *Online Medical Control Policy*.

4. Complete the *Against Medical Advice/Refusal Form* and have the patient sign the form. If the patient is a minor, this form should be signed by a legal guardian or *Durable Power of Attorney for Healthcare*. **NOTE:** Parental refusals may be accepted by voice contact with the parent (i.e. by telephone) if the EMS provider has made reasonable effort to confirm the identity of the parent and the form may be signed by an adult witness on scene. This should be clearly documented on the refusal form and in the patient care report.

5. If available, it is preferable to have a police officer at the scene act as the witness. If a police officer is not present, any other bystander may act as a witness. However, his/her name, address & telephone number should be obtained and written on the back of the report.

6. If the patient refuses medical help and/or transportation after having been informed of the risks of not receiving emergency medical care and refuses to sign the release, clearly document the patient’s refusal to sign the report. Also, have the entire crew witness the statement and have an additional witness sign your statement, preferably a police officer. Include the officer’s badge number and contact Medical Control.
GENERAL PATIENT ASSESSMENT & MANAGEMENT

EMS OPERATIONS
The goal of the patient assessment process is to measure the status of the patient’s perfusion, identify life-threatening conditions, determine the patient’s chief complaint and/or mechanism of injury, evaluate the complaint (OPQRST) and obtain a (SAMPLE) history.

The components of the patient assessment process include the scene survey, initial assessment (ABCs) and rapid trauma assessment or detailed physical exam. A focused physical exam may be conducted if the general impression of the patient’s condition appears to be of a specific nature.

The EMS provider must constantly monitor the patient’s perfusion status. Perfusion is defined as the adequate flow of blood through the body’s tissues. For perfusion to be adequate the patient must have an adequate blood volume (with adequate supplies of oxygen and glucose), a properly functioning cardiovascular system and an intact neurological system for regulation of vascular dilation. Failure of the body to maintain adequate perfusion will result in signs and symptoms of shock.

Signs and symptoms of shock vary depending on the degree and cause of shock. Level of consciousness is an important assessment of the patient’s vital organ perfusion status. A patient with an altered level of consciousness must be considered at risk of shock. Peripheral tissue condition is another important indicator of perfusion status. A patient with cool, clammy, pale or cyanotic skin should be considered at risk for shock.

If the patient is found to be in shock, the assessment process should be directed at finding the cause of shock, immediate interventions to support perfusion and prompt transport. Conversely, if the mechanism of injury or assessment findings suggests that the patient may have a condition that could result in shock, EMS personnel should carefully assess the patient’s perfusion status and prepare to treat shock.

The goal of patient care is to identify patients in shock or at risk of shock, initiating care that will directly assist maintaining the patient’s perfusion and safely transporting the patient to an emergency department or trauma center in a timely manner.

The EMS provider must maintain a constant awareness as to what would be the best course of action for optimum and compassionate patient care. The benefit of remaining on scene to establish specific treatments versus prompt transport to a definitive care facility should be a consideration of each patient contact.
**General Patient Assessment & Initial Care Procedure**

**Scene Size-Up**

1. Initiate body substance isolation (BSI) precautions prior to arrival at the scene for all patient contacts. Apply appropriate personal protective equipment (PPE). Use special care in the handling of sharps, contaminated objects, linens, etc.

2. Assure the well-being of the EMS crew by assessing **scene safety**. If the scene is not safe, do not enter until appropriate authorities have secured the area (i.e. violent crime calls, domestic violence calls, hazardous materials, etc.).

3. Determine the mechanism of injury, number of patients and need for additional resources.

**General Patient Assessment**

1. Initial Assessment (Primary Survey)
   a) Airway: Assess airway patency and assess for possible spinal injury.
   b) Breathing: Assess for respiratory distress, bilateral chest expansion, rate, pattern & depth of ventilations, adequacy of gas exchange, use of accessory muscles and lung sounds.
   c) Circulation: Assess rate, quality & regularity of pulses, skin condition, hemodynamic status, and neck veins. Evaluate and record cardiac rhythm if indicated.
   d) Disability: Mini-neuro exam to include brief pupil check and assessment of mental status:
      - A – Alert
      - V – Not alert but responds to verbal stimuli
      - P – Not alert but responds to painful stimuli
      - U – Unresponsive to all stimuli
   e) Expose: Examine patient as indicated.

2. Focused History and Physical Exam (Secondary Survey) or Detailed Physical Exam
   a) Vitals signs and Glasgow Coma Score
   b) Chief complaint and history of present illness
   c) Past medical history, current medications and allergies
   d) Systematic head-to-toe assessment (detailed exam/secondary survey)
1. **Airway**: Establish and maintain a patient’s airway by using appropriate patient positioning, airway adjuncts, suctioning and advanced airway control (intubation).

2. **Breathing**: Evaluate adequacy of respirations by assessing chest movement, lung sounds and skin condition. Initiate oxygen therapy if indicated and provide or assist ventilations as necessary.

3. **Circulation**: Evaluate perfusion status by assessing carotid and peripheral pulses and skin condition. Initiate CPR and early defibrillation if indicated. Control any external hemorrhage and establish IV access of .9% Normal Saline if indicated. No more than two (2) attempts should be made to establish an IV on scene unless requested by Medical Control.

4. Loosen tight clothing and reassure patient; keep NPO (nothing by mouth) unless specified by SOP or Medical Control.

5. **BLS/ILS Units**: Initiate ALS intercept if indicated (Refer to Requesting Advanced Assistance for Optimal Patient Care).

6. Place the patient in a semi-Fowler’s (45°) position of comfort unless contraindicated. Patients with altered mental status should be placed on their side. The backboard should be tilted for immobilized patients with altered mental status to prevent aspiration.

7. Evaluate pain. Ask the patient to rate any pain on a scale of “0-10” with “0” indicating a pain-free state and “10” being the worst pain imaginable.

8. Recheck and record vital signs and patient responses at least every 15 minutes for stable patients, every 5 minutes for critical patients and after each intervention. Be sure to accurately document the times the vitals were obtained.

9. Establish Medical Control contact as indicated.

10. Transport to the closest appropriate hospital. NOTE: Follow System-specific policies regarding patient destination and bypass procedures.
EMR Care should be focused on assessing the situation and establishing initial care to treat and prevent shock:

1. Open and/or maintain an open airway.
2. Loosen all tight clothing and be prepared to expose vital body regions if necessary.
3. Reassure patient by identifying yourself, explaining how you will help them and inform the patient that additional help is enroute.
4. Place patient in a position of comfort. Sit patient upright unless the patient is hypotensive (BP<100mmHg systolic) or has a potential for cervical spine injury.
5. Administer Oxygen, preferably 15 L/min via non-rebreather mask. If the patient does not tolerate a mask, then administer 6 L/min by nasal cannula.
6. Ensure that EMS has been activated for further care and transport. Provide responding units with pertinent patient information.
7. Monitor the patient’s level of consciousness, vital signs (including pulse oximetry), etc. for any acute changes.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, providing care to treat for shock and preparing or providing patient transportation.

1. BLS Care includes the components of EMR Care.
2. Attach pulse oximeter and obtain analysis, if indicated.
3. Attach cardiac monitor, obtain 12-lead ECG and print rhythm strip for documentation, if indicated by symptoms and you have the capability. Initiate cardiac monitoring if indicated.
4. Initiate ALS intercept, if indicated (or ILS intercept if ALS is unavailable).
5. Simultaneously with above, perform physical exam/assessment, obtain baseline vital signs and obtain patient history.
6. Continue to reassess patient en route to the hospital.
7. Transport should be initiated at the earliest possible opportunity.
Universal Patient Care Protocol

**ILS Care**

ILS Care should be directed at conducting a thorough patient assessment, providing care to treat for shock and preparing or providing patient transportation. The necessity of establishing IV access is determined by the patient’s condition and chief complaint. Consideration should also be given to the proximity of the receiving facility.

1. ILS Care includes all of the components of BLS Care.

2. Attach cardiac monitor and print rhythm strip for documentation, if indicated.

3. Obtain a 12-Lead EKG, if indicated and transmit to receiving hospital. Contact Medical Control if wide complex tachycardia or consultation is needed. Provide the receiving nurse/physician with a copy of the 12-Lead upon arrival in the ED with request for physician review of the EKG as soon as possible.

4. If indicated, establish IV access using a 1000mL solution of .9% Normal Saline with macro drip or blood tubing. No more than two (2) attempts should be made on scene. Infuse at a rate to keep the vein open (TKO) – approximately 8 to 15 drops (gtts) per minute.

5. Dependent upon patient condition, consider initiating IV access en route to the hospital.

**ALS Care**

ALS Care should be directed at conducting a thorough patient assessment, providing care to treat for shock and preparing or providing patient transportation. The necessity of establishing IV access is determined by the patient’s condition and chief complaint. Consideration should also be given to the proximity of the receiving facility.

1. ALS Care includes all of the components of ILS Care.

**Critical Thinking Elements**

- When determining the extent of care needed to stabilize the patient, the EMS provider should take into consideration the patient’s presentation, chief complaint, risk of shock and proximity to the receiving facility.
- Saline locks may be used as a drug administration route if fluid replacement is not indicated.
- IV access should not be attempted on scene with a trauma patient.
- Obtain a 12-Lead EKG as soon as possible if indicated. See *12-Lead EKG Procedure* for indications.
Pain, and the lack of relief from the pain, is one of the most common complaints among patients. Pain control can reduce the patient’s anxiety and discomfort, making patient care easier. The patient’s severity of pain must be properly assessed in order to provide appropriate relief. Managing pain clinically in the prehospital setting will provide greater patient care.

**Emergency Medical Responder Care**

Emergency Medical Responder Care should focus on the reduction of the patient’s anxiety due to the pain.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Assess level of pain using the *Pain Assessment Scale* (0-10) or the *Wong-Baker Faces Pain Rating Scale*.
3. Place patient in a position of comfort.
4. Reassure the patient.
5. Consider ice or splinting.
6. Reassess level of pain using the approved pain scale.

**BLS Care**

BLS Care should focus on the reduction of the patient’s anxiety due to the pain.

1. BLS Care includes all of the components of Emergency Medical Responder Care.
2. Initiate ALS intercept, if indicated.

**ILS Care**

ILS Care should focus on the reduction of the patient’s anxiety due to the pain.

1. ILS Care includes all of the components of BLS Care.
2. In cases of *isolated extremity fractures, chest pain, burns and discomfort from IO infusion*, pain medication may be given if the systolic BP > 90mmHg. Contact Medical Control for Physician Orders for Morphine Sulfate or Fentanyl: (Higher doses may be given if ordered by the Medical control physician) See routine dosing on next page

*Zofran*: 4mg IV over 2 minutes or 4 mg IM or 4mg ODT for nausea and/or vomiting.
## Pain Control Protocol

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Dosage and Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine Sulfate</td>
<td>2-5 mg IV every <strong>5 minutes</strong> to reduce the patient’s anxiety and severity of pain. If unable to establish IV access, may administer Morphine 2-5 mg IM every <strong>15 minutes</strong>.</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>50 mcg IV, over <strong>2 minutes</strong> for pain. Fentanyl 50 mcg IV may be repeated every <strong>5 minutes</strong> to a total of 200 mcg. If unable to establish IV access, may administer Fentanyl 50 mcg IM or IN. May be repeated as needed to a total of 200 mcg. (See dosing sheets for IN)</td>
</tr>
</tbody>
</table>
| Ketorolac (Toradol) | Contact Medical Control for Physician Orders Only  
30 mg IV or 60mg IM for moderate to severe pain. Half the dose for patients older than 65 or less than 50 kg. Do not give to Suspected MI, Severe Acute Headache, suspected AAA, open fractures, suspected/known renal failure, suspected surgical abdominal pain. Ideal for flank pain that is similar to patient’s previous kidney stones or uncomplicated musculoskeletal back pain. |

3. Initiate ALS intercept, if indicated.

### ALS Care

ALS Care should focus on the pharmaceutical management of pain.

1. Universal ALS Patient Care Protocol.
2. Patient care according to Protocol based on specific complaint.
3. Pain severity ≥ 6 out of 10 or indication for IV/IM/IN pain medication.
4. Manage patient’s pain by using one of the following medications.
Zofran: 4mg IV over 2 minutes or 4 mg IM or 4mg ODT for nausea and/or vomiting.
Traditional EMS education emphasizes utilization of oxygen therapy on most patients. Current research on supplemental oxygen use in prehospital care has identified certain conditions in which supplemental oxygen use may be HARMFUL.

The American Heart Association recommended in the 2010 CPR Guidelines that:
Supplemental oxygen should no longer be administered to patients with uncomplicated cardiac chest pain, and stroke patients with an oxygen saturation \( \geq 94\% \). If you do not have the ability to check O2 saturation, then apply supplemental oxygen in accordance with protocol.

### Oxygen Therapy Protocol

#### Delivery Devices

<table>
<thead>
<tr>
<th>Device</th>
<th>Flow Rate</th>
<th>Oxygen Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasal Cannula</td>
<td>1-6 L per minute</td>
<td>21 – 44%</td>
</tr>
<tr>
<td>Nonrebreather Mask</td>
<td>6-15 L per minute</td>
<td>60-100%</td>
</tr>
<tr>
<td>Bag-Valve-Mask</td>
<td>15 L per minute</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Ventilation rates for BVM or Advanced Airway:** 1 breath every 6-8 seconds (8-10 breaths/min)

#### Indications

- Initiate during stabilization of all seriously ill or injured patients with respiratory insufficiency, shock, or trauma even if oxygen saturation is normal. Once patient is stabilized the oxygen may be weaned to maintain an oxygen saturation \( \geq 94\% \).
- Acute Coronary Syndrome (ACS): May administer to all patients with oxygen saturation <94%. Otherwise oxygen is not necessary per 2010 AHA guidelines.
- Suspected stroke and hypoxia (oxygen saturation < 94%).
- ROSC following resuscitation: Use the MINIMUM inspired oxygen concentration to achieve oxygen saturation \( \geq 94\% \).

#### Precautions

- Pulse oximetry may be inaccurate in low cardiac output states, with vasoconstriction, or with exposure to carbon monoxide.
- (Very Rare) Observe closely when using with pulmonary patients known to be dependent on hypoxic respiratory drive.
Oxygen Therapy Protocol

Critical Thinking Elements

- Oxygen directly affects most tissues it travels through by acting as a vasoconstrictor. The harmful effects of oxygen are thought to be caused by oxygen reducing coronary artery flow, and increasing coronary vascular resistance, further reducing stroke volume and cardiac output. Other adverse hemodynamic consequences of oxygen therapy through increased vascular resistance from hyperoxia, and reperfusion injury from increased oxygen free radicals.
Establishing and maintaining an open airway and assuring adequate ventilation is a treatment priority with all patients. Proper techniques must be used to assure treatment maneuvers do not inadvertently complicate the patient’s condition.

**Basic Airway Control**

1. Assure an open airway by utilizing either the head tilt/chin lift maneuver, the modified jaw thrust maneuver or the tongue-jaw lift maneuver. The head tilt/chin lift maneuver is NOT to be used if there is any possibility of cervical spine injury.

2. Expose the chest and visualize for chest rise and movement, simultaneously listen and feel for air movement at the mouth and nose. This procedure will need to be done initially and after correcting an obstruction and securing the airway.

3. If the chest is not rising and air exchange cannot be heard or felt:
   
   a) Check for a carotid pulse, if no pulse, begin CPR and cardiac arrest protocol.
   b) If pulse still present, deliver two positive-pressure ventilations. If resistance continues, follow AHA sequences for obstructed airway rescue.
   c) If spontaneous respirations return and a pulse is present, provide supplemental Oxygen by non-rebreather mask or assist respirations with bag-valve mask (BVM) at 15 L/min.
   d) If the patient remains breathless and a pulse is present, initiate ventilations with a BVM at 15 L/min at a rate of 12 breaths per minute.
   e) If the patient remains breathless and a pulse is not present, initiate CPR and institute the appropriate cardiac protocol.

4. If the patient presents with stridor, “noisy breathing” or snoring respirations, render treatment for partial airway obstruction in accordance with AHA guidelines.
   
   a) Reassess effectiveness of the airway maneuver.
   b) If initially unable to resolve partial airway obstruction, suction the airway and visualize the pharynx for any evidence of foreign objects. Perform a finger sweep if a foreign object can be seen.
   c) If partial airway obstruction persists, treat according to AHA guidelines for resolving a complete airway obstruction.

5. Once the obstruction has been corrected:
   
   a) Insert an oropharyngeal airway in the unconscious patient (without a gag reflex).
Basic Airway Control Procedure

6. Establish the presence and adequacy of breathing by observing the frequency, depth and consistency of respirations. Also, observe the chest wall for any indications of injuries which may contribute to respiratory compromise.

7. Supplemental oxygen should be delivered to any patient who exhibits signs of difficulty breathing, sensation of shortness of breath, respiratory rate > 20 breaths per minute, use of accessory muscles, altered level of consciousness/altered mental status, cyanosis, head injury or any indications of shock.

   a) Supplemental oxygen should be provided by a non-rebreather mask (NRM) at a rate of 15 L/min (assuring reservoir bag is inflated).
   b) If patient is unable to tolerate the NRM, administer oxygen via nasal cannula at a rate of 6 L/min.

8. Bag-valve mask ventilation with supplemental oxygen at 15 L/min should be initiated at the rate of 12/min if respirations are absent, there is evidence of inadequate ventilation, respiratory rate is < 8/min, absent or diminished breath sounds or wounds to the chest wall.

Critical Thinking Elements

- Inadequate maintenance of the patient’s airway, inappropriate airway maneuvers, using inappropriately sized airway equipment and/or failure to recognize an obstructed airway will complicate the patient’s condition.
- Do NOT use the head tilt/chin lift maneuver on a patient with a suspected cervical spine injury.
- Proper facemask seal during artificial ventilations is imperative to assure adequate ventilation.
- Stroke/chest pain patients who you are able to check an O2 saturation and it is over 94%, supplemental oxygen is not required. You may, however, consider oxygen administration if they exhibit signs of respiratory distress or likely have a pulmonary cause of their chest pain.
An airway obstruction is life threatening and must be corrected immediately upon discovery.

1. If the patient has an obstructed airway and is still conscious:
   a) Encourage the patient to cough.
   b) Perform 5 abdominal thrusts or chest thrusts if the cough is unsuccessful.
   c) Repeat until the obstruction is relieved or the patient becomes unconscious.
   d) Administer oxygen at 15 L/min if the patient has a partial airway obstruction and is still able to breathe.

2. If the patient is unconscious:
   a) Open the patient’s airway and attempt to ventilate.
   b) Reposition the head and reattempt to ventilate if initial attempt is unsuccessful.
   c) Begin CPR.
   d) Perform visualized finger sweep of the patient’s mouth and reattempt to ventilate.
   e) Repeat steps (c) and (d) if obstruction persists.
   f) BLS & ILS immediately initiate ALS intercept.
   g) ILS & ALS attempt direct extraction via laryngoscope and Magill forceps.
      1. Use the laryngoscope and examine the upper airway for foreign matter and suction as needed.
      2. Remove any foreign objects with forceps and suction.
      3. Re-establish an open airway and attempt to ventilate.
      4. If the obstruction is relieved, continue with airway control, ventilations, assessment and care.
   h) Continue CPR if unable to relieve obstruction and expedite transport.

Critical Thinking Elements

- Maintain in-line c-spine stabilization using 2 EMTs in patients with suspected cervical spine injury.
- Poor abdominal thrust technique, inappropriate airway maneuvers, and/or failure to recognize an obstructed airway will complicate the patient’s condition.
The KING Airway is an effective airway adjunct when intubation is not available or difficult to perform. Insertion is rapid & easy and does not require specialized equipment or visualization of the larynx. It’s latex-free and should be considered safe to use on latex-sensitive patients.

**Indication**

- The King LTS-D is an airway device designed for emergency or difficult intubation in the apneic or unresponsive patient without a gag reflex.

**Contraindications**

- Active gag reflex
- Patient under four (4) feet tall
- Patient less than 16 years old
- Ingestion of a caustic substance (*e.g.* gasoline, drain cleaner, etc.)
- Known or suspected esophageal disease (*e.g.* esophageal varices)
- Tracheostomy (ETC will be ineffective with esophageal placement)

**KING Airway Insertion Procedure**

1. Pre-oxygenate/ventilate utilizing a bag-valve mask (BVM) at 15 L/min according to the *Basic Airway Control Procedure*.

2. **Choose the correct size:**

<table>
<thead>
<tr>
<th>Size</th>
<th>Description</th>
<th>Connector Color</th>
<th>OD</th>
<th>ID*</th>
<th>Gastric Tube Size</th>
<th>Inflation Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>4-5 feet (122-155 cm) in height</td>
<td>Yellow</td>
<td>18 mm</td>
<td>10 mm</td>
<td>≤18 Fr</td>
<td>45-60 ml</td>
</tr>
<tr>
<td>4</td>
<td>5-6 feet (155-180 cm) in height</td>
<td>Red</td>
<td>18 mm</td>
<td>10 mm</td>
<td>≤18 Fr</td>
<td>60-80 ml</td>
</tr>
<tr>
<td>5</td>
<td>greater than 6 feet (180 cm) in height</td>
<td>Purple</td>
<td>18 mm</td>
<td>10 mm</td>
<td>≤18 Fr</td>
<td>70-90 ml</td>
</tr>
</tbody>
</table>

*Equivalent ID of Ventilation Lumen*
3. Test cuff inflation system by injecting the maximum recommended volume of air into the cuffs. Remove all air from both cuffs prior to insertion.

4. Apply a water-based lubricant (e.g. K-Y or Surgilube) to the beveled distal tip and posterior aspect of the tube. Avoid introducing lubricant in or near the ventilatory openings.

5. Position the head in the “sniffing position” if possible. It can also be inserted with the head in the neutral position if following c-spine precautions/c-collar in place.

6. Hold the KING LTS-D at the connector with the dominant hand. With the non-dominant hand, hold mouth open and apply chin lift.

7. With the KING LTS-D rotated laterally 45-90º (such that the blue orientation line is touching the corner of the mouth), introduce tip into the mouth and advance behind the base of the tongue. **Never force the tube into position** and do not take longer than **20 seconds** for the attempt!

![Image of the KING LTS-D airway being inserted]

8. As the tube tip passes under the tongue, rotate the tube back to midline (blue orientation line faces chin).

9. Without exerting excessive force, advance the KING LTS-D until the proximal opening of gastric access lumen is aligned with teeth or gums.
KING LTS-D Airway Procedure

KING Airway Insertion Procedure (continued)

10. Inflate the cuffs with the minimum volume necessary to seal the airway (see chart).

11. Attach BVM. Gently bag the patient while assessing ventilations. Simultaneously withdraw the airway very slowly until ventilation is easy & free-flowing.

![Image of airway insertion]

12. Use multiple confirmation techniques:
   - Confirm presence of breath sounds
   - Visualize rise and fall of the chest
   - Monitor for clinical improvement
   - Colormetric ETCO₂ (e.g. EasyCap)**
   - Capnography (if available)

**NOTE:** Ventilate the patient at least six (6) times prior to attaching a colormetric device (EasyCap).

13. The gastric access lumen allows the insertion of up to an 18 Fr diameter gastric tube into the esophagus & stomach. Lubricate the gastric tube prior to insertion.

Critical Thinking Elements

- If unsuccessful in one (1) attempt, refer to the Basic Airway Control Procedure.
- ILS/ALS should immediately defer to the King LTS-D Airway if the pre-intubation assessment is GRADE 3 or GRADE 4 on the Cormack-Lehane scale (refer to the Advanced Airway Control Policy).
- Do NOT administer medications via the King LTS-D Airway. It is designed as an airway adjunct only and cannot be utilized as a medication route.
Endotracheal intubation is an effective method of securing the airway. However, if endotracheal intubation is difficult or unsuccessful, the King LTS-D Airway should be used or basic airway control measures re-established without delay.

**Advanced Airway Control Procedure**

1. Implement basic airway measures in accordance with the *Basic Airway Control Procedure*.

2. **Conduct a pre-intubation assessment** using the *Cormack-Lehane* scale:

   - **GRADE 1**
   - **GRADE 2**
   - **GRADE 3**
   - **GRADE 4**

If the pre-intubation assessment is **GRADE 3** or **GRADE 4**, do not attempt intubation. Proceed to insertion of King LTS-D Airway or return to basic airway control measures using a BVM with OPA or NPA.

3. Consider using a Bougie (See Endotracheal Tube Introducer Procedure)

4. Select the proper tube size (based on patient size) and attach a 10mL syringe. Inflate the cuff to be sure it does not leak (the cuff must be deflated prior to insertion).

5. Insert stylet and bend to the approximate configuration of the pharynx.

6. Lubricate the ETT with a water-soluble lubricant.

7. Have suction, BVM, stethoscope, colormetric end-tidal CO₂ detector/capnography and commercial ETT holder readily available.

8. Pick up the laryngoscope handle with your left hand and the appropriate blade with your right hand.
Advanced Airway Control Policy (continued)

9. Holding the blade parallel to the handle, attach the blade to the handle by inserting the U-shaped indentation of the blade into the small bar at the end of the handle. When the indentation is aligned with the bar, press the blade forward and snap into place.

10. Lower the blade until it is at a right angle to the handle. The light should come on. If it does not, see if the bulb is tight and/or the batteries need to be replaced (This should be done on a daily basis so you do not have to spend valuable time fixing it at the scene of a call).

11. Suction the pharynx as needed.

12. Pre-oxygenate the patient with high concentration oxygen prior to intubation attempt.

13. Insert the blade into the mouth on the right side, moving the tongue to the left. Follow the natural contour of the pharynx, lifting the tongue (not prying) until you can see the glottic opening.

   a) If you are using a straight blade (Miller), insert it until you can see the epiglottis. With the tip of the blade, lift up on the epiglottis so that you can visualize the vocal cords and glottic opening. If needed, have someone gently press down on the cricoid cartilage (Sellick Maneuver) so that you can see the cords well.

   b) If you are using a curved blade (Macintosh), insert the tip into the vallecula and lift up. This will lift the epiglottis and expose the vocal cords and glottic opening. If needed, have someone gently press down on the cricoid cartilage (Sellick Maneuver) so that you can see the cords well.

14. After visualizing the glottic opening, grasp the ETT with your right hand and advance the tube from the right corner of the mouth. Insert the tube into the glottic opening between the vocal cords, just far enough to pass the cuff of the tube past the opening.

15. Verify proper position by ventilating the patient through the tube with a bag-valve device while listening to each side of the chest with a stethoscope to be sure air is entering both lungs. Check for inadvertent esophageal intubation by listening for air movement in the epigastric area during ventilations.
16. Utilize a colormetric end-tidal CO\(_2\) (ETCO\(_2\)) detector or capnography.

17. If breath sounds are heard on both sides of the chest, no epigastric sounds are heard. Colormetric ETCO\(_2\) detector/capnography indicate proper placement, inflate the cuff with 10mL of air and secure the tube with a commercial ETT holder.

   a) If you have inserted the ETT too far, it will usually go into the right main stem bronchus. Therefore, if you hear breath sounds only on the right, you should pull the tube back \(\frac{1}{2}\) inch at a time until you hear bilateral breath sounds. Inflate the cuff with 10mL of air and secure the ETT with a commercial holder.

   b) If you hear no breath sounds, you are in the esophagus and must remove the ETT immediately. Ventilate patient and proceed to King LTS-D Airway insertion or continue basic airway control measures.

18. Frequently reassess breath sounds to be sure that the ETT is still in place.

19. Ventilate the patient at a rate of 12 times per minute.

20. If intubation is unsuccessful after two (2) attempts, refer to the KING LTS-D Airway Procedure or Basic Airway Control Procedure. Strongly consider King tube placement if unable to visualize cords on first attempt.

### Airway Control in the Trauma Patient

Any type of airway manipulation may be dangerous during airway control of the suspected spinal injury patient. Maintain in-line stabilization and refer to the KING LTS-D Airway Procedure. **Do not attempt to intubate.**

1. A minimum of two (2) trained rescuers is needed to assure special attention to spinal precautions.

2. One rescuer will apply manual in-line stabilization by placing the rescuers hands about the patient’s ears with the little fingers under the occipital skull and the thumbs on the face over the maxillary sinuses.

3. The rescuer performing airway placement should be at the head.

4. Maintain the patient’s head in a neutral position and place the KING LTS-D without cervical manipulation.
Attempting difficult and unfamiliar procedures poses a danger to the patients those procedures are being performed on. Certain procedures that are used in the hospital setting are not approved for prehospital personnel in the St. James EMS System. These include:

- Extubation
- Nasotracheal Intubation
- Cricothyrotomy/Surgical Airway

**Critical Thinking Elements**

- Intubation may be attempted if the pre-intubation assessment is GRADE 1 or GRADE 2. If intubation attempt fails (1 attempt), switch to the King LTS-D airway or basic airway control.

- The definition of an “attempt” is actually trying to pass the ET tube through the vocal chords.

- Verification of proper ETT placement is of vital importance. Utilize multiple methods of verifying placement including direct visualization of the ETT passing through the cords, auscultation of bilateral breath sounds, absence of epigastric sounds during ventilation, and positive color change (purple to yellow) with ETCO₂ or capnography levels between 35-45mmHg. Document findings.
Patient meets clinical indications for endotracheal intubation. Pre-intubation assessment predicts a difficult intubation.

**Introducer larger than the endotracheal tube internal diameter.**

**ETI Procedure**

1. Prepare, position and oxygenate the patient with 100% oxygen.
2. Select proper ET tube without stylet, test cuff and prepare suction.
3. Lubricate the distal end and cuff of the endotracheal tube (ETT) and the distal ½ of the Endotracheal Tube Introducer (Bougie) - (note: Failure to lubricate the Bougie and the ETT may result in being unable to pass the ETT).
4. Using laryngoscopic techniques, visualize the vocal cords if possible using the BURP method as needed.
5. Introduce the Bougie with curved tip anteriorly and visualize the tip passing the vocal cords or above the arytenoids if the cords cannot be visualized.
6. Once inserted, gently advance the Bougie until you meet resistance or “hold-up” (if you do not meet resistance you have a probable esophageal intubation and insertion should be reattempted or manage the airway using a King Airway).
7. Withdraw the Bougie ONLY to a depth sufficient to allow passage of the ETT while maintaining proximal control of the Bougie.
8. Maintain a firm grasp on the proximal Bougie, introduce the ET tube over the Bougie.
9. Gently advance the Bougie and loaded ET tube until you have hold-up again, thereby assuring tracheal placement and minimizing the risk of accidental displacement of the Bougie.
10. If you are unable to advance the ETT into the trachea and the Bougie and ETT are adequately lubricated, withdraw the ETT slightly and rotate the ETT 90 degrees COUNTER clockwise to turn the bevel of the ETT posteriorly. If this technique fails to facilitate passing of the ETT you may attempt direct laryngoscopy while advancing the ETT (this will require an assistant to maintain the position of the Bougie and, once the vocal cords are visualized, advance the ETT).
11. Once the ETT is correctly placed, hold the ET tube securely and remove the Bougie.
12. Confirm tracheal placement according to the intubation protocol, inflate the cuff with 3 to 10 cc of air, auscultate for equal breath sounds and reposition accordingly.
13. When final position is determined secure the ET tube, reassess breath sounds, apply end tidal CO2 monitor, and record and monitor readings to assure continued tracheal intubation.
Intravenous cannulation is used in the Prehospital setting to establish a route for drug administration and/or to provide fluid replacement. Intravenous cannulation should not significantly delay scene times or be attempted while on scene with a trauma patient who meets load-and-go criteria.

1. Explain to the patient the need for and a brief description of the procedure.
2. Observe the universal precautions for body substance exposure.
3. Obtain an appropriately sized catheter:
   a) 14 or 16 gauge for trauma patients.
   b) 14, 16 or 18 gauge for fluid replacement.
   c) 20 gauge for elderly patients, pediatric patients or for difficult IV cannulations.
4. Check the fluid (1000mL .9% Normal Saline):
   a) Is it the right fluid?
   b) Check the expiration date.
   c) Check for color and clarity (NS should be clear with no particles).
5. Connect the administration set to the IV fluid. Make sure that air bubbles are expelled from the tubing and that all chambers have the appropriate fluid levels.
6. Maintain a clean environment and protect the administration set from contamination.
7. Apply a venous tourniquet just proximal to the antecubital area.
8. Select (by palpation) a prominent vein. Choose a distal vein on the forearm or back of the hand. The antecubital space may be used if needed for drug administration, fluid replacement, the patient condition requires a more proximal site, or in cases where no other vein is accessible.
9. Cleanse the site with an alcohol prep pad using a circular motion moving outward from the site.
10. Stabilize the vein by applying traction below the puncture site.
11. Inform the patient of your intent to puncture the site.
12. Enter the vein directly from above or from the side of the site. With the bevel of the needle upward, puncture the skin at a 30 to 45 degree angle.
13. If blood returns through the catheter, proceed with insertion. If you do not see blood return, release the tourniquet and discontinue the attempt. If time and patient condition allows, you may attempt another site with a new catheter (do not exceed more than two (2) attempts).
14. Insert the catheter. Carefully lower the catheter and advance the needle and catheter just enough to stabilize the needle in the vein. Slide the catheter off of the needle into the vein.
15. Slightly occlude the vein proximal to the catheter with gentle finger pressure. Remove the needle and immediately dispose of it in an approved sharps container.
16. Release the tourniquet and connect the administration set to the catheter (including extension tubing).
17. Open the flow regulator on the administration set and briefly allow IV fluid to run freely to assure a patent line (less than 20mL). If the line is patent, adjust flow rate as indicated by protocol or Medical Control order.
18. Secure the catheter and tubing using a veniguard or tape. Loop the IV tubing and secure to the patient’s arm. Do not apply tape circumferentially to the extremity.
Saline locks may be used if fluid replacement is not indicated:

1. Assemble the pre-filled saline and tubex syringe or draw up 2-3mL of sterile saline.
2. Obtain and inspect an injection site link. Inject saline and expel air from the injection site chamber leaving the syringe attached.
3. After successful venipuncture, connect the saline lock to the catheter.
4. Pull back (aspirate) on the syringe to confirm placement by observing for blood return. If blood is aspirated, continue by injecting 3mL of saline into the chamber. If no blood is aspirated, discontinue the attempt and prepare to repeat the procedure at a new site.
5. If fluid replacement becomes necessary, attach an administration set to the injection port by needleless device or Luer adapter.
6. Secure the catheter and link using a veniguard or tape.

External Jugular Vein Cannulation (ALS Only)

External Jugular (EJ) access can be utilized only if traditional extremity cannulation cannot be established and the patient requires immediate stabilizing fluid replacement and/or drug administration route.

1. Position the patient supine with feet elevated.
2. Turn the patient’s head in the direction away from the side to be cannulated.
3. Cleanse the site with a prep pad using a circular motion moving away from the site.
4. Stabilize the vein by applying traction just above the clavicle.
5. Attach a 10mL syringe to the IV catheter. Align the catheter and point the tip of it toward the patient’s feet.
6. Enter the vein midway between the angle of the jaw and the clavicle. With the bevel of the needle upward, puncture the skin using a 30 degree angle and aim toward the shoulder on the same side.
7. As you enter the vein, apply gentle aspiration by pulling on the syringe plunger. If blood returns through the flash chamber and syringe, proceed with insertion. Slightly occlude the vein proximal to the catheter with gentle finger pressure. Connect the administration set to the catheter and secure the site.

If you do not see blood return through the flash chamber and syringe, discontinue the attempt. Only one (1) attempt at EJ vein cannulation may be made in the Prehospital setting.
Critical Thinking Elements

- If blood begins to back-flow in the IV tubing, check the location of the bag to assure it is in a gravity flow position and check to assure all valves are properly set. If the IV equipment is properly set and blood continues to back-flow, re-examine the vessel to assure arterial cannulation has not occurred.
- Edema, pain and lack of fluid flow at the site indicates infiltration and the IV must be discontinued.
- Do not partially withdraw a needle and reinsert into the catheter. This can cause catheter shear.
- Do not substitute a saline lock for IV fluids in trauma patients, patients who are in shock, patients with unstable vital signs or patients requiring multiple drug administrations.
- External jugular vein cannulation is contraindicated in patients with suspected cervical spine injury.
Adult Intraosseous Cannulation Procedure  
(ALS/ILS Only)

It may be impossible to find an accessible vein in patients presenting with conditions such as shock from any cause, cardiac arrest, overdose with airway compromise, impairment in mentation or hemodynamic parameters, severe dehydration associated with unresponsiveness or shock and multi-system trauma. This is a challenge commonly faced by prehospital providers, which hinders optimal patient care by limiting treatment options and increasing scene time trying to obtain vascular access.

The intraosseous space may be viewed as a non-collapsible, easily accessed space for any fluid or medication. Intraosseous infusion is preferred over endotracheal routes of medication administration and is a viable alternative when IV therapy is not available or not accessible. Intraosseous infusion is immediately available, safe and effective.

Indications

1. Intravenous fluids and medications are emergently needed, a peripheral IV cannot be established in two (2) attempts AND the patient demonstrates one of the following:
   - An altered mental status (GCS of 8 or less) with loss of protective airway reflexes (with notable exception of known diabetic with symptomatic hypoglycemia)
   - Clinical signs of shock from any cause (hypovolemia from severe dehydration or trauma, cardiogenic, anaphylactic, septic or Neurogenic) with a systolic BP less than 80mmHg
   - Patients in extremis (at risk of death or disability) with immediate need for delivery of medications and fluids (e.g. multi-system trauma, anaphylaxis, status asthmaticus, status epilepticus, life-threatening dysrhythmia or bradycardia, severe respiratory distress with hypoxia and/or alteration in consciousness, respiratory arrest, and overdose associated with alteration in vital signs, mental status and/or dysrhythmia)
   - If a patient is assessed to be in need of intraosseous access and does not fit any of the above, contact Medical Control for further guidance and orders.

2. EZ-IO insertion may be considered PRIOR to peripheral IV attempts if the patient is in cardiac arrest (medical or traumatic).

Contraindications

1. Fracture of the bone selected for IO infusion (consider another approved site of insertion)
2. Excessive tissue at insertion site with absence of anatomical landmarks (consider another approved site of insertion)
3. Previous significant orthopedic procedures (i.e. prosthesis or hardware placement) (consider another approved site of insertion).
4. Infection at the site selected for insertion (consider another approved site of insertion).
Flow rates will be slower than achieved with intravenous (IV) access. To improve continuous infusion rates, use a pressure infusion bag (or BP cuff).

Insertion of the EZ-IO in conscious patients or patients responsive to pain has been noted to cause mild to moderate discomfort comparable to the insertion of a large bore IV catheter. IO infusion, however, has been noted to cause severe discomfort.

1. Observe universal precautions.
2. Prepare the EZ-IO driver and needle set:
   a) 15ga, 15mm long needle for patients weighing between 3kg and 39kg.
   b) 15ga, 25mm long needle for patients weighing greater than 40kg.
   c) 15ga. 45mm long needle for patients with excess tissue (optional).
3. Locate an appropriate insertion site. Approved sites include:
   - Proximal Tibia
   - Distal Tibia
   - Proximal Humerus
4. Prep the site with Betadine and set up infusion solution as for regular IV.
5. Stabilize site and insert appropriate needle set.
6. Remove EZ-IO driver from needle set while stabilizing catheter hub.
7. Remove stylet from the catheter; place stylet in EZ-IO shuttle or approved sharps container.
8. Attach 5-10mL syringe and aspirate bone marrow to confirm placement.
   a) IO catheter should be at a 90 degree angle and firmly seated in the tibial/humoral bone.
   b) Blood may be visible at the tip of the stylet.
   c) The IO catheter should flush freely without difficulty or extravasation.
9. Connect the luer-lock equipped IV administration set.
10. For conscious patients (or for previously unresponsive patients who become conscious): Lidoctaine: 30mg IO (slowly over 30-60seconds) to reduce discomfort from infusion.
11. Flush the IO catheter with 10mL of normal saline.
12. Utilize a pressure bag for continuous infusions where applicable. If a pressure bag is not available, wrap a BP cuff around the bag of normal saline and inflate the cuff until desired flow rate is achieved.
13. Dress site, secure tubing and apply wristband as directed.
14. If needed, further manage the patient’s pain by using one of the following medications.

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosing Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Morphine Sulfate</strong></td>
<td>2-5 mg IV every 5 minutes to reduce the patient’s anxiety and severity of pain. If unable to establish IV access, may administer Morphine 2-5 mg IM every 15 minutes.</td>
</tr>
<tr>
<td><strong>Fentanyl</strong></td>
<td>50 mcg IV, over 2 minutes for pain. Fentanyl 50 mcg IV may be repeated every 5 minutes to a total of 200 mcg. If unable to establish IV access, may administer Fentanyl 50 mcg IM or IN. May be repeated as needed to a total of 200 mcg. (See dosing sheets for IN)</td>
</tr>
</tbody>
</table>

15. Closely monitor EZ-IO site en route.

**Critical Thinking Elements**

- If respiratory depression or hypotension occurs after administration Morphine or Fentanyl, ventilate the patient as necessary and administer Narcan.
- Monitor respiratory status, SPO2 and or Waveform Capnography if available.
- Do not use an area previously used for IO attempts.
- Sometimes marrow cannot be aspirated and does not necessarily indicate improper placement.
- Excessive movement of the IO needle may result in leakage.
- Do not place more than one IO unless absolutely necessary.
Medication Administration Procedure

Medication administration is accomplished by specific routes as indicated by the protocols. This procedure describes the traditional medication routes for use in the prehospital setting.

Preparation Steps

1. Observe universal precautions for body substance exposures.
2. Confirm the drug order, amount to be given and route.
3. Confirm that the patient is not allergic to the medication.
4. Check the medication:
   - Is it the right medication?
   - Expiration date?
   - Color and clarity?
5. Explain to the patient what medication you are giving them and why you are giving it.
6. Assemble the necessary equipment.
7. Calculate and draw up the desired volume of the drug or confirm the concentration of the drug if administering from a pre-filled syringe.
8. Eject any air from the syringe.
9. Confirm the medication again:
   - Is it the right medication?
   - Is it the right patient?
   - Is it the right dose?
   - Is it the right route?
   - Is it the right time?
   - Is it the right documentation in the chart?

Intravenous Medication Administration

This procedure utilizes an IV that has previously been established and patency has been confirmed.
1. Cleanse the injection port or luer port with an alcohol prep pad.
2. Insert the needle into the inlet port or attach the syringe to the luer port.
3. Stop the flow of the IV by pinching off the IV tubing above the port.
4. Inject the desired amount of drug at the rate indicated by protocol.
5. Release the IV tubing and flush with approximately 20mL of fluid to assure delivery of the drug.
6. Properly dispose of the contaminated equipment.
7. Document the name of the medication, the dose, the route of administration and the time that the drug was administered.

EZ-IO Medication Administration

Refer to Intravenous Medication Administration steps.
Endotracheal Medication Administration

This procedure utilizes an ETT which has previously been established and proper placement has been confirmed. Only certain medications may be given via the ETT as specified by protocol.

1. Hyperventilate the patient.
2. Disconnect the BVM if needed.
3. If CPR is being performed, stop chest compressions.
4. Dilute the medication and/or double the dose of the medication.
5. Place the needle or syringe into the lumen of the ETT and forcefully inject the desired amount of the drug into the lumen.
6. If it was disconnected, re-connect the BVM and resume ventilations (while withholding chest compressions for 5 seconds) and then resume chest compressions if indicated.
7. Document the name of the medication, the dose of the medication, the route of administration and the time that the drug was administered.
8. Properly dispose of the contaminated equipment.
Intramuscular (IM) injections in the prehospital setting are relatively uncommon. IM injections are administered into the muscle tissue and require adequate perfusion for absorption.

1. Identify an injection site (the deltoid muscle of the upper arm and the upper outside quadrant of the gluteus muscle are commonly used). **Note:** The only approved site for the EMT-Basic is the thigh (epipen) & Intermediate level agencies is the left or right deltoid.
2. Clean the injection site with an alcohol prep.
3. Stretch or “flatten” the skin overlying the site with your fingers.
4. Advise the patient to expect a “stick” and to try to relax.
5. Insert the needle (preferably a 2-inch, 22g needle) at a 90 degree angle into the muscle tissue.
6. Pull back (aspirate) on the syringe to confirm that the needle is not in a vessel by observing for blood return.
   - If blood is aspirated into the syringe, discontinue the injection and start the procedure over.
   - If blood is not aspirated into the syringe, slowly inject the drug into the muscle tissue.
7. Withdraw the needle and apply pressure to the site with a gauze pad.
8. Document the name of the medication, the dose of the medication, the route of administration and the time that the drug was administered.
9. Properly dispose of the contaminated equipment.
10. Monitor and document the patient’s response to the medication.
Medication Administration Procedure

Intranasal Medication Administration

**Indication**

Intranasal medication administration may be considered when IV access is unavailable and/or when a needleless delivery system is desired because of patient agitation, combative ness, or similar conditions that may pose a safety risk to personnel.

**Contraindications**

- Nasal trauma
- Epistaxis, nasal congestion, (significant) nasal discharge

**Equipment**

- Medication indicated by treatment protocol
- 1 or 3mL syringe with appropriate transfer device
- Mucosal Atomizer Device (MAD)

**Procedure**

1. Select desired medication and determine dose.
2. Draw up appropriate dose (volume) of medication. Allow an additional 0.1 ml in the syringe to account for the device “dead space”.
3. Attach the MAD to the end of the syringe
4. Prepare and position the patient in a supine or recumbent position. If the patient is sitting, compress the nares after administration.
5. Place tip of the MAD snuggly against nostril aiming slightly up and outward (toward the top of the ear on the same side of the head)
6. Rapidly administer one half of the dose of medication, briskly pushing the plunger
7. Repeat with the other nostril delivering the remaining volume of medication
   - **Do NOT administer more than 1mL per nostril.**
8. Evaluate medication effectiveness and continue with treatment protocol.

**Notes**

- Severe hypotension may prevent adequate medication absorption
- Nasal administration is less likely to be effective if the patient has been abusing inhaled vasoconstrictors such as cocaine.
CARDIAC CARE
Patients experiencing chest pain with a suspected cardiac origin may present with signs and symptoms which include:

- Substernal chest pain / pressure
- Heaviness, tightness or discomfort in the chest
- Radiation and/or pain/discomfort to the neck or jaw
- Pain/discomfort/weakness in the shoulders/arms
- Nausea/vomiting
- Diaphoresis
- Dyspnea

Priorities in the care of chest pain patients include:

- Assessing and securing ABCs.
- Determining the quality and severity of the patient’s distress.
- Identifying contributing factors of the event.
- Obtaining a medical history (including medications & allergies).

Timely transportation to the emergency department is an important factor in patient outcome.

**Strongly encourage transport to a hospital with an interventional catheterization lab when STEMI is present on 12-Lead ECG.**

### Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating care to reassure the patient, reducing the patient’s discomfort and beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen**: 15 L/min via non-rebreather mask. If the patient does not tolerate a mask, then administer 6 L/min via nasal cannula.
3. **Aspirin (ASA)**: 4 tablets of 81mg chewable aspirin by mouth (324mg) if not given prior.
   - Ask the patient specifically about any history of hypersensitivity to ASA.
   - Do not give ASA to patients with active ulcer disease, asthma or known allergy to ASA.

**Contact Medical Control for Orders for Nitroglycerin (NTG) Assist.** 0.4mg sublingual if patient has their own prescribed Nitroglycerine if patient is age 30 or older, has chest pain consistent with acute myocardial infarction (AMI), BP is 100 or above and not taking Viagra or other erectile dysfunction medications. **If these criteria are met and medical control cannot be reached, NTG should not be withheld.**
BLS Care should be directed at conducting a thorough patient assessment, providing care to reassure the patient, reducing the patient’s discomfort, beginning treatment for shock and preparing or providing patient transportation.

2. Render initial care in accordance with the *Universal Patient Care Protocol*.

3. **Oxygen**: 15 L/min via non-rebreather mask. If the patient does not tolerate a mask, then administer 6 L/min via nasal cannula.

   **Aspirin (ASA)**: 324mg PO (4 tablets of 81mg chewable aspirin by mouth).
   - Ask the patient specifically about any history of hypersensitivity to ASA.
   - Do not give ASA to patients with active ulcer disease, asthma or known allergy to ASA.

4. **Nitroglycerin (NTG)**: 0.4mg SL (1 metered spray or tablet dose sublingually). May repeat every 3-5 minutes to a total of 3 doses (if systolic BP remains > 100mmHg).
   - NTG (& ASA) may be administered without contacting Medical Control if the patient is age 30 or older, has chest pain consistent with acute myocardial infarction (AMI) and has a systolic BP > 100mmHg. *If the patient does not meet criteria, consult Medical Control prior to administering NTG.*

5. Obtain **12-Lead EKG** and transmit to Medical Control ASAP if you have the capability.

6. Initiate ALS (or ILS) intercept if necessary and transport as soon as possible.

7. **Contact Medical Control** as soon as possible.
Universal Cardiac Care Protocol

ILS Care

ILS Care should be directed at conducting a thorough patient assessment, providing care to reassure the patient, reducing the patient’s discomfort, beginning treatment for shock and preparing or providing patient transportation.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask if oxygen saturation less than 94%. If the patient does not tolerate a mask, then administer 6 L/min via nasal cannula.

3. **Aspirin (ASA)**: 324mg PO (4 tablets of 81mg chewable aspirin by mouth).
   - Ask the patient specifically about any history of hypersensitivity to ASA.
   - Do not give ASA to patients with active ulcer disease, asthma or known allergy to ASA.

4. **Nitroglycerin (NTG)**: 0.4mg SL (1 metered spray dose sublingually). May repeat every 3-5 minutes to a total of 3 doses (if systolic BP remains > 100mmHg).

   NTG (& ASA) may be administered without contacting Medical Control if the patient is age 30 or older, has chest pain consistent with acute myocardial infarction (AMI) and has a systolic BP > 100mmHg.

5. Initiate ALS intercept if necessary and transport as soon as possible (transport can be initiated at any time during this sequence).

6. Obtain 12-Lead EKG and transmit to receiving hospital. **Contact Medical Control** as soon as possible, regardless of EKG transmission.

7. **Contact Medical Control for “Physician Orders Only” for Morphine Sulfate**: 2-5mg IV every 5 minutes *per Medical Direction* (if needed) to reduce the patient’s anxiety and severity of pain. OR may request under medical direction the following

   **Fentanyl**: 50mcg IV, over 2 minutes for pain. Fentanyl 50mcg IV may be repeated every 5 minutes to a total of 200mcg.

   **Fentanyl**: 50mcg IM, if unable to initiate IV access. May be repeated as needed to a total of 200mcg.

   **Fentanyl**: IN (See Intranasal Fentanyl Dosing Chart)
ALS Care should be directed at conducting a thorough patient assessment, providing care to reassure the patient, reducing the patient’s discomfort, beginning treatment for shock and preparing or providing patient transportation.

1. Render initial care in accordance with the *Universal Patient Care Protocol*. If time permits, establish a 2nd line (preferably an 18g saline lock) en route.

2. **Oxygen**: 15 L/min via non-rebreather mask if oxygen saturation less than 94%. If the patient does not tolerate a mask, then administer 6 L/min via nasal cannula.

3. **Aspirin (ASA)**: 324mg PO (4 tablets of 81mg chewable aspirin by mouth).
   - Ask the patient specifically about any history of hypersensitivity to ASA.
   - Do not give ASA to patients with active ulcer disease, asthma or known allergy to ASA.

4. **Nitroglycerin (NTG)**: 0.4mg SL (1 metered spray dose sublingually). May repeat every 3-5 minutes to a total of 3 doses (if systolic BP remains > 100mmHg).
   - NTG (& ASA) may be administered without contacting Medical Control if the patient is age 30 or older, has chest pain consistent with acute myocardial infarction (AMI) and has a systolic BP > 100mmHg.

5. Obtain **12-Lead EKG** and transmit to receiving hospital. Contact Medical Control if wide complex tachycardia or consultation is needed.

6. **Nitropaste (Nitro-Bid)**: 1 inch to anterior chest wall if patient’s systolic BP is greater than 100mmHg.

7. **Ondansetron (Zofran)**: 4mg IV over 2 minutes for nausea and/or vomiting.
   **Ondansetron (Zofran)**: 4mg IM
   **Ondansetron (Zofran)**: 4mg PO orally disintegrating tablet

8. **Morphine Sulfate**: 2-5mg IV every 5 minutes (if needed) to reduce the patient’s anxiety and severity of pain. **Contact Medical Direction after a total of 10mg**
   **OR**
   **Fentanyl**: 50mcg IV, over 2 minutes for pain. Fentanyl 50mcg IV may be repeated every 5 minutes to a total of 200mcg.
   **Fentanyl**: 50mcg IM, if unable to initiate IV access. May be repeated as needed to a total of 200mcg.
Fentanyl: IN (See Intranasal Fentanyl Dosing Chart)

8. Transport as soon as possible (transport can be initiated at any time during this sequence).

9. Contact Medical Control as soon as possible, regardless of EKG transmission.

Critical Thinking Elements

- ILS & ALS may administer Nitroglycerin when the patient’s systolic blood pressure is between 90-100mmHg if IV access has been established.
- Use caution with acute inferior wall MI (II, III, aVF) – Place IV and administer 20ml/kg Normal Saline as needed following Nitroglycerin
- Use caution with acute septal wall MI (V1, V2) – Watch for AV blocks and consider pacing.
- Initiate ALS intercept if the patient’s chest pain is not eliminated with Oxygen or NTG.
- Consider the patient to be in cardiogenic shock if the patient has dyspnea, diaphoresis, a systolic BP < 100mmHg, and signs of congestive heart failure.
- Obtaining a 12-Lead EKG should not significantly delay initiation of transport.
- EKG limb leads should actually be placed on the patient’s limbs!
- A pulse oximeter is a tool to aid in determining the degree of patient distress and the effectiveness of EMS interventions. A high pulse oximeter reading should not result in oxygen therapy being withheld.
- NTG that the patient self administers prior to EMS arrival should be reported to Medical Control. Subsequent doses should be provided by the EMS unit’s stock.
- Medications should not be administered IM to a suspected AMI patient.
- Nitro paste can be placed on the patient’s upper back instead of the anterior chest if needed (e.g. if the patient has excessive chest hair).
- If the patient’s systolic BP drops below 90mmHg, wipe the Nitropaste off.
- The goal of the EMT-B is to obtain a 12-Lead EKG and send it to the receiving hospital as soon as possible.
- 10 minutes is the goal for EKG’s to be performed at all levels.
- Avoid use of Zofran in patients with congenital long QT syndrome as these patients are at particular risk for Torsades de Pointes
Cardiogenic Shock Protocol

Cardiogenic shock occurs when the “pump” component of perfusion (the heart) begins to fail. The signs and symptoms of cardiogenic shock include:

- Pain, heaviness, tightness or discomfort in the chest with hypotension (systolic BP < 100mmHg)
- Rales or crackles (“wet” lung sounds)
- Pedal edema
- Dyspnea
- Diaphoresis
- Nausea/vomiting

Patients with a history of AMI or CHF have increased risk factors. Priorities in the care of the Cardiogenic shock patient include:

- Assessing and securing ABCs.
- Determining the quality and severity of the patient’s distress.
- Identifying contributing factors of the event.
- Obtaining a medical history (including medications and allergies).

Timely transportation to the emergency department is an important factor in patient outcome.

Emergency Medical Responder Care

1. Render initial care in accordance with the Universal Patient Care Protocol.

2. **Oxygen**: 15 L/min via non-rebreather mask. If the patient does not tolerate a mask, then administer 6 L/min via nasal cannula.

BLS Care

1. Render initial care in accordance with the Universal Patient Care Protocol.

2. **Oxygen**: 15 L/min via non-rebreather mask. If the patient does not tolerate a mask, then administer 6 L/min via nasal cannula.

3. Initiate ALS (or ILS) intercept and transport as soon as possible.
**Cardiogenic Shock Protocol**

**ILS Care**

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask. If the patient does not tolerate a mask, then administer 6 L/min via nasal cannula.

3. **IV Fluid Therapy**: 20mL/kg fluid bolus.

4. Obtain **12-Lead EKG** and transmit to receiving hospital. Contact Medical Control if wide complex tachycardia or consultation is needed.

5. Initiate ALS intercept and transport as soon as possible.

6. **Contact Medical Control** as soon as possible.

**ALS Care**

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask. If the patient does not tolerate a mask, then administer 6 L/min via nasal cannula.

3. **IV Fluid Therapy**: 20mL/kg fluid bolus.

4. **Dopamine**: Begin infusion at 24gtts/min. Increase by 12gtts/min every 2 minutes to achieve and maintain a systolic BP of at least 100mmHg. Closely monitor vital signs.
   - Dopamine is provided premixed (400mg in 250mL D5W). This yields a concentration of 1600mcg/mL. The initial rate of infusion is 1-10mcg/kg/min which can be achieved with a 24gtts/min infusion rate.

5. If the patient has a cardiac dysrhythmia, treat the underlying rhythm disturbance according to the appropriate SMO.

6. Obtain **12-Lead EKG** and transmit to receiving hospital. Contact Medical Control if wide complex tachycardia or consultation is needed.

7. Transport as soon as possible (transport can be initiated at any time during this sequence) and **Contact Medical Control** as soon as possible.
The successful resuscitation of patients in cardiac arrest is dependent on a systematic approach of initiating life-saving CPR and early defibrillation and transferring care to advanced life support providers in a timely manner. The majority of adults who survive non-traumatic cardiac arrest are resuscitated from ventricular fibrillation with defibrillation. The primary factor for successful defibrillation and resuscitation is decreasing the time interval from onset of cardiac arrest to effective CPR, defibrillation and advanced life support.

**Emergency Medical Responder Care**

Emergency Medical Responder Care should be focused on confirming that the patient is in full arrest and in need of CPR. Resuscitative efforts should be initiated by opening the airway and initiating ventilations & chest compressions while attaching a defibrillator. It is important to assure that CPR is being performed correctly following AHA guidelines.

1. Determine unresponsiveness. Confirm that a transporting unit (and ALS intercept) has been activated.
2. Check for pulse (10 seconds). If pulseless, **begin CPR**. CPR should start with compressions at a rate of 100/min with a ratio of 30 compressions to 2 ventilations for 5 cycles (2 minutes)
3. Apply an AED **after 2 minutes of CPR** to determine if defibrillation is needed.
4. Continue CPR until the AED is attached and turned on. Stop CPR when the AED is analyzing:
   a) If the AED indicates “SHOCK ADVISED”, call out “CLEAR!” check for the safety of others, and push the SHOCK button (or stand clear if the AED device does not require shock activation).
   b) Immediately **resume CPR (starting with compressions) for 5 cycles (2 minutes)**.
   c) Reassess the patient and allow the AED to analyze.
   d) If the AED indicates “SHOCK ADVISED”, call out “CLEAR!” check for the safety of others, and push the SHOCK button (or stand clear if the AED device does not require shock activation).
   e) Check for a pulse if the AED states “NO SHOCK ADVISED”.
   f) **Continue CPR if pulse is absent**.
   g) **Reassess every 2 minutes**. Shock if indicated.
   h) If the patient regains a pulse at any time during resuscitation, then maintain the airway and assist ventilations.
   i) Re-analyze the patient’s rhythm with the AED if the patient returns to a pulseless state. Shock if indicated.
5. Immediately turn patient care over to the transporting provider or ALS intercept crew upon their arrival.
6. Complete all necessary cardiac arrest documentation.
BLS Care should focus on maintaining the continuity of care by confirming the patient is in cardiac arrest and continuing resuscitative efforts initiated by the Emergency Medical Responders. Transporting BLS units should initiate an ALS intercept as soon as possible.

1. BLS care includes all of the components of Emergency Medical Responder Care.
2. Shocks delivered to the patient prior to the transporting unit arriving on scene should be taken into consideration during the transition of care. Transporting crews may want to utilize the AED used by the non-transporting Emergency Medical Responders if circumstances allow for exchange of equipment or personnel ride-along.
3. Place KING LTS-D Airway (if possible) and continue ventilations.
4. Call for ALS intercept and initiate transport as soon as possible.
5. Contact the receiving hospital as soon as possible.

ILS Care should focus on maintaining the continuity of care by confirming that the patient is in cardiac arrest and beginning resuscitative efforts or continuing resuscitative efforts initiated by the Emergency Medical Responders.

1. Determine unresponsiveness.
2. Check for pulse (10 seconds). If pulseless, begin CPR. CPR should start with compressions at a rate of 100/min with a ratio of 30 compressions to 2 ventilations.
3. Apply Quick-Combo pads (or Fast Patches).
4. Evaluate the rhythm.
5. If V-fib or pulseless V-tach, immediately defibrillate per manufacturer’s recommendations for biphasic monitors (or 360J for monophasic defibrillators).
6. Immediately resume CPR (starting with compressions) for 2 minutes.
7. Evaluate the patient/rhythm and defibrillate if needed. Continue CPR and re-evaluate patient/rhythm every 2 minutes.
8. Obtain peripheral IV access as soon as possible
9. If after 2 rounds of epinephrine/CPR/any necessary defibrillation/medications there are no spontaneous respirations or the patient is unresponsive without a gag reflex, Intubate the patient and provide ventilation at 12 breaths/minute.
10. If intubation is unsuccessful after maximum 2 attempts, place KING LTS-D Airway (if possible) and continue ventilations. Strongly consider after 1 attempt.
11. Initiate Induced Hypothermia if ROSC achieved.
12. If no ROSC, after multiple rounds of CPR/vasoactive drugs/airway management, consider transport vs. termination of resuscitation. See Termination of resuscitation policy.

**Cardiac Arrest Protocol**

**ALS Care**

ALS Care should focus on maintaining the continuity of care by confirming that the patient is in cardiac arrest and beginning resuscitative efforts or continuing resuscitative efforts initiated by the Emergency Medical Responders.

1. Determine unresponsiveness.
2. Check for pulse (10 seconds). If pulseless, **begin CPR**. CPR should start with compressions at a rate of 100/min with a ratio of 30 compressions to 2 ventilations.
3. Apply Quick-Combo pads (or Fast Patches). Quickly place non rebreather/BVM over face for passive oxygenation.
4. Evaluate the rhythm.
5. If V-fib or pulseless V-tach, immediately **defibrillate per manufacturer’s recommendations for biphasic monitors (or 360J for monophasic defibrillators)**.
6. **Immediately resume CPR (starting with compressions) for 2 minutes**.
7. Evaluate the patient/rhythm and defibrillate if needed. **Continue CPR and re-evaluate patient/rhythm every 2 minutes**.
8. Obtain **peripheral IV or IO** access as soon as possible.
9. If patient has a history of Renal Failure, no ROSC is observed after 2 rounds of epinephrine, administer **calcium chloride 1gm IV/IO** slow.
10. Identify and treat cardiac dysrhythmias according to the appropriate protocol.
11. **If after 2 rounds of epinephrine/CPR/any necessary defibrillation/medications there are no spontaneous respirations or the patient is unresponsive without a gag reflex, Intubate** the patient and provide ventilation at 12 breaths/minute.
12. If intubation is unsuccessful after maximum 2 attempts, **place KING LTS-D Airway (if possible) and continue ventilations**. Strongly consider after 1 attempt.
13. Initiate Induced Hypothermia if ROSC achieved
14. If no ROSC, after multiple rounds of CPR/vasoactive drugs/airway management, consider transport vs. termination of resuscitation. See **Termination of resuscitation policy**

58
Critical Thinking Elements

- If the cardiac arrest is witnessed by EMS personnel, start CPR and defibrillate immediately after Fast Patches or Quick Combos are placed.
- Do not touch, ventilate or move the patient while the AED is analyzing.
- Do not exceed three (3) shocks on scene without contacting Medical Control.
- Patients with implanted pacemakers or implanted defibrillators (AICDs) are treated the same way as any other patient; however do not place the electrodes, Quick Combo pads or Fast Patches over the top of the pacemaker or AICD site.
- Treat the patient – not the monitor. **A rhythm present on the monitor screen should NOT be used to determine pulse.** If the monitor shows a rhythm and the patient has no pulse, begin CPR (the patient is in PEA – pulseless electrical activity).
- Trauma patients in cardiac arrest should be evaluated for viability. If the patient is to be resuscitated, begin CPR and LOAD & GO.
- When changing to ALS monitoring equipment, attach defibrillation cables prior to disconnecting the AED.
- Resuscitation and treatment decisions are based on the duration of the arrest, physical exam and the patient’s medical history. Consider cease-effort orders if indicated.
- Consider underlying etiologies and treat according to appropriate protocols.
- The 2010 American Heart Association (AHA) ACLS Guidelines **do not** recommend transcutaneous pacing for agonal rhythms or cardiac arrest.
**High Performance CPR**

The 2014 upgrade to High-Performance CPR is an initiative to decrease time to patient care in Out-of-Hospital Cardiac Arrest (OHCA), maximize the amount of “hands on” compression time during a cardiac arrest and streamline the approach of the OHCA through a simplified, efficient and choreographed team approach. It has been documented that efficient response times, maximizing compression time and minimizing interruptions in CPR lead to demonstrable better outcomes to cardiac arrest.

### BLS/CPR

**BLS OWNS CPR** (Even if ALS on scene first, BLS measures initiated first until backup arrives).

- 1 provider initiates compressions
- 1 provider attaches AED/Monitor first, then moves to airway
  - Do not stop compressions to cut clothes or to apply defibrillation pads
- 1 provider acts as time keeper/team manager.
  - Calls out rotational changes every 2 minutes
    - Analyzes rhythm while providers change position until ALS arrives
  - Reminds ALS providers when last medication dose administered every 3-5 minutes.

### CONTINUOUS COMPRESSIONS

- Compressions continue to be at a rate of 100-110 per minute for 2 minutes.
- Use a metronome if possible (smart phone app or equipped with AED)
- There will be no ventilation pauses.
- “Do NOT interrupt chest compressions” during the 2 minute cycle.
- If possible, change the Compression Person each 2 minute cycle.

### EFFECTIVE COMPRESSIONS

- Aggressively maintain compression depth of 1 ½ - 2 inches (or more on larger individuals).
- Compressions should be smooth with 50% down / 50% up motion.
- Completely release pressure with each compression for maximum blood flow.
- Do not bounce off chest, or lean on the chest during compressions.

### AED/MONITOR

- Turn on the AED/monitor as soon as cardiac arrest has been verified
- Clearly state: “beginning 2 minutes of CPR” for time keeper/team leader
- Team leader records times of initiation of compression and monitor placement
- Do NOT interrupt chest compressions to cut clothes or place patches.

### INTERPOSED VENTILATIONS

- Do NOT interrupt chest compressions; interpose (insert) (1) ventilation for every 10 compressions.
  - Ventilate ‘just enough for chest rise’.
- You must count compressions to help appropriately time ventilations
  - The Designated Compression Provider should count compressions aloud in sets of ‘10’ to cue the ventilation provider to ventilate the patient
- This will yield a ventilation rate of approximately 10 per minute.
- The Compression Ventilation Ratio of 10:1 applies to pediatric patients as well.

### PULSE CHECKS

- NO PULSE CHECKS AFTER SHOCK
- Pulse checks only if organized rhythm after defibrillation
- Continue to monitor the effectiveness of Chest Compressions during CPR
- Wave-form capnography can greatly reduce need for pulse checks and can accurately identify ROSC

### CARDIAC ARREST AFTER EMS ARRIVAL (EMS WITNESSED ARREST)

- The main priority is to defibrillate as soon as possible.
- Continuous compressions while applying the monitor/AED. This will maximize the likelihood of success.
- Once the monitor/AED is in place push Analyze.
- Continue as in un-witnessed arrest.

### ALS/ACLS

60
There is a preponderance of evidence that suggest therapeutic hypothermia when a patient has return of circulation after cardiac arrest increases the likelihood to go home from the hospital neurologically intact. Furthermore, there is increasing evidence that the earlier this is started, the better the chance of good neurologic outcome. Thus, initiating cooling in the field may be cerebro-protective and should be initiated when appropriate.

**INDUCED HYPOTHERMIA**

1. If after initiating the Cardiac Arrest Protocol you get return of circulation.
2. Confirm return of spontaneous pulse, confirm that the patient remains unresponsive. If GCS <9, initiate cooling.
3. Ventilate the patient with 100% oxygen either by intubation of blind insertion airway device.
4. Confirm history (non-traumatic – drowning and hanging are permissible)
5. Confirm patient age is 18 years or greater.
6. Perform neurological exam
7. Expose patient, apply ice packs around head, to the groin, and axilla areas.
8. If available, utilize cold saline bolus (20 ml/kg) to maximum of two (2) liters. If patient has a history of CHF, limit to one (1) liter.
9. Reassess temperature. If <33 C rectally, discontinue cooling process. If >33 C rectally and no shivering, continue to monitor temperature and cooling process.
10. Contact Medical Control if there is any question of whether or not to initiate cooling.
11. Continue to address possible underlying causes of cardiac arrest.
The successful resuscitation of patients in cardiac arrest is dependent on a systematic approach to resuscitation. ACLS medications are an important factor in successful resuscitation of the pulseless patient when the initial rhythm is not ventricular fibrillation (V-fib) or in cases where defibrillation has been unsuccessful. It is important that BLS providers understand the value of effective CPR and an ALS intercept in providing the patient with ACLS therapy.

**Critical Thinking Elements**

- ROSC is defined as the return of a palpable pulse of greater than 30 seconds
- Induced hypothermia should only be initiated after ROSC has been achieved and the patient has no meaningful response to verbal commands
- Temperature after the resuscitation must be greater than 33 C rectally.
- If no blind insertion airway or intubation is in place, cooling may only be initiated by Medical Control order
- Protect the patient’s modesty; undergarments may remain in place during cooling efforts
- Do not delay transport to cool the patient
- Frequently monitor the airway and temperature status
- Patients may develop metabolic alkalosis with cooling; **DO NOT HYPERVENTILATE**

**Emergency Medical**

Not applicable. Emergency Medical Responders are not equipped with ACLS medications and shall treat the patient in accordance with the *Cardiac Arrest Protocol*.

**BLS Care**

- **Narcan:** 2mg Intranasal may be given for suspected or known narcotic overdose.

**Ventricular Fibrillation (V-fib) or Pulseless Ventricular Tachycardia (V-tach)**

**ILS Care**

1. Initiate *Cardiac Arrest Protocol*.

2. Evaluate rhythm after 2 minutes of CPR. If V-fib or pulseless V-tach: **Defibrillate per manufacturer’s recommendations for biphasic monitors (or 360J for monophasic defibrillators)**.

3. **Immediately resume CPR for 2 minutes** and re-evaluate the patient/rhythm.
4. **Epinephrine 1:10,000**: 1mg IV or 2mg ETT if patient is pulseless and repeat every 3-5 minutes as needed.

5. If pulseless V-fib/V-tach persists: **Defibrillate per manufacturer’s recommendations for biphasic monitors (or 360J for monophasic defibrillators).**

6. **Immediately resume CPR for 2 minutes** and re-evaluate the patient/rhythm.

7. **Lidocaine**: 1.5mg/kg IV/IO or 3.0mg/kg ETT for persistent V-fib or V-tach. Repeat bolus: 1.5mg/kg IV in 3-5 minutes to a total of 3mg/kg if patient remains in V-fib or V-tach. **OR**

8. If pulseless V-fib/V-tach persists: **Defibrillate per manufacturer’s recommendations for biphasic monitors (or 360J for monophasic defibrillators).**

9. **Immediately resume CPR** and re-evaluate patient/rhythm every 2 minutes.

10. **Dextrose 50%**: 25g IV if blood sugar is < 60mg/dL.

11. **Narcan**: 2mg IV/IN or 4mg ETT if suspected narcotic overdose.

12. Transport as soon as possible.

13. Contact the receiving hospital as soon as possible.

**ALS Care**

1. Initiate *Cardiac Arrest Protocol*.

2. Evaluate rhythm after 2 minutes of CPR. If V-fib or pulseless V-tach: **Defibrillate per manufacturer’s recommendations for biphasic monitors (or 360J for monophasic defibrillators).**
3. **Immediately resume CPR for 2 minutes** and re-evaluate the patient/rhythm.

4. **Epinephrine 1:10,000**: 1mg IV/IO or 2mg ETT if patient is pulseless and repeat every 3-5 minutes as needed.

5. If pulseless V-fib/V-tach persists: **Defibrillate per manufacturer’s recommendations for biphasic monitors (or 360J for monophasic defibrillators).**

6. **Immediately resume CPR for 2 minutes** and re-evaluate patient/rhythm.

---

**Resuscitation of Pulseless Rhythms Protocol**

**ALS Care (continued)**

7. **Lidocaine**: 1.5mg/kg IV/IO or 3.0mg/kg ETT for persistent V-fib or pulseless V-tach. Repeat bolus: 1.5mg/kg IV/IO in **3-5 minutes** to a total of 3mg/kg if patient remains in V-fib or pulseless V-tach. 
   
   Or
   
   **Amiodarone**: Initial dose 300mg bolus IV/IO for persistent V-fib or pulseless V-tach. Repeat dose: 150mg bolus IV/IO if patient remains in V-fib or pulseless V-tach following at least 2 minutes of CPR.

8. If V-fib/Pulseless V-tach persists: **Defibrillate per manufacturer’s recommendations for biphasic monitors (or 360J for monophasic defibrillators).**

9. **Immediately resume CPR** and re-evaluate patient/rhythm every 2 minutes.

10. **Dextrose 50%**: 25g IV/IO if blood sugar is < 60mg/dL.

11. **Narcan**: 2mg IV/IO/IN or 4mg ETT if suspected narcotic overdose.

12. Transport as soon as possible.

13. Contact the receiving hospital as soon as possible.

---

**Pulseless Electrical Activity**

**FR/BLS Care**

Initiate cardiac arrest Protocol
Narcan: 2mg Intranasal may be given for suspected or known narcotic overdose.

ILS Care

1. Initiate Cardiac Arrest Protocol.
2. Evaluate rhythm after 2 minutes of CPR.
3. Epinephrine 1:10,000: 1mg IV/IO or 2mg ETT every 3-5 minutes.

Resuscitation of Pulseless Rhythms Protocol

4. Continue CPR and re-evaluate patient/rhythm every 2 minutes.

ILS Care (continued)

5. IV Fluid Therapy: 20mL/kg fluid bolus for suspected hypovolemia.
6. Dextrose 50%: 25g IV/IO if blood sugar is < 60mg/dL.
7. Narcan: 2mg IV/IN/IO or 4mg ETT if suspected narcotic overdose.
8. Initiate ALS intercept and transport as soon as possible.
9. Contact the receiving hospital as soon as possible.

ALS Care

1. Initiate Cardiac Arrest Protocol.
2. Evaluate rhythm after 2 minutes of CPR.
3. Epinephrine 1:10,000: 1mg IV/IO or 2mg ETT every 3-5 minutes.
4. Continue CPR and re-evaluate patient/rhythm every 2 minutes.
5. IV Fluid Therapy: 20mL/kg fluid bolus for suspected hypovolemia.
6. Dextrose 50%: 25g IV/IO if blood sugar is < 60mg/dL.
7. Narcan: 2mg IV/IO/IN or 4mg ETT if suspected narcotic overdose.
8. **Sodium Bicarbonate**: 50meq IV/IO if known tricyclic antidepressant (TCA) overdose, known Aspirin (ASA) overdose or patient suffers from chronic renal failure.

9. **Needle chest decompression** for a patient in *traumatic* cardiac arrest with suspected tension pneumothorax.

10. Transport as soon as possible and contact the receiving hospital as soon as possibl...
10. Contact the receiving hospital as soon as possible.

**ALS Care**

1. Initiate *Cardiac Arrest Protocol*.

2. Evaluate rhythm after **2 minutes** of CPR.

3. **Epinephrine 1:10,000**: 1mg IV/IO or 2mg ETT every 3-5 minutes.

**Resuscitation of Pulseless Rhythms Protocol**

4. **Continue CPR** and re-evaluate patient rhythm every 2 minutes

5. **IV Fluid Therapy**: 20mL/kg fluid bolus for suspected hypovolemia

6. **Dextrose 50%**: 25g IV/IO if blood sugar is <60mg/dL.

7. **Narcan**: 2mg IV/IO/IN or 4mg ETT if suspected narcotic overdose.

8. **Sodium Bicarbonate**: 50meq IV/IO if known tricyclic antidepressant (TCA) overdose, known Aspirin (ASA) overdose or patient suffers from chronic renal failure.

9. Consider “cease efforts” order (see *Resuscitation vs. Cease Efforts Policy*).

10. If transporting, transport as soon as possible.

11. Contact the receiving hospital as soon as possible.
Critical Thinking Elements

- Treat the patient – not the monitor. **A rhythm present on the monitor screen should NOT be used to determine pulse.** If the monitor shows a rhythm and the patient has no pulse, begin CPR (the patient is in PEA).
- Trauma patients in cardiac arrest should be evaluated for viability. If the patient is to be resuscitated, begin CPR and LOAD & GO.
- Resuscitation and treatment decisions are based on the duration of the arrest, physical exam and the patient’s medical history. Consider cease-effort orders if indicated.
- Consider underlying etiologies and treat according to appropriate protocols (e.g. airway obstruction, metabolic shock, hypovolemia, central nervous system injury, respiratory failure, anaphylaxis, drowning, overdose, poisoning, etc.).
- A 20mL fluid bolus should be given after each drug administration to flush the IV line.
- **If the cardiac arrest is witnessed by EMS personnel, start CPR and defibrillate immediately after Fast Patches or Quick Combos are placed for V-fib/pulseless V-tach.**
Termination of Resuscitation Protocol

ILS/ALS Care

TERMINATION OF RESUSCITATION (Medical)
IF ANY DOUBT EXISTS, INITIATE RESUSCITATION AND TRANSPORT

1. PURPOSE
This protocol is designed to guide the provider in determining a futile resuscitation and managing the patient after this determination. There is a body of evidence that shows when a pre-hospital cardiac arrest victim reliably meets the criteria below; there is no chance of survival to hospital discharge. This protocol CANNOT be initiated without calling medical control for a Physician Order Only.

2. PROCEDURE
1. Exclusions to this protocol.
   a. If arrest is believed to be secondary to hypothermia or submersion, treat according to appropriate protocol and transport to the nearest appropriate facility.
   b. If patient is pregnant, treat according to appropriate protocol and transport to the nearest appropriate facility.
   c. If patient has not reached their 18th birthday, treat according to appropriate protocol and transport to the nearest appropriate facility.

2. EMS providers may terminate resuscitation with medical direction call when all three criteria are met.
   a. The arrest was not witnessed by a bystander or EMS (and patient is unresponsive, pulseless, and apneic). AND
   b. There is no shockable rhythm identified by an AED or there is asystole or PEA on a manual cardiac monitor. AND
   c. There is no return of spontaneous circulation (ROSC) prior to decision to terminate resuscitation despite appropriate field EMS treatment that includes at least 15 minutes of minimally-interrupted EMS CPR.
Bradycardia is defined as a heart rate less than sixty beats per minute (< 60 bpm). Determining the stability of the patient with bradycardia is an important factor in patient care decisions. The assessment of the patient with bradycardia should include evaluation for signs and symptoms of hypo-perfusion.

The patient is considered **stable** if the patient is asymptomatic (i.e. alert and oriented with warm, dry skin and a systolic BP > 100mmHg).

The patient is considered **unstable** if he/she presents with:

- An altered level of consciousness (ALOC).
- Diaphoresis.
- Dizziness.
- Chest pain or discomfort.
- Ventricular ectopy.
- Hypotension (systolic BP < 100mmHg).

### Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating Universal patient care to treat for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

### BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to treat for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. Obtain 12-Lead EKG and transmit to the receiving hospital as soon as possible if you have those capabilities

4. Initiate ALS intercept and transport as soon as possible.
Unstable/Stable Bradycardia Protocol

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. Obtain **12-Lead EKG** and transmit to receiving hospital as soon as possible.

4. **IV Fluid Therapy**: 20mL/kg fluid bolus for systolic BP less than 100mmHg.

5. Initiate ALS intercept and transport as soon as possible. *(Transport can be initiated at any time during this sequence).*

6. **Atropine**: 0.5mg IV if the patient’s perfusion does not improve after the fluid bolus, if the patient is hemodynamically unstable or if the cardiac rhythm is an AV block (other than a 3rd degree block). May repeat 0.5mg IV every 5 minutes *(with Medical Control order)* up to a total of 3mg.

7. **Immediate Transcutaneous Pacing**: If the patient is in a 3rd degree AV block (or in a Type II 2nd degree AV block unresponsive to Atropine).
   a. Target heart rate should be set at 70 bpm.
   b. Current should be set at minimum to start and increased until capture is achieved.
   c. Refer to the *Transcutaneous Pacing Procedure* for additional information.

8. Contact receiving hospital (or Medical Control if needed) as soon as possible.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Obtain **12-Lead EKG** and transmit to receiving hospital as soon as possible.

4. **IV Fluid Therapy**: 20mL/kg fluid bolus for systolic BP less than 100mmHg.

5. **Atropine**: 0.5mg IV/IO if the patient’s perfusion does not improve after the fluid bolus, if the patient is hemodynamically unstable or if the cardiac rhythm is an AV block (other than a 3rd degree block). May repeat 0.5mg IV/IO every **5 minutes** (with Medical Control order) up to a total of 3mg.

6. **Immediate Transcutaneous Pacing**: If the patient is in a 3rd degree AV blocks (or in a Type II 2nd degree AV block unresponsive to Atropine).
   - Target heart rate should be set at **70 bpm**.
   - Current should be set at minimum to start and increased until capture is achieved.
   - Refer to the *Transcutaneous Pacing Procedure* for additional information.

7. **Midazolam (Versed)**: 2mg IV/IO for patient comfort after pacing is initiated. Re-check vital signs 5 minutes after administration. May repeat dose one time if systolic BP > 100mmHg and respiratory rate is > 10 rpm. Additional doses require Medical Control order.

   **Midazolam (Versed)**: Intranasal if unable to obtain IV access. (*See intranasal dosing sheet*).

8. **Dopamine**: If the patient remains hypotensive. Begin infusion at 24gtts/min. Increase by 12gtts/min every **2 minutes** to achieve and maintain a systolic BP of at least 100mmHg. Closely monitor vital signs.
   - Dopamine is provided premixed (400mg in 250mL D5W). *This yields a concentration of 1600mcg/mL. The initial rate of infusion is 1-10mcg/kg/min which can be achieved with a 24gtts/min infusion rate.*

**Unstable/Stable Bradycardia Protocol**

**ALS Care (continued)**
9. Transport as soon as possible *(Transport can be initiated at any time during this sequence).*

10. Contact receiving hospital as soon as possible.

**Critical Thinking Elements**

- Monitor respiratory status, SPO2 and or Waveform Capnography if available if Versed is given.
- Treat the patient – not the monitor. Bradycardia does not necessarily mean that the patient is unstable or requires intervention.
- Treat underlying etiologies according to protocol.
- Atropine is NOT to be given if the patient’s blood pressure is normal or elevated.
- *Bradycardia may be present due to increased intracranial pressure from a stroke or head injury.* Contact Medical Control.
- Factors to consider during the assessment of the patient who presents with bradycardia include: patient health & physical condition (e.g. an athlete), current medications (e.g. beta blockers), trauma or injury related to the event (e.g. a head trauma patient exhibiting signs of herniation or Cushing’s response), and other medical history.
- Assess for underlying causes (e.g. hypoxia, hypovolemic shock, cardiogenic shock, or overdose).
- Fluid bolus should not delay Atropine administration or TCP if the patient is unstable.
- If the patient’s presenting rhythm is a 3rd degree block, immediately prepare to pace. If the patient is symptomatic, pacing should be started without delay.
- The goal of the EMT-B is to obtain a 12-Lead EKG and transmit it to the receiving hospital as soon as possible.
- 10 minutes is the goal for EKG’s to be performed at all levels.
NOTES ON HEART BLOCK

1st Degree AV Block: A delay in conduction through the AV node which is characterized by a prolonged PR interval (> 0.20 seconds). The rhythm is usually regular and there is a 1-to-1 correlation between the P wave and the QRS complex. 1st degree AV Block is of little clinical significance.

Mobitz Type I 2nd Degree AV Block (Wenckebach): An intermittent block that usually occurs at the AV node. The conduction delay progressively increases until the ventricle is blocked. This produces a characteristic cyclical pattern in which the PR interval gets progressively longer until a P wave occurs that is not followed by a QRS complex (a “dropped beat”). Wenckebach is usually transient and reversible but can also progress to a more serious block. It may be an indication of an AMI, increased vagal tone, drug toxicity or an electrolyte imbalance.

Mobitz Type II 2nd Degree AV Block: An intermittent block that usually occurs below the Bundle of His. It is characterized by consecutive P waves being conducted with a constant PR interval before a dropped QRS complex and usually occurs in a regular sequence with a noticeable conduction ratio. This is a serious arrhythmia and can rapidly lead to hypoperfusion.

3rd Degree Heart Block: A complete dissociation from the AV node. Pwaves appear at a regular independent rate of a much slower ventricular rate. This is unstable and can easily cause hypoperfusion. May not respond to atropine and may require pacing if altered mental status or hypotension present.
Narrow Complex Tachycardia Protocol

Tachycardia is defined as a heart rate > 100 bpm. Once the heart rate reaches 150 bpm, the patient is at risk for shock. A narrow QRS complex indicates that the rhythm may be originating in the atrium. Determining the stability of the patient with tachycardia is an important factor in patient care decisions. The assessment of the patient with tachycardia should include evaluation for signs and symptoms of hypoperfusion.

The patient is considered **stable** if the patient is alert and oriented with warm & dry skin and has a systolic BP > 100mmHg.

The patient is considered **unstable** if the patient has an altered level of consciousness, diaphoresis, dizziness, chest pain or discomfort, ventricular ectopy and/or is hypotensive.

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to treat for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating Universal patient care to treat for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. Obtain **12-Lead EKG** and transmit to the receiving hospital as soon as possible if you have the capability

3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

4. If patient is stable, regular or irregular attempt vagal maneuver (**NO carotid massage**)  

5. Initiate ALS intercept and transport as soon as possible.
ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. Obtain **12-Lead EKG** and transmit to receiving hospital as soon as possible.

3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

4. If patient is stable attempt vagal maneuver. **(NO carotid massage)**

5. Consider 20mL/kg fluid bolus to rule out hypovolemia/dehydration as cause of tachycardia.

6. Initiate ALS intercept and transport as soon as possible. **(Transport can be initiated at any time during this sequence).**

7. Contact receiving hospital (or Medical Control if needed) as soon as possible.

8. **Adenosine (Adenocard)**: 6mg IV (**rapid IV push**) if the patient is alert and oriented, has a systolic BP greater than 100mmHg, has a HR greater than 150bpm and is *obviously* not in atrial fib or atrial flutter. If no response after 2 minutes, administer 12mg IV (**rapid IV push**)

7. **Midazolam (Versed)**: 2mg IV/IO for patient comfort during synchronized cardioversion. Re-check vital signs 5 minutes after administration. May repeat dose one time if systolic BP > 100mmHg and respiratory rate is > 10 rpm. Additional doses require Medical Control order.  
**Midazolam (Versed)**: Intranasal if unable to obtain IV access.  **(See intranasal dosing sheet).**

9. **Synchronized Cardioversion**: If the patient has an altered level of consciousness, diaphoresis, dizziness, chest pain or discomfort, ventricular ectopy and/or is hypotensive:

   a. Synchronized cardioversion at **100 Joules** if tachycardia persists.
   b. Synchronized cardioversion at **200 Joules** if tachycardia persists.
   c. Synchronized cardioversion at **300 Joules** if tachycardia persists.
   d. Synchronized cardioversion at **360 Joules** if tachycardia persists.
ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. Obtain **12-Lead EKG** and transmit to receiving hospital as soon as possible.

3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

4. If patient is stable attempt vagal maneuver. *(NO carotid massage)*

5. Consider 20mL/kg fluid bolus to rule out hypovolemia/dehydration as cause of tachycardia.

6. **Adenosine (Adenocard)**: 6mg IV {rapid IV push} if the patient is alert and oriented, has a systolic BP greater than 100mmHg, has a HR greater than 150bpm and is obviously not in atrial fib or atrial flutter.
   - If no response after 1-2 minutes, administer 12mg IV {rapid IV push}.
   - If no response after 1-2 additional minutes, administer a repeat dose of 12mg IV {rapid IV push}.

8. **Midazolam (Versed)**: 2mg IV/IO for patient comfort during synchronized cardioversion. Re-check vital signs 5 minutes after administration. May repeat dose one time if systolic BP > 100mmHg and respiratory rate is > 10 rpm. Additional doses require Medical Control order.
   **Midazolam (Versed)**: Intranasal if unable to obtain IV access. *(See intranasal dosing sheet).*

9. **Synchronized Cardioversion**: If the patient has an altered level of consciousness, diaphoresis, dizziness, chest pain or discomfort, ventricular ectopy and/or is hypotensive:
   - a) Synchronized cardioversion at **100 Joules** if tachycardia persists.
   - b) Synchronized cardioversion at **200 Joules** if tachycardia persists.
   - c) Synchronized cardioversion at **300 Joules** if tachycardia persists.
   - d) Synchronized cardioversion at **360 Joules** if tachycardia persists.
   Contact the receiving hospital as soon as possible.

**Or biphasic equivalent**
Critical Thinking Elements

- Monitor the patient for respiratory depression when administering sedatives.
- Monitor respiratory status, SPO2 and or Waveform Capnography if available.
- Treat the patient – not the monitor. Tachycardia does not necessarily mean that the patient is unstable or requires intervention.
- Factors to consider during the assessment of the patient with tachycardia include: patient health & physical condition, trauma or injury related to the event, current medications and medical history.
- Assess for underlying causes (e.g. hypovolemic shock) and treat according to protocol.
- When administering Adenocard, be prepared for immediate defibrillation if the rhythm converts to v-fib.
- **DO NOT administer Adenocard if the heart rate is < 150 bpm** without consulting Medical Control.
- 20mL Normal Saline bolus following administration
- Adenosine not to be used for rapid Atrial Fibrillation or WPW
- Examples of vagal maneuvers include valsalva maneuver, or coughing. **DO NOT** perform carotid massage.
- The Goal of the EMT/B is to obtain a 12 lead EKG and send it to the receiving hospital as soon as possible.
- 10 minutes is the goal for EKG’s to be performed at all levels.
Wide Complex Tachycardia Protocol

Tachycardia is defined as a heart rate > 100 bpm. Once the heart rate reaches 150 bpm, the patient is at risk for shock. A wide-complex QRS indicates the rhythm may be of ventricular origin. Determining the stability of the patient with tachycardia is an important factor in patient care decisions. The assessment of the patient with tachycardia should include evaluation for signs and symptoms of hypoperfusion.

The patient is considered **stable** if the patient is alert & oriented with warm & dry skin and a systolic BP > 100mmHg.

The patient is considered **unstable** if the patient has an altered level of consciousness, diaphoresis, dizziness, chest pain or discomfort, ventricular ectopy and/or hypotension.

**Emergency Medical Responder Care**

Emergency Medical Responder Care should be focused on assessing the situation and initiating Universal patient care to treat for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to treat for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. Obtain **12-Lead EKG** and transmit to receiving hospital as soon as possible if you have the capability.

3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

4. Initiate ALS intercept and transport as soon as possible.
ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the Universal Patient Care Protocol.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. Consider 20mL/kg fluid bolus to rule out hypovolemia/dehydration as cause of tachycardia.

4. Initiate ALS intercept and transport as soon as possible. *(Transport can be initiated at any time during this sequence).*

5. Obtain 12-Lead EKG, transmit EKG and Contact Medical Control as soon as possible.

6. If the patient becomes pulseless at any time, refer to the Resuscitation of Pulseless Rhythms Protocol *(V-fib or Pulseless V-tach).*

7. **Amiodarone**: 150mg IV administered over 10 minutes if the rhythm is regular and monomorphic. Administration may be repeated as needed if rhythm recurs.

8. **Synchronized Cardioversion**: If the patient has an altered level of consciousness, diaphoresis, chest pain or discomfort, pulmonary edema and/or is hypotensive:
   - e) Synchronized cardioversion at **100 Joules** if tachycardia persists.
   - f) Synchronized cardioversion at **200 Joules** if tachycardia persists.
   - g) Synchronized cardioversion at **300 Joules** if tachycardia persists.
   - h) Synchronized cardioversion at **360 Joules** if tachycardia persists.

   **Or biphasic equivalent**

7. **Midazolam (Versed)**: 2mg IV/IO for patient comfort during synchronized cardioversion. Re-check vital signs 5 minutes after administration. May repeat dose one time if systolic BP > 100mmHg and respiratory rate is > 10 rpm. Additional doses require Medical Control order.

**Midazolam (Versed)**: Intranasal if unable to obtain IV access. *(See intranasal dosing sheet).*
ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. Consider 20mL/kg fluid bolus to rule out hypovolemia/dehydration as cause of tachycardia.

4. Obtain **12-Lead EKG**, transmit EKG and **Contact Medical Control** as soon as possible.

5. **Adenosine (Adenocard)**: Only for regular and monomorphic

   6mg IV \{rapid IV push\} if the patient is alert and oriented, has a systolic BP greater than 100mmHg, has a HR greater than 150bpm and is *obviously* not in atrial fibrillation or atrial flutter.

   a. If no response after 1-2 minutes, administer 12mg IV \{rapid IV push\}.

   b. If no response after 1-2 additional minutes, administer a repeat dose of 12mg IV \{rapid IV push\}.

7. **Amiodarone**: 150mg IV *administered over 10 minutes* if the rhythm is regular and monomorphic. Administration may be repeated as needed if rhythm recurs.

8. **Midazolam (Versed)**: 2mg IV/IO for patient comfort during synchronized cardioversion. Re-check vital signs 5 minutes after administration. May repeat dose one time if systolic BP > 100mmHg and respiratory rate is > 10 rpm. Additional doses require Medical Control order.

   **Midazolam (Versed)**: Intranasal if unable to obtain IV access. (See intranasal dosing sheet).

9. **Synchronized Cardioversion**: If the patient has an altered level of consciousness, diaphoresis, chest pain or discomfort, pulmonary edema and/or is hypotensive:

   a) Synchronized cardioversion at **100 Joules** if tachycardia persists.
   b) Synchronized cardioversion at **200 Joules** if tachycardia persists.
   c) Synchronized cardioversion at **300 Joules** if tachycardia persists.
   d) Synchronized cardioversion at **360 Joules** if tachycardia persists.

   **Or biphasic equivalent**

10. **Contact Medical Control** as soon as possible.
Wide Complex Tachycardia Protocol

11. If the patient becomes pulseless at any time, refer to the *Resuscitation of Pulseless Rhythms Protocol (V-fib or Pulseless V-tach)*.

Critical Thinking Elements

- Monitor the patient for respiratory depression when administering sedatives.
- Monitor respiratory status, SPO2 and or Waveform Capnography if available.
- Factors to consider during the assessment of the patient with tachycardia include: patient health & physical condition, trauma or injury related to the event, current medications and medical history.
- Assess for underlying causes (*e.g.* hypovolemic shock) and treat according to protocol.
- If the patient becomes pulseless at any time, refer to the “V-fib and Pulseless V-tach” section of the *Resuscitation of Pulseless Rhythms Protocol*.
- The goal of the EMT-B is to obtain a 12-Lead EKG and transmit it to the receiving hospital as soon as possible.
- 10 minutes is the goal for EKG to be performed at all levels.
- Monomorphic Ventricular Tachycardia means the appearance of all beats match each other.
Implied Cardiac Defibrillator (AICD) Protocol

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to treat for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to treat for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. Initiate ALS intercept and transport as soon as possible.

ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. **Ondansetron (Zofran):** 4mg IV/IM/PO orally disintegrating tablet for nausea and vomiting

4. **Contact Medical Control for “Physician Orders Only” for Morphine Sulfate:** 2-5mg IV *every 5 minutes* (if needed) to reduce the patient’s anxiety and severity of pain.

   Or **Contact Medical Control for “Physician Orders Only”**

   **Fentanyl:** 50mcg IV, over 2 minutes for pain. Fentanyl 50mcg IV may be repeated every 5 minutes to a total of 200mcg.
Fentanyl: 50mcg IM if unable to establish IV access

Fentanyl: IN (See Intranasal Fentanyl Dosing Chart)

5. Initiate ALS intercept and transport as soon as possible (transport can be initiated at any time during this sequence) and contact the receiving hospital as soon as possible.

ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the Universal Patient Care Protocol.

2. Oxygen: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. Treat arrhythmias per applicable protocol and transport as soon as possible.

4. Ondansetron (Zofran): 4mg IV over 2 minutes for nausea and/or vomiting.

   Ondansetron (Zofran): 4mg IM

   Ondansetron (Zofran): 4mg PO orally disintegrating tablet

5. Morphine Sulfate: 2.5mg IV every 5 minutes (if needed) to reduce the patient’s anxiety and severity of pain. Contact Medical Direction after a total of 10mg.

6. Fentanyl: 50mcg IV, over 2 minutes for pain. Fentanyl 50mcg IV may be repeated every 5 minutes to a total of 200mcg.

   Fentanyl: 50mcg IM if unable to establish IV access

   Fentanyl: IN (See Intranasal Fentanyl Dosing Chart)

7. Contact the receiving hospital as soon as possible.

8. If patient has witnessed wide complex tachycardia resulting in AICD fire. Amiodarone: 150mg IV administered over 10 minutes if the rhythm is regular and monomorphic. Administration may be repeated as needed if rhythm recurs.

9. If the patient becomes pulseless at any time, refer to the Resuscitation of Pulseless Rhythms Protocol.
Critical Thinking Elements

- Any patient who has been shocked by an AICD should be strongly encouraged to seek medical attention and closely monitored en route regardless of patient condition.
- If the AICD is malfunctioning, alert Medical Control as early as possible so that a round magnet can be available upon arrival.
- If a patient is unresponsive and pulseless, CPR must be initiated. If the AED recognizes a shockable rhythm, the shock should be delivered (even though the patient has an AICD).
- Avoid placing the Quick Combo pad or Fast Patches directly over the AICD unit as this could damage the device and reduce the efficacy of external defibrillation.
- Slightly alter pad placement if initial defibrillation is unsuccessful.
- In patients with known renal failure, the Fentanyl dose must be reduced to 25mcg. The dose may be repeated one time to a maximum dose of 50mcg.
- An implanted cardiac defibrillator (AICD) is a device that delivers an internal defibrillation (shock) whenever the patient’s heart rate exceeds defined limits for > 10 seconds. Persons in contact with the patient at the time the device delivers the defibrillation will receive a shock of approximately 3 Joules. This energy level constitutes NO DANGER to EMS personnel.
- Avoid use of Zofran in patients with congenital long QT syndrome as these patients are at particular risk for Torsades de Pointes
Electrical defibrillation is recognized as the most effective method of terminating ventricular fibrillation. It is a vital link in the chain of survival in the case of sudden death. Defibrillation is accomplished by passage of an appropriate electrical current through the heart, sufficient to depolarize a critical mass of the left ventricle.

1. **Two (2) minutes of CPR** should be performed prior to defibrillation attempts.
2. Turn on the monitor/defibrillator.
3. Apply the Quick Combo pads or Fast Patches with cables as soon as possible. The pads must be attached to the defibrillator cables prior to placement on the patient’s chest.
4. The negative electrode should be placed to the right of the upper sternum just below the right clavicle and the positive electrode should be placed laterally to the left nipple in the midaxillary line (approximately 2-3 inches below the left armpit).
5. For adults, **defibrillate per manufacturer’s recommendations** for biphasic monitors (or **360 Joules** for monophasic monitors). *If using paddles instead of pads, 25 pounds of pressure must be applied to each paddle when defibrillating.*
6. Make sure no personnel are directly or indirectly in contact with the patient. Emphasize your intention to defibrillate by loudly stating “CLEAR!” and then deliver the shock.
7. **Immediately perform 2 minutes of CPR** and re-evaluate patient/rhythm.
8. If patient remains in V-fib or pulseless V-tach, **defibrillate per manufacturer’s recommendations** for biphasic monitors (or **360 Joules** for monophasic monitors).
9. **Immediately perform 2 minutes of CPR** and re-evaluate patient/rhythm every 2 minutes.
10. Follow appropriate protocols for rhythm changes.

### Manual Defibrillation Procedure

#### Critical Thinking Elements

- Patients with AICDs or pacemakers are treated the same as any other patient. However, do not place the electrodes (defibrillation pads) over the AICD or pacemaker site.
- Adjust the pads as necessary. Anterior-posterior placement may be necessary. Position the positive pad on the anterior chest just to the left of the sternum and place the negative pad posteriorly just to the left of the spinal column.
- Shocks delivered to the patient prior to arrival should be taken into consideration during the transition of care. Crews may want to utilize the AED equipment and personnel for subsequent defibrillation.
- **If the cardiac arrest is witnessed** by EMS personnel, start CPR and defibrillate immediately after Fast Patches or Quick Combos are placed.
Automated Defibrillation Procedure

Electrical defibrillation is recognized as the most effective method of terminating ventricular fibrillation. It is a vital link in the chain of survival in the case of sudden death. Defibrillation is accomplished by passage of an appropriate electrical current through the heart, sufficient to depolarize a critical mass of the left ventricle.

1. **Two (2) minutes of CPR** should be performed prior to defibrillation attempts.
2. The AED should be applied using adult pads if the patient has no pulse and is breathless. *Pediatric pads should be used on children between ages 1-8 (or adult pads in the anterior/posterior position if pediatric pads are unavailable).*
3. Turn the AED on.
4. Apply the Quick Combo pads or Fast Patches with cables as soon as possible. The pads must be attached to the defibrillator cables prior to placement on the patient’s chest.
5. The negative electrode should be placed to the right of the upper sternum just below the right clavicle and the positive electrode should be placed laterally to the left nipple in the midaxillary line (approximately 2-3 inches below the left armpit).
6. Make sure no personnel are directly or indirectly in contact with the patient when the AED is analyzing. Emphasize your intention to analyze by loudly stating, “CLEAR! ANALYZING!” and analyze in accordance with product specifications.
7. If the AED indicates “SHOCK ADVISED”, call out “CLEAR!” check for the safety of others and push the shock button.
8. **Immediately perform 2 minutes of CPR** and re-evaluate patient/rhythm.
9. If patient remains in V-fib or pulseless V-tach, *defibrillate per manufacturer’s recommendations* for a *biphasic* AED (or 360 Joules for a *monophasic* AED).
10. **Immediately perform 2 minutes of CPR** and re-evaluate patient/rhythm every 2 minutes.
11. If the patient regains a pulse at any time during resuscitation, then maintain the airway and assist ventilations.
12. Re-analyze the patient’s rhythm with the AED if the patient returns to a pulseless state. Shock if indicated.
13. Immediately turn care over to the transporting provider or ALS intercept crew upon their arrival.
14. Complete all necessary documentation.
Critical Thinking Elements

- If the cardiac arrest is witnessed by EMS personnel, start CPR and defibrillate immediately after Fast Patches or Quick Combos are placed.
- If a pulse is felt at any time, transport the patient without delay.
- Maintain frequent pulse checks. If at any time you cannot find a pulse, push “ANALYZE” and/or repeat the AED procedure for analyzing.
- If only 1 rescuer is available with an AED: verify unresponsiveness, open the airway, give 2 breaths & check pulse. If cardiac arrest is confirmed, attach the AED and proceed with the algorithm.
- **DO NOT analyze or shock in a moving ambulance!**
Transition of AED Care Procedure

It is recognized that early defibrillation is a very important treatment for the cardiac arrest patient. A smooth transition of care between providers is both encouraged & expected and is essential for optimum patient care.

1. Arriving EMS personnel should ask for a quick report from the AED user and perform a rapid assessment.

2. AED personnel can be utilized to provide defibrillation during the arrest. However, if the manual mode is activated, ILS/ALS personnel must then operate the defibrillator. *Arriving EMS personnel are encouraged to utilize AED responders for efficiency in coordinating patient care.*

3. Situations when the AED may need to be removed immediately (and ALS monitor applied) include: patients needing transcutaneous pacing, patients needing synchronized cardioversion or in the event a spontaneous pulse returns.

4. When changing to manual defibrillation, attach cables to the patient prior to disconnecting the AED.
Electrical cardioversion is the therapy of choice for hemodynamically unstable ventricular or supraventricular tachydysrhythmias with a pulse. Synchronization of the delivered energy reduces the potential for induction of V-fib that can occur when electrical energy impinges on the relative refractory period of the cardiac cycle.

1. Apply Quick Combo pads or Fast Patches according to protocol and apply regular limb leads.
2. Push the synchronize sensor button on the defibrillator.
3. Confirm that the monitor is sensing “R” waves on the monitor screen (this is denoted by the darker mark on the screen with each complex).
4. Select the appropriate energy setting: 100J, 200J, 300J, 360J (or biphasic equivalent).
5. Press the charge button.
6. Depress the discharge buttons simultaneously and wait for the shock to be delivered.
7. Note the rhythm and treat according to the appropriate protocol.
8. If the patient becomes pulseless at any time, turn off the synchronizer circuit and refer to the Resuscitation of Pulseless Rhythms Protocol.

Critical Thinking Elements

- The energy levels vary in accordance with protocol for the presenting rhythm.
- Administration of Versed IV/IO or IN may be necessary.
- The synchronizer circuit MUST be activated.
- There may be a delay between pressing the discharge buttons and delivery of the countershock due to the synchronization process.
- You must apply the limb leads so the monitor can sense the rhythm and deliver the shock at the same time.
Transcutaneous Pacing (TCP) Procedure

(ILLS & ALS Only)

Transcutaneous pacing (TCP) is used to deliver an electrical stimulus to the heart that acts as a substitute for the heart’s conduction system and is intended to result in cardiac depolarization and myocardial contraction.

TCP should be utilized for patients with symptomatic bradycardia, namely Type II 2nd Degree AV Block and 3rd Degree AV Block (Complete Heart Block).

1. Confirm the presence of the arrhythmia and the patient’s hypoperfusion status.
2. Initiate Routine ALS Care, including application of the cardiac monitor using the regular limb leads.
3. Apply the pacing pads to the patient using anterior-posterior placement. Place the negative electrode on the anterior chest between the sternum and left nipple (the upper edge of the pad should be below the nipple line). Place the positive electrode on the left posteriorly to the left of the spine beneath the scapula.
4. Activate the pacer mode and observe a marker on each QRS wave. If the marker is not present, adjust the EKG size.
5. Set the target rate at 70 bpm.
6. Set the current at minimum to start.
7. Activate the pacer and observe pacer spikes.
8. Increase the current slowly until there is evidence of electrical and mechanical capture.
9. Palpate patient’s pulse and check BP.
10. If the patient is conscious, you may administer Versed 2mg IV/IO for patient comfort.
11. Midazolam (Versed): Versed Intranasal may also be used if unable to give IV Versed. (See intranasal dosing sheet).
12. If additional sedation is needed contact Medical Control for Direction
13. Document the patient’s rhythm, vitals & tolerance of pacing and report the results to Medical Control.

Critical Thinking Elements

- Monitor the patient for respiratory depression when administering narcotics.
- Consider the use of Waveform Capnography if available.
- Oxygenate and monitor Pulse OX.
- Remember to evaluate the effectiveness of external pacing by assessing the electrical capture (presence of pacer spikes on the EKG) and mechanical capture (presence of a pulse).
- The 2010 American Heart Association (AHA) ACLS Guidelines do not recommend transcutaneous pacing for agonal rhythms or cardiac arrest.
Indications for a 12-Lead EKG include (but are not limited to):

- Chest pain / discomfort
- Epigastric pain
- Shortness of breath
- Syncope (or near-syncope)
- Pulmonary edema / Cardiogenic shock
- Wide complex tachycardia
- Symptomatic bradycardia
- Stroke
- Altered level of consciousness (ALOC)
- Vague “unwell” symptoms in diabetic and elderly patients.

Upon determining that a patient has a complaint or symptoms that indicate performing a 12-Lead:

1. Initiate *Routine ALS Care* and obtain **12-Lead EKG as soon as possible**.
2. Transmit the EKG and **contact the receiving hospital** as soon as possible.
3. **Contact Medical Control** if patient is in a **wide complex tachycardia** or for consultation/orders when needed.
4. Upon arrival at the emergency department, a copy of the 12-Lead EKG should be given to the accepting nurse with request for physician review as soon as possible.
5. Copies of the 12-Lead EKG must be included with the patient care record.

**Critical Thinking Elements**

- Communicate ST elevation MI (STEMI) early in radio transmission to the receiving hospital or Medical Control. *(STEMI Alert).*

- Communicate acute stroke / suspected stroke early in radio transmission to the receiving hospital or Medical Control *(Stroke Alert).*
MEDICAL & RESPIRATORY PROTOCOLS
Correct management of the patient in respiratory distress is dependent on identifying the etiology of the distress and recognizing the degree of the patient’s distress. Signs and symptoms of respiratory distress may include:

- Shortness of breath
- Difficulty speaking
- Altered mental status
- Diaphoresis
- Use of accessory muscles
- Retractions
- Respiratory rate less than 8 or greater than 24

If the etiology is questionable or your assessment does not provide a clear etiology, consult Medical Control for direction in patient care.

Asthma and COPD

In addition to general signs & symptoms of respiratory distress, patients may present with inspiratory & expiratory wheezing and/or “tight” lung sounds with decreased air movement.

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to treat for shock.

1. Render initial care in accordance with the Universal Patient Care Protocol.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to treat for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the Universal Patient Care Protocol.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support with BVM if necessary.
Respiratory Distress Protocol

Asthma and COPD (continued)

BLS Care (continued)

3. **Proventil (Albuterol)**: 2.5mg in 3mL of normal saline via nebulizer over 15 minutes. May repeat Albuterol 2.5mg every **15 minutes** as needed (with Medical Control order).

4. Initiate ALS intercept if needed and transport as soon as possible.

5. Contact receiving hospital as soon as possible or Medical Control if necessary.

ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the Routine Patient Care Protocol.
2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.
3. **Duoneb OR Proventil (Albuterol)**: 2.5mg in 3mL normal saline **mixed with Ipratropium (Atrovent)**: 0.5mg via nebulizer over 15 minutes. Repeat Albuterol 2.5mg with Atrovent 0.5mg every **15 minutes** as needed. In-line nebulizer may be utilized if patient is unresponsive or in respiratory arrest.
4. Contact the receiving hospital as soon as possible or Medical Control if necessary.
5. **Contact Medical Control for orders for Epinephrine 1:1000**: 0.3mg SQ if the patient is suffering status asthmaticus and does not improve with Albuterol/Atrovent treatment.
   - Special consideration should be given to administering Epinephrine if the patient is > 40 years old, has an irregular heart rate, has a heart rate > 150bpm or has a history of heart disease or hypertension. **Epinephrine should only be administered for these indications if the estimated time of arrival to emergency department is over five minutes**
6. **Contact Medical Control for orders for Methylprednisolone 125mg IV**
7. Contact the receiving hospital as soon as possible
ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. **Duoneb OR Proventil (Albuterol)**: 2.5mg in 3mL normal saline *mixed with Ipratropium (Atrovent)*: 0.5mg via nebulizer over 15 minutes. Repeat Albuterol 2.5mg with Atrovent 0.5mg every 15 minutes as needed. In-line nebulizer may be utilized if patient is unresponsive or in respiratory arrest.

4. **Epinephrine 1:1000**: 0.3mg IM if the patient is suffering status asthmaticus and does not improve with Albuterol/Atrovent treatment.
   - Special consideration should be given to administering Epinephrine if the patient is > 40 years old, has an irregular heart rate, has a heart rate > 150bpm or has a history of heart disease or hypertension. *Consult Medical Control prior to administration if the patient meets any of these criteria.*

5. **CPAP**: If the systolic BP > 100mmHg. *Apply CPAP at 5cm H2O pressure along with continuous Duoneb nebulizer therapy.*
   - If the distress does not improve and the patient is tolerating the CPAP, increase CPAP to 10cm H2O. *Continue to give inline nebulized treatments through CPAP.*
   - If the systolic BP is between 90-100mmHg, *contact Medical Control* prior to initiating CPAP.
   - *Do not* initiate CPAP if the systolic BP is less than 90mmHg.
   - *See CPAP protocol.*

6. **Methylprednisolone 125mg IV**

7. Transport as soon as possible.

8. Contact the receiving hospital as soon as possible.

---

**CHF / Pulmonary Edema**

In addition to general signs & symptoms of respiratory distress, patients may present with rales (or “crackles”), pedal edema, distended neck veins (JVD), orthopnea and tripod positioning.
Respiratory Distress Protocol

CHF / Pulmonary Edema (continued)

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to treat for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to treat for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. **CPAP**: If the systolic BP > 100mmHg.
   a. If the systolic BP is between 90-100mmHg, **contact Medical Control** prior to initiating CPAP.
   b. **Do not** initiate CPAP if the systolic BP is less than 90mmHg.

4. Initiate ALS intercept and transport as soon as possible.

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.
3. **Nitroglycerin (NTG):** 0.4mg SL (1 metered spray dose sublingually). May repeat every 3-5 minutes to a total of 3 doses (if systolic BP remains > 100mmHg)

4. **CPAP:** If the systolic BP > 100mmHg.

### Respiratory Distress Protocol

- If the systolic BP is between 90-100mmHg, **contact Medical Control** prior to initiating CPAP.
- **Do not** initiate CPAP if the systolic BP is less than 90mmHg.

---

### CHF / Pulmonary Edema (continued)

5. Obtain **12-Lead EKG** and transmit to the receiving hospital as soon as possible.

6. Contact receiving hospital as soon as possible.

7. Initiate ALS intercept if needed and transport as soon as possible.

---

### ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. **Nitroglycerin (NTG):** 0.4mg SL (1 metered spray dose sublingually). May repeat every 3-5 minutes to a total of 3 doses (if systolic BP remains > 100mmHg).

4. **CPAP:** If the systolic BP > 100mmHg.
   
   - If the systolic BP is between 90-100mmHg, **contact Medical Control** prior to initiating CPAP.
   
   - **Do not** initiate CPAP if the systolic BP is less than 90mmHg.

5. Obtain **12-Lead EKG** and transmit to receiving hospital.

6. **Nitropaste (Nitro-Bid):** 1 inch to anterior chest wall if patient’s systolic BP is greater than 100mmHg OR if available administer Nitroglycerin Infusion of 5mcg/min IV. Call medical control PRIOR to starting nitroglycerin drip for titration instructions. Start a second IV if you are starting a Nitroglycerin Infusion.

7. Transport as soon as possible.
8. Contact receiving hospital as soon as possible. Communicate early in the transmission if your patient is on CPAP so the appropriate equipment is ready upon patient arrival.

**Critical Thinking Elements**

- Constant reassessment of the respiratory distress patient is imperative to assure that the patient has adequate ventilation and oxygenation. Closely monitor the patient’s response to treatment rendered.
- Patients in respiratory distress should be transported in an upright position to assist their respiratory effort.
- CPAP is very effective in the treatment of CHF / Pulmonary Edema and should be applied as soon as possible unless contraindicated.
- CPAP should not be initiated on patients with a systolic BP < 90mmHg. CPAP increases intrathoracic pressure and can decrease venous return to the heart (compromising the patient’s perfusion). Consult with Medical Control and use CPAP cautiously if the systolic BP is between 90-100mmHg for the same reason.
- Do not delay CPAP application for administration of Nitroglycerin (*i.e.*, you do not need to wait until all three (3) doses of NTG SL have been administered before applying CPAP).
CPAP Procedure

(BLS, ILS & ALS Only)

Expiratory Pressure for any adult patient presenting with respiratory distress. The patient cannot have stridor, airway obstruction, and must be alert and able to adequately ventilate spontaneously in order for CPAP to be initiated.

1. Assess vital signs.
2. If the systolic BP is between 90-100mmHg, contact Medical Control prior to initiating.
3. Connect the generator to the 50 psi oxygen outlet.
4. Attach the mask.
5. Attach the PEEP valve package with the CPAP circuit.
6. Attach the filter to the air entrainment port.
7. Secure the mask on the patient’s face.
8. Treat continuously while en route to the receiving facility.
9. Obtain and record vital signs every 5 minutes.
10. In case of life-threatening complications:
    a) Stop CPAP treatment.
    b) Offer reassurance.
    c) Institute appropriate BLS & ALS support per protocol.
    d) Adverse reactions to CPAP are to be documented on an Incident Report and forwarded to the EMS office within 24 hours of occurrence.
    e) On arrival at the receiving hospital, immediately communicate any adverse reactions to emergency department staff.
11. Documentation in the patient care record should include:
    a) Detailed description of initial assessment findings.
    b) Vitals, including pulse oximetry, prior to initiating CPAP.
    c) Vitals (& pulse oximetry) every 5 minutes.
    d) Patient response to treatment (positive effects, no change or adverse reaction).

CONTRAINDICATIONS FOR CPAP

Systolic BP < 90mmHg
Severe cardiorespiratory instability and impending arrest
Respiratory or cardiac arrest
Patients with stridor or airway obstruction
Upper airway abnormalities or trauma
Penetrating chest trauma
Compromised thoracic organs
Persistent nausea & vomiting
Gastric distention
Obtunded patient / Questionable ability to protect airway
A patient with an altered level of consciousness (ALOC) may present with a variety of symptoms from minor thought disturbances & confusion to complete unresponsiveness. The causes of ALOC include cardiac emergencies, hypoxia, hypoglycemia/diabetic emergencies, epilepsy/seizures, alcohol/drug related emergencies, trauma, sepsis, stroke or any other condition which disrupts brain perfusion.

ALOC can be the presenting symptom for many disease processes. Syncope is another type of ALOC and is characterized as an acute, temporary suspension of consciousness. Near-syncope (feeling faint) is a sensation of impending loss of consciousness that may rapidly progress to unconsciousness.

A patient who has experienced syncope or ALOC of any type should receive a thorough evaluation for secondary injuries (e.g. fall injuries associated with the ALOC) and for possible underlying causes. Although a patient’s ALOC may be resolved in the field, the patient should still be strongly encouraged to accept EMS care and ambulance transport to the hospital for further evaluation.

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.

3. **Perform Blood Sugar Test**, if below 60, administer 1 tube (15g) **Oral Glucose** if the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and an intact gag reflex.

4. **Oral Glucose**: 15g PO if the patient has a history of diabetes, is alert to verbal stimuli, is able to sit in an upright position, has good airway control and an intact gag reflex. **Perform 2nd Blood Sugar** test 5 minutes after Glucose administration.

5. This applies to non-transporting agencies also.
6. **Narcan**: 2mg IN (1mg per nostril) using a mucosal atomizer device (MAD) if available. For suspected narcotic intoxication with respiratory depression (≤ 8 breaths per minute). May repeat 2mg IN if no response in 10 minutes.

---

## Altered Level of Consciousness (ALOC) Protocol

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. Perform **blood glucose level test**.

4. **Oral Glucose**: 15g PO if the patient’s blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

5. Perform a 2nd **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Oral Glucose. If blood sugar remains < 60mg/dL, administer a 2nd dose of Oral Glucose (15g).

6. **Glucagon**: 2mg IN/IM (1ml per nare if doing IN) if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

7. **Narcan**: 2mg IN (1mg per nostril) using a mucosal atomizer device (MAD) if possible narcotic intoxication with respiratory depression (≤ 8 breaths per minute). May repeat 2mg IN if no response in 10 minutes.

8. Initiate ILS/ALS intercept if needed and transport as soon as possible.

9. Contact the receiving hospital as soon as possible.

---

## ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. Perform **blood glucose level test**.
**Altered Level of Consciousness (ALOC) Protocol**

**ILS Care (continued)**

4. **Oral Glucose**: 15g PO if the patient’s blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

   **Dextrose 50%**: 25g IV if blood sugar is < 60mg/dL or 60-80mg/dL & patient is symptomatic.

   **Glucagon**: 1mg IM or (if available) 2mg IN (1ml per nare) if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

5. Perform a 2nd **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat Dextrose if BS is still < 60mg/dL.

6. **Narcan**: 2mg IV/IM if no response to Dextrose or Glucagon within 2 minutes. May repeat 2mg IV or IM if no response in **5 minutes**.

   **Narcan**: 2mg IN if unable to establish IV access.

7. Obtain **12-Lead EKG** and transmit to receiving hospital if non-opiate overdose (or opiate overdose unresponsive to Narcan) or if cause of ALOC is uncertain.

8. Initiate ALS intercept if needed and transport as soon as possible.

9. Contact the receiving hospital as soon as possible or Medical Control if necessary.

---

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. Perform **blood glucose level test**.

4. **Oral Glucose**: 15g PO if the patient’s blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.
Dextrose 50%: 25g IV if blood sugar is < 60mg/dL or 60-80mg/dL & patient is symptomatic.

Glucagon: 1mg IM or (if available) 2mg IN (1ml per nare) if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

5. Perform a 2nd blood glucose level test to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat Dextrose if BS is < 60mg/dL.

6. Narcan: 2mg IV/IM if no response to Dextrose or Glucagon within 2 minutes. May repeat 2mg IV or IM if no response in 5 minutes.

Narcan: 2mg IN if unable to establish IV access.

7. Obtain 12-Lead EKG and transmit to receiving hospital if non-opiate overdose (or opiate overdose unresponsive to Narcan) or if cause of ALOC is uncertain.

8. Transport and contact receiving hospital as soon as possible.

Critical Thinking Elements

- Look for Medic Alert tags.
- Consider possible C-spine injury and follow C-spine precautions as necessary.
- Be prepared for possible vomiting after administration of Glucagon.
- Vitals and GCS should be recorded every 5 minutes.
- After administration of Dextrose, allow 2 minutes before administration of Narcan.
- No intercept is required if the patient becomes alert/oriented after the administration of Oral Glucose or Glucagon unless the patient has a condition that warrants intercept.
- Signs/symptoms of hypoglycemia include: Weakness/shakiness, tachycardia, cold/clammy skin, headache, irritability, ALOC/bizarre behavior or unresponsive.
- No 12-Lead EKG is necessary for known etiologies such as hypoglycemia, opiate overdose responsive to Narcan or febrile illness.
- ILS / ALS: If a patient refuses transport after administration of D50 (& is CA+Ox3), the call may be treated as a low risk refusal as long as the following criteria are met (and documented in the PCR):
  - The cause of the patient’s hypoglycemia can be easily explained (e.g. patient took insulin but did not eat).
  - The patient has no other complaints and no other issues are identified after a thorough evaluation (including a full assessment, vitals and repeat blood sugar).
  - EMS advises patient/family that the patient needs to consume foods containing complex carbohydrates & protein within the next 15 minutes (assist patient if needed prior to departing the scene).
• Hemiplegia (paralysis on one side of the body)

**Suspected Stroke Protocol**

• Hemiparesis (weakness on one side of the body)
• Decreased sensation or numbness without trauma

• Facial droop
• Unequal grips
• Dizziness, vertigo or syncope
• Aphasia or slurred speech
• ALOC or seizures
• Sudden, severe headache with no known cause
• Visual disturbances (e.g. blurred vision, double vision)
• Generalized weakness
• Frequent or unexplained falls

Risk factors that increase the likelihood of stroke are:

• Hypertension
• Atherosclerosis / coronary artery disease
• Atrial fibrillation
• Hyperlipidemia
• Diabetes
• Vasculitis
• Lupus

To facilitate accuracy in diagnosing stroke and to expedite transport, an easy-to-use neurological examination tool is recommended. Although there are several different types available, the most “user-friendly” is the Cincinnati Prehospital Stroke Scale.
Cincinnati Prehospital Stroke Scale

Facial Droop *(ask the patient to show their teeth or smile)*:
- Normal – Both sides of the face move equally.
- Abnormal – One side of the face does not move as well as the other.

Arm Drift *(ask the patient to close their eyes and hold both arms out straight for 10 seconds)*:
- Normal – Both arms move the same or do not move at all.
- Abnormal – One arm does not move or one arm drifts downward compared to the other.

Speech *(ask the patient to say, “The sky is blue in Cincinnati”)*:
- Normal – The patient says the phrase correctly with no slurring of words.
- Abnormal – The patient slurs words, uses the wrong words or is unable to speak.

**FAST Test**

Facial Droop
Arm Drift
Speech Abnormalities
Time of Onset
Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: Oxygen administration is not routinely required if SpO₂ is >95%. If SpO₂ is <95% at any time or you are unable to measure SpO₂, administer oxygen at 15 L/min via non-rebreather mask. 6LNC if unable to tolerate mask.

3. Check and record vital signs every *5 minutes* until the transporting unit arrives.

4. Perform **Blood Sugar Test** to rule out low blood sugar as a reason for ALOC

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: Oxygen administration is not routinely required if SpO₂ is >95%. If SpO₂ is <95% at any time, administer oxygen at 15 L/min via non-rebreather mask. Be prepared to support the patient’s respirations with BVM if necessary and have suction readily available. 6L NC if unable to tolerate mask.

3. Perform **blood glucose level test** to rule out low blood sugar as a reason for ALOC.

4. **Oral Glucose**: 15g PO if the patient’s blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

5. **Glucagon**: 2mg IN/IM if blood sugar is < 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

6. Initiate ALS intercept if needed and **transport without delay**.

7. Check and record vital signs and GCS every *5 minutes*. 
8. Contact receiving hospital as soon as possible to notify of possible stroke if FAST exam is positive (based on 1 or more elements of the exam) and communicate the time of onset.

**Suspected Stroke Protocol**

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: Oxygen administration is not routinely required if SpO$_2$ is >95%. If SpO$_2$ is <95% at any time, administer oxygen at 15 L/min via non-rebreather mask. Be prepared to support the patient’s respirations with BVM if necessary and have suction readily available. 6L NC if unable to tolerate mask.

3. Obtain **12-Lead EKG** and transmit to receiving hospital.

4. Perform **blood glucose level test** to rule out low blood sugar as a reason for ALOC.

5. **Oral Glucose**: 15g PO if the patient’s blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

   **Dextrose 50%**: 25g IV if blood sugar is < 60mg/dL.

   **Glucagon**: 1mg IM or (if available) 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

6. Perform a **2nd blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat Dextrose if BS is < 60mg/dL.

7. **Midazolam (Versed)**: 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every **5 minutes** as needed to a total of 10mg.

   **Midazolam (Versed)**: 5mg IM **if the patient is seizing and attempts at IV access have been unsuccessful**. May repeat dose one time in **15 minutes** if the patient is still seizing.

   **Midazolam (Versed)**: Intranasal if unable to obtain IV access. (See intranasal dosing sheet).

9. Initiate ALS intercept if needed and **Transport without delay to the closest Primary Stroke Center (PSC) or Emergent Stroke Ready Hospital (ESRH)****.
8. Check and record vital signs and GCS every 5 minutes.

9. Contact receiving hospital as soon as possible to notify of possible stroke if FAST exam is positive (based on 1 or more elements of the exam) and communicate the time of onset.

10. Perform blood draw

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: Oxygen administration is not routinely required if SpO₂ is >95%. If SpO₂ is <95% at any time, administer oxygen at 15 L/min via non-rebreather mask. Be prepared to support the patient’s respirations with BVM if necessary and have suction readily available. 6L NC if unable to tolerate mask.

3. Obtain **12-Lead EKG** and transmit to receiving hospital.

4. Perform **blood glucose level test**.

5. **Oral Glucose**: 15g PO if the patient’s blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

   **Dextrose 50%**: 25g IV if blood sugar is < 60mg/dL.

   **Glucagon**: 1mg IM or (if available) 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

6. Perform a **2nd blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat Dextrose if BS is < 60mg/dL.

7. **Narcan**: 2mg IV/IM if no response to Dextrose or Glucagon within 2 minutes and narcotic overdose is suspected. May repeat 2mg IV or IM if no response in **5 minutes**.

   **Narcan**: 2mg Intranasal if unable to obtain IV access
**Suspected Stroke Protocol**

**ALS Care (continued)**

8. **Midazolam (Versed):** 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every 5 minutes as needed to a total of 10mg.

   **Midazolam (Versed):** 5mg IM *if the patient is seizing and attempts at IV access have been unsuccessful*. May repeat dose one time in 15 minutes if the patient is still seizing to a total of 10mg.

   **Midazolam (Versed):** Intranasal if unable to obtain IV access. *(See Versed Intranasal Dosing Sheet)*.

9. **Transport without delay to the closest Primary Stroke Center (PSC) or Emergent Stroke Ready Hospital (ESRH)**.

10. **Check and record vital signs and GCS every 5 minutes.**

10. **Contact receiving hospital as soon as possible to notify of possible stroke if FAST exam is positive (based on 1 or more elements of the exam) and communicate the time of onset.**
Critical Thinking Elements

- Stroke onset time (defined as the last time the person was known to be normal) is key in determining the eligibility of IV TPA. EMS personnel should ask family members or bystanders the stroke onset time if the patient is unable to provide that information.
- IV TPA must be given within **180 minutes** of the onset of ischemic stroke so do not delay transport. **TIME IS BRAIN!!**
- Interventional angiography can be performed up to **6 hours** after onset of symptoms.
- Maintain the head/neck in neutral alignment. Elevate the head of the cot 30 degrees if the systolic BP is > 100mmHg (*this will facilitate venous drainage and help reduce ICP without reducing cerebral perfusion pressure*).
- Bradycardia may be present in a suspected stroke patient due to increased ICP. **Do NOT give Atropine if the patient’s BP is normal or elevated.** Contact Medical Control for consultation.
- Spinal immobilization should be provided if the patient sustained a fall or other trauma.
- Monitor and maintain the patient’s airway. Have suction readily available.
- Communicate acute stroke/suspected stroke early in radio transmission to the receiving hospital or Medical Control (Stroke Alert).
- Document in the PCR whether the FAST exam is negative or positive. If positive, document “FAST exam positive” along with what components make it such (*e.g. left-sided facial droop, slurred speech, positive arm drift, etc*).
- **Do NOT** administer Nitroglycerin (NTG) to a suspected stroke patient with elevated blood pressure in attempt to lower blood pressure. **NTG may lower cerebral perfusion pressure (CPP) too much and actually increase ischemia to the brain tissue.**
Insert Stroke Screen Form
Seizure Protocol

A seizure is a temporary, abnormal electrical activity of the brain that results in loss of consciousness, loss of organized muscle tone and presence of convulsions. The patient will usually regain consciousness within 1 to 3 minutes followed by a period of confusion and fatigue (post-ictal state).

Multiple seizures in a brief time span or seizures lasting more than 5 minutes may constitute status epilepticus and require EMS intervention to stop the seizure. Causes of seizures include: epilepsy, stroke, head trauma, hypoglycemia, hypoxia, infection, a rapid change in core body temperature (e.g. febrile seizure), eclampsia, alcohol withdraw and overdose.

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the Universal Patient Care Protocol.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.

3. **Perform Blood Sugar Test**, if below 60, administer 1 tube (15g) **Oral Glucose** if the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and an intact gag reflex.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the Universal Patient Care Protocol.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary and have suction readily available.

3. Perform **blood glucose level test**.

4. **Oral Glucose**: 15g PO if the patient’s blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.
5. **Glucagon**: 2mg IN/ or 1mg IM (1ml each nare if doing internasal) if blood sugar is < 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

6. Initiate ALS intercept and **transport without delay**.

### ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary and have suction readily available.

3. Perform **blood glucose level test**.

4. **Oral Glucose**: 15g PO if the patient’s blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

   - **Dextrose 50%**: 25g IV if blood sugar is < 60mg/dL.
   - **Glucagon**: 1mg IM or (if available) 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

5. Perform a **2nd blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat Dextrose if BS is < 60mg/dL.

6. **Narcan**: 2mg IV/IM if no response to Dextrose or Glucagon within 2 minutes and narcotic overdose is suspected. May repeat 2mg IV or IM if no response in **5 minutes** (with Medical Control order).

   - **Narcan**: 2mg Intranasal if unable to obtain IV access.

7. **Midazolam (Versed)**: 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every **5 minutes** as needed to a total of 10mg.
**Seizure Protocol**

**Midazolam (Versed):** 5mg IM *if the patient is seizing and attempts at IV access have been unsuccessful*. May repeat dose one time in **15 minutes** if the patient is still seizing.

**Midazolam (Versed):** Intranasal if unable to obtain IV access. *(See intranasal dosing sheet).*

8. Initiate ALS intercept if needed and transport as soon as possible.

9. **Contact Medical Control** as soon as possible.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM (and intubate) if necessary and have suction readily available.

3. Perform **blood glucose level test**.

4. **Oral Glucose:** 15g PO if the patient’s blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

   **Dextrose 50%:** 25g IV if blood sugar is < 60mg/dL.

   **Glucagon:** 1mg IM or (if available) 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

5. Perform a **2nd blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat Dextrose if BS is < 60mg/dL.

6. **Narcan:** 2mg IV/IM if no response to Dextrose or Glucagon within 2 minutes and narcotic overdose is suspected. May repeat 2mg IV or IM if no response in **5 minutes** *(with Medical Control order).*

   **Narcan:** 2mg Intranasal if unable to obtain IV access.
Seizure Protocol

ALS Care (continued)

7. **Midazolam (Versed):** 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every 5 minutes as needed to a total of 10mg.

   **Midazolam (Versed):** 5mg IM if the patient is seizing and attempts at IV access have been unsuccessful. May repeat dose one time in 15 minutes if the patient is still seizing to a total of 10mg.

   **Midazolam (Versed):** Intranasal if unable to obtain IV access. (See Versed Intranasal Dosing Sheet).

8. Transport as soon as possible.

9. Contact the receiving hospital as soon as possible.
A hypertensive emergency is an elevation of the BP that may result in organ damage or dysfunction. The organs most likely damaged by a hypertensive emergency are the brain, heart and kidneys. Hypertension is also an indication that an underlying condition may exist which is causing the brain to demand more blood from the cardiovascular system. It can also be an indication of head injury with increased ICP, hypoxia or endocrine dysfunction. The goal of treatment is a slow, gradual reduction in BP rather than an abrupt lowering of BP that may cause further neurological complications.

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing, has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. Check and record vital signs every 5 minutes until the transporting unit arrives.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 6 L/min via nasal cannula if the patient has a patent airway and SpO₂ is >95%. If SpO₂ is <95%, administer oxygen at 15 L/min via non-rebreather mask. Be prepared to support the patient’s respirations with BVM if necessary and have suction readily available.

3. Initiate ALS intercept if needed and transport suspected stroke patients without delay.

4. Check and record vital signs and GCS every 5 minutes.

5. Contact the receiving hospital as soon as possible.
ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 6 L/min via nasal cannula if the patient has a patent airway and SpO$_2$ is >95%. If SpO$_2$ is <95%, administer oxygen at 15 L/min via non-rebreather mask. Be prepared to support the patient’s respirations with BVM if necessary and have suction readily available.

3. **Contact Medical Control for Orders for Nitroglycerine**: 0.4mg sublingual in a patient with a diastolic BP > 130mmHg and with non-traumatic neurological deficits (e.g. visual disturbances, seizure activity, paralysis, ALOC) and/or chest pain/discomfort and/or pulmonary edema and not taking Viagra or other erectile dysfunction medications.

4. **Midazolam (Versed)**: 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every 5 minutes as needed to a total of 10mg.

   **Midazolam (Versed)**: 5mg IM *if the patient is seizing and attempts at IV access have been unsuccessful*. May repeat dose one time in 15 minutes if the patient is still seizing.

   **Midazolam (Versed)**: Intranasal if unable to obtain IV access. *(See intranasal dosing sheet).*

5. Initiate ALS intercept if needed and **transport suspected stroke patients without delay**.

6. Check and record vital signs and GCS every 5 minutes.

7. Contact the receiving hospital as soon as possible or Medical Control if necessary.
ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 6 L/min via nasal cannula if the patient has a patent airway and SpO₂ is >95%. If SpO₂ is <95%, administer oxygen at 15 L/min via non-rebreather mask.

3. Be prepared to support the patient’s respirations with BVM (and intubate) if necessary and have suction readily available.

4. **Contact Medical Control for Orders for Nitroglycerine** 0.4mg sublingual. A patient with a **diastolic** BP > 130mmHg and with non-traumatic neurological deficits (e.g. visual disturbances, seizure activity, paralysis, ALOC) and/or chest pain/discomfort and/or pulmonary edema and not taking Viagra or other erectile dysfunction medications.

5. **Contact Medical Control for Orders for Nitroglycerine** Infusion of 5mcg/min in a patient with a **diastolic** BP > 130mmHg and with non-traumatic neurological deficits (e.g. visual disturbances, seizure activity, paralysis, ALOC) and/or chest pain/discomfort and/or pulmonary edema and not taking Viagra or other erectile dysfunction medications. If no improvement after 5 minutes, call medical control for further titration instructions. Discontinue infusion is SBP < 120.

6. **Midazolam (Versed)**: 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every 5 minutes as needed to a total of 10mg.

   **Midazolam (Versed)**: 5mg IM *if the patient is seizing and attempts at IV access have been unsuccessful*. May repeat dose one time in 15 minutes if the patient is still seizing to a total of 10mg.

   **Midazolam (Versed)**: Intranasal if unable to obtain IV access. *(See Versed Intranasal Dosing Sheet).*

7. **Transport suspected stroke patients without delay**.

8. Check and record vital signs and GCS every 5 minutes.

9. Contact the receiving hospital as soon as possible.
Critical Thinking Elements

- Monitor the patient for respiratory depression when administering sedatives.
- Monitor respiratory status, SPO2 and/or Waveform Capnography if available.
- A patient with a systolic BP > 150mmHg and/or diastolic BP > 90mmHg without neurological deficit should be considered stable.
- A patient with a diastolic BP > 130mmHg with non-traumatic neurological deficits (e.g. visual disturbances, seizure activity, paralysis, ALOC) and/or chest pain/discomfort and/or pulmonary edema should be considered an acute hypertensive crisis.
- Assess for chest pain/discomfort and/or pulmonary edema. If present, treat per appropriate protocol.
Abdominal pain may vary from minor discomfort to acute pain. Abdominal pain may indicate inflammation, hemorrhage, perforation, obstruction and/or ischemia of an internal organ. Correct management of the patient in abdominal pain depends on recognizing the degree of distress the patient is suffering and identifying the possible etiology of the distress.

**Emergency Medical Responder Care**

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Allow the patient to remain in a position that is most comfortable.
3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock & preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Allow the patient to remain in a position that is most comfortable.
3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
4. Initiate ALS intercept if needed and transport as soon as possible.

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Allow the patient to remain in a position that is most comfortable.
3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

4. **Ondansetron (Zofran)**:
   - 4mg PO orally disintegrating tablet for nausea and vomiting
   - 4mg IV over 2 minutes for nausea and/or vomiting.

5. **IV Fluid Therapy**: 20mL/kg fluid bolus if the patient is hypotensive to achieve a systolic BP of at least 100mmHg.

6. **Contact Medical Control for “Physician Only Orders” for Morphine Sulfate**: 2-5mg IV every 5 minutes to reduce the patient’s anxiety and severity of pain. If unable to establish IV access, may give Morphine 2-5mg IM every 15 minutes (with Medical Control order only).

7. **Contact Medical Control for “Physician Only Orders”** for
   - **Fentanyl**: 50mcg IV, over 2 minutes for pain. Fentanyl 50mcg IV may be repeated every 5 minutes to a total of 200mcg.
   - **Fentanyl**: 50mcg IM, if unable to initiate IV access. May be repeated as needed to a total of 200mcg.
   - **Fentanyl**: IN (See Intranasal Fentanyl Dosing Chart)

8. Initiate ALS intercept if needed and transport as soon as possible.

9. Contact the receiving hospital as soon as possible.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. Allow the patient to remain in a position that is most comfortable.

3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

4. **IV Fluid Therapy**: 20mL/kg fluid bolus if the patient is hypotensive to achieve a systolic BP of at least 100mmHg.
5. **Ondansetron (Zofran):** 4mg IV over 2 minutes for nausea and/or vomiting.

   - **Ondansetron (Zofran):** 4mg IM
   - **Ondansetron (Zofran):** 4mg PO orally disintegrating tablet

6. Manage the patient’s pain by using one of the following medications
   - **Contact Medical Control for “Physician Only Orders”**

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Dosage and Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Morphine Sulfate</strong></td>
<td>2-5 mg IV every 5 minutes to reduce the patient’s anxiety and severity of pain. If unable to establish IV access, may administer Morphine 2-5 mg IM every 15 minutes.</td>
</tr>
<tr>
<td><strong>Fentanyl</strong></td>
<td>50 mcg IV, over 2 minutes for pain. Fentanyl 50 mcg IV may be repeated every 5 minutes to a total of 200 mcg. If unable to establish IV access, may administer Fentanyl 50 mcg IM or IN. May be repeated as needed to a total of 200 mcg. (See dosing sheets for IN)</td>
</tr>
</tbody>
</table>
Critical Thinking Elements

- Monitor the patient for respiratory depression when administering narcotics.
- If respiratory depression or hypotension occurs after administration of Morphine or Fentanyl, ventilate the patient as necessary and administer Narcan.
- Monitor respiratory status, SPO2 and or Waveform Capnography if available.
- Assess for thoracic aortic (aneurysm) rupture or trauma in addition to GI etiologies.
- Assess for leaking or ruptured abdominal aortic aneurysm (AAA). Common signs and symptoms may include previous history un-repaired AAA, abdominal distention, pulsating masses, lower extremity mottling, diaphoresis, anxiety/restlessness and/or sharp “tearing” pain between the shoulder blades or in the lower back.
- Give special attention to female patients of childbearing years. Acute abdominal pain should be considered to be an ectopic pregnancy until proven otherwise.
- Consider possible etiologies and obtain a detailed history & physical exam:
  - Inflammation = slow onset of discomfort, malaise, anorexia, fever & chills.
  - Hemorrhage = steady pain, pain radiating to the shoulders, signs & symptoms of hypovolemia.
  - Perforation = acute onset of severe symptoms and steady pain with fever.
  - Obstruction = cramping pain, nausea, vomiting, decreased bowel activity and upper quadrant pain.
  - Ischemia = acute onset of steady pain (usually no fever noted).
- Do not allow the patient to eat or drink.
- Signs & symptoms of renal calculi (i.e. kidney stone) include: acute & severe flank pain that starts in the back and radiates to the groin, extreme restlessness, hematuria and previous history of kidney stones.
- **In patients with known renal failure, the Fentanyl dose must be reduced to 25mcg. The dose may be repeated one time to a maximum dose of 50mcg.**
- Avoid use of Zofran in patients with congenital long QT syndrome as these patients are at particular risk for Torsades de Pointes.

Acute Abdominal Pain Protocol
Acute Nausea & Vomiting Protocol

Acute nausea and vomiting may occur from a variety of illness including, but not limited to:

- Adverse medication effects
- Bowel obstruction
- Increased intracranial pressure
- Intraabdominal emergencies
- Myocardial infarction
- Other cardiac events such as tachydysrhythmias

An attempt at determining potential causes of isolated nausea or vomiting must be made in order to identify potential life threatening conditions.

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Place the patient in an upright or lateral recumbent position as tolerated.
3. Monitor airway status in vomiting patients as aspiration may occur. Reposition the patient as necessary to maintain a patent airway.
4. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. *Note:* Oxygen by mask may trap secretions and compromise the airway if the patient is actively vomiting.
5. Perform **blood glucose level test**.
6. **Oral Glucose**: 15g PO if the patient’s blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.
7. Perform a 2nd **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Oral Glucose. If blood sugar remains <60mg/dL, administer a 2nd dose of Oral Glucose (15g).
**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock & preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Place the patient in an upright or lateral recumbent position as tolerated.
3. Monitor airway status in vomiting patients as aspiration may occur. Reposition the patient as necessary to maintain a patent airway.
4. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. *Note:* Oxygen by mask may trap secretions and compromise the airway if the patient is actively vomiting.
5. Perform **blood glucose level test**.
6. **Oral Glucose**: 15g PO if the patient’s blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.
7. Perform a 2nd **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Oral Glucose. If blood sugar remains <60mg/dL, administer a 2nd dose of Oral Glucose (15g).
8. **Glucagon**: 2mg IN/ or 1 mg IM if blood sugar is < 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.
9. Initiate ILS/ALS intercept if needed and transport as soon as possible.
10. Contact the receiving hospital as soon as possible.

**ILS Care**

ILS Care should be focused on continuing or initiating an advanced level of care, identifying potential serious conditions and stabilizing airway and circulation where appropriate.

2. Render initial care in accordance with the *Universal Patient Care Protocol*.
3. Place the patient in an upright or lateral recumbent position as tolerated.
4. Monitor airway status in vomiting patients as aspiration may occur. Reposition the patient as necessary to maintain a patent airway.
5. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. *Note:* Oxygen by mask may trap secretions and compromise the airway if the patient is actively vomiting.

6. **Ondansetron (Zofran)**: 4mg PO orally disintegrating tablet or 4mg IV over 2 minutes

5. **IV Fluid Therapy**: 20mL/kg fluid bolus if the patient is hypotensive to achieve a systolic BP greater than 100mmHg.

6. Perform **blood glucose level test**.

7. **Oral Glucose**: 15g PO if the patient’s blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

   - **Dextrose 50%**: 25g IV if blood sugar is < 60mg/dL.

   - **Glucagon**: 1mg IM or (if available) 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

8. Perform a 2\textsuperscript{nd} **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat Dextrose if BS is < 60mg/dL.

9. Initiate ALS intercept if needed and transport as soon as possible.

10. Contact the receiving hospital as soon as possible.

---

**ALS Care**

ALS Care should be directed at continuing or establishing a more advanced level of care, identifying potential serious conditions, stabilizing airway and circulation where appropriate and providing pharmacological relief from symptoms of nausea and vomiting.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. Place the patient in an upright or lateral recumbent position as tolerated.

3. Monitor airway status in vomiting patients as aspiration may occur. Reposition the patient as necessary to maintain a patent airway.

4. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. *Note:* Oxygen by mask may trap secretions and compromise the airway if the patient is actively vomiting.
5. **Ondansetron (Zofran):** 4mg IV over 2 minutes

   Ondansetron (Zofran): 4mg IM

   Ondansetron (Zofran): 4mg PO orally disintegrating tablet

6. **IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive to achieve a systolic BP greater than 100mmHg.

7. Perform **blood glucose level test**.

8. **Oral Glucose:** 15g PO if the patient’s blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

   **Dextrose 50%:** 25g IV if blood sugar is < 60mg/dL.

   **Glucagon:** 1mg IM or (if available) 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

9. Perform a 2\textsuperscript{nd} **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Dextrose or Glucagon. Repeat Dextrose if BS is < 60mg/dL.

10. Initiate transport as soon as possible.

11. Contact the receiving hospital as soon as possible.

---

**Critical Thinking Elements**

- Avoid use of Zofran in patients with congenital long QT syndrome as these patients are at particular risk for Torsades de Pointes
### History
- Age: (Must be ≥ 18)
- Duration/Severity of Fever
- Past Medical History: (Pneumonia, Urinary Tract Infection, Meningitis, Cellulitis, Decubitus Ulcers, recent hospitalization/surgical procedures
- Medications
- Immunocompromised: (transplant, HIV/AIDS, diabetes, cancer)

### Signs & Symptoms
- Heart Rate > 90
- Respiratory Rate > 22
  - Or PaCO2 < 32mmHg
  - Or Mechanical Ventilation
- Systolic Blood Pressure ≤ 90mmHg
- Hyperthermia or Hypothermia
  - Thermometer: > 100.4°F/38°C or < 96.8°F/36°C
  - No Thermometer: Is the skin Hot or Cold?
- Hyperglycemia / Hypoglycemia
- Altered Mental Status / Decreased Level of Consciousness
- Already treating infection

### Differential Diagnosis
- Cancer/Tumors/Lymphomas
- Medication or Drug Reaction
- Hyperthyroid
- Meningitis
- Hyperglycemia

### Universal Patient Care Protocol
- ≥ 2 Criteria
  - Heart rate > 90 beats per minute
  - Respiratory rate > 22 or PaCO2 < 32 or mechanical ventilation
  - Hyperthermia or Hypothermia (>100.4°F or <96.8°F)
  - Systolic blood pressure ≤ 90mmHg
- +1
  - Chief complaint suggestive of infection and/or Altered Mental Status (AMS)?
    - Yes
    - AMS or decreased Level of Consciousness (LOC)
    - Already treating infection

### Respiratory / Ventilatory Insufficiency?
- If Available measure End-Tidal CO2

### Oxygen:
- 15L via non-rebreather mask or 6L via nasal cannula if the patient cannot tolerate the mask.

### IV: (ILS & ALS Only)
- Initiate 20ml/kg normal saline bolus
  - (May repeat to maintain systolic blood pressure > 90mmHg)

### Blood Glucose Analysis:
- (If < 60 mg/dL)
  - Dextrose Protocol

### Critical Thinking Elements
- Recommended exam: mental status, HEENT, skin, neck, heart, lungs, abdomen, extremities, neuro
- Check and record vital signs every 5 minutes
- Keep patient warm if skin feels cold or (if thermometer is available) temp is <96.8 F/36 C
- Contact receiving hospital as soon as possible to notify of possible adult sepsis patient
- Systolic blood pressure <90mmHg or Mean Arterial Pressure (MAP) <65mmHg  MAP=SBP + (DBP x 2) / 3
- Increased suspicion in an immunocompromised patient with Hyperglycemia without history of Diabetes or Hypoglycemia without history of Diabetes.
- Organ dysfunction can be defined as: respiratory failure, acute renal failure, acute liver failure, altered mental status
Allergic reactions can be triggered by virtually any allergen. An allergen is a substance (usually protein-based) which produces a hypersensitive reaction. Drugs, blood products, foods and envenomation’s are examples of substances which may produce hypersensitive reactions.

Signs & symptoms of a hypersensitive reaction may range from isolated hives to wheezing, shock and cardiac arrest. Anaphylaxis is a life threatening reaction that requires prompt recognition and intervention. An anaphylactic reaction may result in airway compromise and circulatory collapse within minutes.

**Emergency Medical Responder Care**

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. **Epi-Pen**: If the patient has a history of allergic reactions and has in their possession a prescribed Epi-Pen, is suffering from hives, wheezing, hoarseness, hypotension, ALOC or indicates a history of anaphylaxis, assist the patient with administering the Epi-Pen or contact Medical Control for orders to administer the Epi-Pen.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. Initiate ALS intercept and transport as soon as possible.
Allergic Reaction / Anaphylaxis Protocol

BLS Care (continued)

1. **Epinephrine 1:1000**: 0.3mg IM or EPI -Pen if the patient has a history of allergic reactions and/or is suffering from hives, wheezing, hoarseness, hypotension, ALOC or indicates a history of anaphylaxis.

4. **Proventil (Albuterol)**: 2.5mg in 3mL of normal saline via nebulizer over 15 minutes. May repeat Albuterol 2.5mg every 15 minutes as needed (with Medical Control order).

5. **Contact Medical Control** as soon as possible.

ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

2. Render initial care in accordance with the *Universal Patient Care Protocol*.

3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

4. Initiate ALS intercept and transport as soon as possible.

5. **Benadryl**: 50mg IV or IM for severe itching and/or hives.

6. **Epinephrine 1:1000**: 0.3mg IM if the patient has a history of allergic reactions and/or is suffering from hives, wheezing, hoarseness, hypotension, ALOC or indicates a history of anaphylaxis.

7. **Proventil (Albuterol)**: 2.5mg in 3mL of normal saline via nebulizer over 15 minutes. May repeat Albuterol 2.5mg every 15 minutes as needed (with Medical Control order). In-line nebulizer may be utilized if patient is unresponsive/in respiratory arrest.

8. **IV Fluid Therapy**: 20mL/kg fluid bolus if patient is hypotensive to achieve a systolic BP of at least 100mmHg.

9. **Contact Medical Control for Orders** for Methylprednisolone 125mg IV

10. **Contact Medical Control** as soon as possible.
ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM (or intubate) if necessary.

3. **Epinephrine 1:1000**: 0.3-0.5mg IM if the patient has respiratory distress (inspiratory & expiratory wheezing, stridor and/or laryngeal edema), hypotension and/or ALOC.

   **OR**

   **Epinephrine 1:10,000**: 0.3-0.5mg IV if peripheral access has been established and the patient has respiratory distress (inspiratory & expiratory wheezing, stridor and/or laryngeal edema), hypotension and/or ALOC.

4. **Benadryl**: 50mg IV or IM for severe itching and/or hives.

5. **Proventil (Albuterol)**: 2.5mg in 3mL normal saline over 15 minutes. May repeat Albuterol 2.5mg every *15 minutes* as needed. In-line nebulizer may be utilized if the patient is unresponsive or in respiratory arrest.

6. **IV Fluid Therapy**: 20mL/kg fluid bolus if patient is hypotensive to achieve a systolic BP of at least 100mmHg.

7. **Contact Medical Control for Orders** for Methylprednisolone 125mg IV

8. Transport as soon as possible.

9. Contact the receiving hospital as soon as possible.
Drug Overdose and Poisoning Protocol

Poisoning may occur by ingesting, injecting, inhaling or absorbing a harmful substance or a substance in harmful quantities. Due to the magnitude and multiplicity of agents that are toxic or could be used as toxins, this protocol focuses on a general approach to the patient who has taken an overdose or has been exposed to a toxic agent. The substance container may have vital information for resuscitation of a poisoned patient. Communication with Medical Control is the best way to obtain rapid and accurate advice on treatment guidelines for specific substances. Poison Control Number is 1 800 222-1222 as well.

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Consider possible scene & patient contamination and follow agency safety procedures.

2. Render initial care in accordance with the Universal Patient Care Protocol.

3. Oxygen: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

4. Narcan: 2mg IN (1mg per nare) using a mucosal atomizer device (MAD) if possible narcotic intoxication with respiratory depression (≤ 8 breaths per minute). May repeat 2mg IN if no response in 10 minutes.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Consider possible scene & patient contamination and follow agency safety procedures

2. Render initial care in accordance with the Universal Patient Care Protocol.

3. Oxygen: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

4. Narcan: 2mg IN / IM (1mg per nare) using a mucosal atomizer device (MAD) if possible narcotic intoxication with respiratory depression (≤ 8 breaths per minute). May repeat 2mg IN if no response in 10 minutes.
**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Consider possible scene & patient contamination and follow agency safety procedures.
2. Render initial care in accordance with the *Universal Patient Care Protocol*.
3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary and have suction readily available.
4. **Narcan**: 2mg IV/IM if no response to Dextrose or Glucagon within 2 minutes and narcotic overdose is suspected. May repeat 2mg IV or IM if no response in 5 minutes *(with Medical Control order)*.
   **Narcan**: 2mg IN if unable to obtain IV access.
5. **IV Fluid Therapy**: 20mL/kg fluid bolus if the patient is hypotensive to achieve a systolic BP of at least 100mmHg.
6. Initiate ALS intercept if needed and transport as soon as possible.
7. If at any time the patient stops breathing, intubate x 1 attempts, then, insert the **Blind Insertion Airway Device**
8. Contact the receiving hospital as soon as possible or Medical Control if necessary.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*
2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM (or intubate) if necessary.
3. Consider possible
4. scene & patient contamination and follow agency safety procedures.
5. **Narcan**: 2mg IV/IM if no response to Dextrose or Glucagon within 2 minutes and narcotic overdose is suspected. May repeat 2mg IV or IM if no response in **5 minutes** (with Medical Control order). **Narcan**: 2mg IN if unable to obtain IV access.

6. **Sodium Bicarbonate**: 50meq IV/IO if known tricyclic antidepressant (TCA) or known Aspirin (ASA) overdose.

7. **IV Fluid Therapy**: 20mL/kg fluid bolus if the patient is hypotensive to achieve a systolic BP of at least 100mmHg.

8. Transport as soon as possible and contact the receiving hospital as soon as possible.

---

**Critical Thinking Elements**

- Overdose patients should not be allowed to refuse treatment and transport.
- **DO NOT** give a suspected poisoning patient anything by mouth.
- Caustic substances are those which have strong acid or alkali properties and usually cause intra-oral burns, painful swallowing or burning/painful regurgitation.
  - **Common Acids**: Hydrochloric Acid (swimming pool and toilet bowl cleaners), Sulfuric Acid (battery acid), Acetic Acid and Phenol.
  - **Common Bases (Alkali)**: Lye (washing powders and paint removers), drain pipe cleaners (Drano), disk batteries, bleach, ammonia, polishes, dyes and jewelry cleaners.
- Patients who overdose on TCAs may initially appear well but may rapidly deteriorate. Monitor closely for ALOC and cardiovascular instability. Tachycardia and a widened QRS complex are generally signs of a life-threatening ingestion.
  - **Common TCAs**: Amitriptyline, Elavil, Doxepin, Impramine, Clomipramine, etc.
- Narcotic and benzodiazepine overdoses do not generally cause abrupt changes in consciousness except when combined with alcohol use.
  - **Common Benzodiazepines**: Valium, Diazepam, Ativan, Lorazepam, Xanax, etc.
A central line is an indwelling catheter that provides access to large central veins:

1. May be used if unable to establish a peripheral IV in patients with a systolic BP < 80mmHg.
2. May be used if the patient is in cardiac arrest.
3. Do NOT administer benzodiazepines (i.e. Versed) via central line.
4. A **10mL syringe** or larger must be used when accessing any central line to prevent excess infusion pressure that could damage the internal wall of the catheter.
5. Always aspirate 5mL of blood from the central line and discard **prior to** administration of medications or IV fluids to remove Heparin from the line.
6. Strictly adhere to aseptic technique when handling a central line:
   - Cleanse injection port **twice** with an alcohol prep (using a new alcohol prep each time) prior to accessing.
7. Do not remove the injection cap.
8. Do not allow IV fluids to run dry.
9. Always expel **all** air from syringes and IV tubing prior to administration.
10. Should damage occur to the external catheter, immediately clamp the catheter between the skin and the damaged area.
Central Lines and Fistulas Procedure & Protocol

(ALS Only)

Fistulas ("Shunts")

A fistula ("shunt") is a surgically created subcutaneous arterio-venous vessel \textit{anastomosis} used for patients requiring hemodialysis and should \textbf{NOT} be routinely accessed by prehospital personnel.

1. \textbf{May only be used if the patient is in cardiac arrest and peripheral IV, IO or external jugular access cannot be established.}

2. Access must be made using a \textbf{14g or 16g IV catheter}. Do not use anything smaller.

3. \textbf{Do not} use an arm with a fistula, shunt or arterio-venous (AV) graft to obtain a blood pressure.

4. \textbf{Do not} use an arm with a fistula, shunt or AV graft to establish peripheral IV access.

5. In the event the shunt tubing is pulled out of the entrance site: apply direct pressure, elevate the arm and transport immediately to the hospital.

Internal Medi-Ports

Access requires a specialized needle and \textbf{cannot be used} by prehospital personnel.

Critical Thinking Elements

- Patients with advanced renal disease requiring dialysis have special medical needs that may require specific attention in the prehospital setting. These patients are prone to complications such as fluid overload & electrolyte imbalances, especially if they miss a scheduled dialysis treatment.
- Fluid overload may lead to pulmonary edema.
- Hyperkalemia may lead to arrhythmias and cardiac arrest. Monitor dialysis patients closely.
- \textit{Anastomosis} is the surgical connection of two tubular structures.
- Use of the EZ-IO is strongly encouraged over accessing a fistula / shunt.
ENVIRONMENTAL EMERGENCIES PROTOCOLS
Injuries from hazardous materials incidents vary depending on the *manner* of exposure (inhalation, ingestion, injection or absorption), the *type* of material involved (acids, ammonia, chlorine, hydrocarbon solvents, sulfides, organophosphates) and the *amount* of exposure (time & concentration).

Harmful products are widely used in home gardening and cleaning, commercial agriculture and cleaning & industrial operations. Civil defense agencies have indicated the increasing threat concerning the use of *Weapons of Mass Destruction* (WMD) as a foreign and domestic terrorist tool. WMD represent an intentional hazardous materials incident.

Due to the magnitude and multiplicity of hazardous materials, this protocol focuses on a general approach to the patient involved in a hazardous materials incident. The substance container may have vital information for resuscitation of an exposed patient. Communication with Medical Control is the best way to obtain rapid and accurate advice on treatment guidelines for specific materials.

**Emergency Medical Responder Care**

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock. Remain uphill, upwind, upstream and upgrade of the incident. Stay out of the “Hot Zone” unless trained, equipped and authorized to enter.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. Look for possible scene and patient contamination. Follow agency safety procedures.

3. Notify IEMA if needed at 1-800-782-7860.

4. The patient’s clothing should be completely removed to prevent continued exposure and the patient decontaminated prior to being placed in the ambulance for transport.

5. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.
BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport. Remain uphill, upwind, upstream and upgrade of the incident. Stay out of the “Hot Zone” unless trained, equipped and authorized to enter.

1. Render initial care in accordance with the Universal Patient Care Protocol.

2. Look for possible scene and patient contamination. Follow agency safety procedures.

3. Notify IEMA if needed at 1-800-782-7860.

4. The patient’s clothing should be completely removed to prevent continued exposure and the patient decontaminated prior to being placed in the ambulance for transport.

5. Oxygen: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

6. Proventil (Albuterol): 2.5mg in 3mL of normal saline via nebulizer over 15 minutes if the patient has been exposed to an irritant gas (acids, ammonia, chlorine, carbon monoxide). May repeat Albuterol 2.5mg every 15 minutes as needed (with Medical Control order).

7. Initiate ALS intercept if needed and transport as soon as possible. Be alert for suspected organophosphate poisoning (OPP). Signs & symptoms include “SLUDGE” (salivation, lacrimation, urination, defecation, gastroenteritis & emesis). Early indications of OPP include: headache, dizziness, weakness & nausea.

8. Contact Medical Control and make sure the receiving hospital is aware of (prior to arrival at the facility) the patient’s exposure to hazardous materials and what decontamination procedures were followed at the scene.
ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport. Remain uphill, upwind, upstream and upgrade of the incident. Stay out of the “Hot Zone” unless trained, equipped and authorized to enter.

1. Render initial care in accordance with the Universal Patient Care Protocol.

2. Look for possible scene and patient contamination. Follow agency safety procedures.

3. Notify IEMA if needed at 1-800-782-7860.

4. The patient’s clothing should be completely removed to prevent continued exposure and the patient decontaminated prior to being placed in the ambulance for transport.

5. Oxygen: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

6. Duoneb OR Proventil (Albuterol): 2.5mg in 3mL normal saline mixed with Ipratropium (Atrovent): 0.5mg via nebulizer over 15 minutes if the patient has been exposed to an irritant gas (acids, ammonia, chlorine, carbon monoxide). You may have this premixed as Duoneb. Repeat Albuterol 2.5mg with Atrovent 0.5mg every 15 minutes as needed.

7. Atropine: 2mg IV or IM (with Medical Control order only) if suspected organophosphate poisoning (OPP) and signs & symptoms of “SLUDGE” are present (salivation, lacrimation, urination, defecation, gastroenteritis & emesis). Early indications of OPP include: headache, dizziness, weakness & nausea. Repeat Atropine 2mg IV or IM every 5 minutes (with Medical Control order) or until signs & symptoms of “SLUDGE” subside.

8. Initiate ALS intercept and transport as soon as possible.

9. Contact Medical Control and make sure the receiving hospital is aware of the patient’s exposure to hazardous materials (prior to arrival at the facility) and what decontamination procedures were followed at the scene.
ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport. Remain uphill, upwind, upstream and upgrade of the incident. Stay out of the “Hot Zone” unless trained, equipped and authorized to enter.

10. Render initial care in accordance with the *Universal Patient Care Protocol*.

11. Look for possible scene and patient contamination. Follow agency safety procedures.

12. Notify IEMA if needed at 1-800-782-7860.

13. The patient’s clothing should be completely removed to prevent continued exposure and the patient decontaminated prior to being placed in the ambulance for transport.

14. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM (or intubate) if necessary.

15. **Duoneb OR Proventil (Albuterol)**: 2.5mg in 3mL normal saline mixed with **Ipratropium (Atrovent)**: 0.5mg via nebulizer over 15 minutes if the patient has been exposed to an irritant gas (acids, ammonia, chlorine, carbon monoxide). You may have this premixed as Duoneb. Repeat Albuterol 2.5mg with Atrovent 0.5mg every 15 minutes as needed.

16. **Atropine**: 2mg IV or IM if suspected organophosphate poisoning (OPP) and signs & symptoms of “SLUDGE” are present (salivation, lacrimation, urination, defecation, gastroenteritis and emesis). Early indications of OPP include: headache, dizziness, weakness & nausea. Repeat Atropine 2mg IV or IM every 5 minutes (with Medical Control order) or until signs & symptoms of “SLUDGE” subside.

17. Transport as soon as possible.

18. **Contact Medical Control** if needed and make sure the receiving hospital is aware of the patient’s exposure to hazardous materials (prior to arrival at the facility) and what decontamination procedures were followed at the scene.
Injury and illness from environmental exposure varies depending on the manner of exposure (wet or dry) and the amount of exposure (time, temperature, wind chill factor, and ambient air). Cold weather emergencies range from localized frostbite to severe hypothermia with unresponsiveness and unconsciousness.

The patient’s health and predisposing factors may increase the likelihood of environmental illness and injury. Patients suffering from trauma, shock, hypoglycemia and stroke are at greater risk of developing hypothermia. Newborns, infants, drug & alcohol abuse patients and the elderly have increased predisposition to hypothermia. The primary goal in the treatment of the patient at risk for hypothermia is to insulate the patient and prevent further heat loss.

**Hypothermic Emergencies Protocol**

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Handle the patient as *gently* as possible.
3. Create a warm environment for the patient. Remove wet or frozen clothing and cover the patient with warm blankets. Prevent re-exposure to cold. Warm packs may be utilized for the neck (posterior), armpits, groin and along the thorax.
4. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.
5. Do not rub frostbitten or frozen body parts. Protect injured parts (*e.g.* blisters) with light, sterile dressings and avoid pressure to the area.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Handle the patient as *gently* as possible.
Hypothermic Emergencies Protocol

BLS Care (continued)

3. Create a warm environment for the patient. Remove wet or frozen clothing and cover the patient with warm blankets. Prevent re-exposure to cold. Warm packs may be utilized for the neck (posterior), armpits, groin and along the thorax.

4. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

5. Do not rub frostbitten or frozen body parts. Protect injured parts (e.g. blisters) with light, sterile dressings and avoid pressure to the area.

6. Treat other symptoms per the appropriate protocol.

7. Initiate ALS intercept if needed and transport as soon as possible.

ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. Handle the patient as *gently* as possible.

3. Create a warm environment for the patient. Remove wet or frozen clothing and cover the patient with warm blankets. Prevent re-exposure to cold. Warm packs may be utilized for the neck (posterior), armpits, groin and along the thorax.

4. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

5. **IV Fluid Therapy**: 20mL/kg fluid bolus of *warmed* 0.9% Normal Saline.

6. Do not rub frostbitten or frozen body parts. Protect injured parts (e.g. blisters) with light, sterile dressings and avoid pressure to the area.

7. Treat other symptoms per the appropriate protocol.

8. Initiate ALS intercept if needed and transport as soon as possible.
ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. Handle the patient as *gently* as possible.

3. Create a warm environment for the patient. Remove wet or frozen clothing and cover the patient with warm blankets. Prevent re-exposure to cold. Warm packs may be utilized for the neck (posterior), armpits, groin and along the thorax.

4. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

5. **IV Fluid Therapy**: 20mL/kg fluid bolus of *warmed* .9% Normal Saline.

6. Do not rub frostbitten or frozen body parts. Protect injured parts (*e.g.* blisters) with light, sterile dressings and avoid pressure to the area.

7. Treat other symptoms per the appropriate protocol.

8. Transport as soon as possible.

**Critical Thinking Elements**

- Do not thaw frozen parts in the field if there is a chance of refreezing. Protect frostbitten areas from refreezing.

- Patients with hypothermia should be considered at high risk for ventricular fibrillation. **It is imperative that these patients be handled gently** and not re-warmed aggressively.

- The presence of delirium, bradycardia, hypotension and/or cyanosis is usually indicative of severe hypothermia (core body temperature of less than 90 degrees Fahrenheit).
Injury and illness from heat exposure varies depending on the *manner* of exposure (sun, humidity, exertion) and the *amount* of exposure (time, temperature & ambient air). Heat exposure emergencies range from localized cramping to severe hyperthermia (heat stroke) with unresponsiveness and unconsciousness. The patient’s health, predisposing factors and medications may increase the likelihood of heat-related illness. The primary goal in the treatment of the patient at risk for hyperthermia is to cool the patient and restore body fluids.

**Emergency Medical Responder Care**

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. Move the patient to a cool environment. Remove clothing as necessary to make the patient comfortable. Cold packs may be utilized for the neck (posterior), armpits, groin and along the thorax. Do not cool the patient to a temperature that causes shivering.

3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. Move the patient to a cool environment. Remove clothing as necessary to make the patient comfortable. Cold packs may be utilized for the neck (posterior), armpits, groin and along the thorax. Do not cool the patient to a temperature that causes shivering.

3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

4. Treat other symptoms per the appropriate protocol.

5. Initiate ALS intercept if needed and transport as soon as possible.
Heat-Related Emergencies Protocol

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. Move the patient to a cool environment. Remove clothing as necessary to make the patient comfortable. Cold packs may be utilized for the neck (posterior), armpits, groin and along the thorax. Do not cool the patient to a temperature that causes shivering.

3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

4. **IV Fluid Therapy**: 20mL/kg fluid bolus if the patient is hypotensive to achieve a systolic BP of at least 100mmHg.

5. Treat other symptoms per the appropriate protocol.

6. Initiate ALS intercept if needed and transport as soon as possible.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. Move the patient to a cool environment. Remove clothing as necessary to make the patient comfortable. Cold packs may be utilized for the neck (posterior), armpits, groin and along the thorax. Do not cool the patient to a temperature that will cause them to shiver.

3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

4. **IV Fluid Therapy**: 20mL/kg fluid bolus if the patient is hypotensive to achieve a systolic BP of at least 100mmHg.

5. Treat other symptoms per the appropriate protocol.
Heat-Related Emergencies Protocol

6. Transport as soon as possible.

---

Heat Disorders

**Heat (Muscle) Cramps** – Heat cramps are muscle cramps caused by overexertion and dehydration in the presence of high temperatures. Signs & symptoms include: *Normal or slightly elevated body temperature; generalized weakness; dizziness; warm, moist skin and cramps in the fingers, arms, legs or abdominal muscles.*

**Heat Exhaustion** – Heat exhaustion is an acute reaction to heat exposure and the most common heat-related illness a prehospital provider will encounter. Signs & symptoms include: *Increased body temperature; generalized weakness; cool, diaphoretic skin; rapid, shallow breathing; weak pulse; diarrhea; anxiety; headache and possible loss of consciousness.*

**Heatstroke** – Heatstroke occurs when the body’s hypothalamic temperature regulation is lost. Cell death and damage to the brain, liver and kidneys can occur. Signs & symptoms include: *Cessation of sweating; very high core body temperature; hot, usually dry skin; deep, rapid, shallow respirations (which later slow); rapid, full pulse (which later slows); hypotension; confusion, disorientation or unconsciousness and possible seizures.*

**Fever (Pyrexia)** – A fever is the elevation of the body temperature above the normal temperature for that person (~ 98.6°F +/- 2 degrees). Fever is sometimes difficult to differentiate from heatstroke; however, there is usually a history of infection or illness with a fever.
Burn injuries vary depending on the type of burn (thermal, electrical, chemical) and the amount of exposure (time and depth). Burn injuries range from localized redness to deep tissue destruction and airway compromise. Signs of burn injury include: blisters, pain, tissue destruction, charred tissue and singed hair.

The primary goal in the treatment of the burn patient is to stop the acute burning process by removing the patient from direct contact with the source of the burn and maintaining the patient’s body fluids. Special attention should be given to limit further pain and damage of the burn to the patient. However, burn care should not interfere with lifesaving measures.

**Burn Protocol**

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. Make sure the scene is safe to enter.

3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

4. **THERMAL BURN TREATMENT**:
   a) If the burn occurred within the last 20 minutes, reverse the burning process and cool the area by flushing the area with 1 Liter of sterile saline (or sterile water if sterile saline is not available). The goal of cooling is to extinguish the burning process – not to systemically cool the patient. Fluid application should be held to a minimum and discontinued if the patient begins shivering.
   b) Remove jewelry and loose clothing. Do not pull away clothing that is stuck to the burn.
   c) Cover the wound with sterile dressings***
   d) Place a sterile burn sheet on the stretcher. If the patient’s posterior is burned, place a sterile burn pad on top of the sheet with the absorbent side toward the patient.
   e) Place patient on the stretcher.
   f) Cover the patient with additional sterile burn sheets and blanket to conserve body heat.
5. **ELECTRICAL BURN TREATMENT:**

   a) Assure that the power service has been cut off and remove the patient from the source of electricity.
   b) Fully immobilize the patient due to forces of electrical current and possible trauma.
   c) Assess for entry and exit wounds. No cooling or flushing is necessary due to the type of burn.
   d) Cover the burn with dry, sterile dressings.
   e) Closely monitor the patient.

6. **CHEMICAL BURN TREATMENT:**

   a) Consider possible scene and patient contamination and follow agency safety procedures.
   b) Note which chemical agent caused the burn and obtain the MSDS for that chemical (if possible).
   c) The patient’s clothing should be completely removed to prevent continued exposure and the patient decontaminated prior to being placed in the ambulance for transport.
   d) **Dry chemical powder** should be brushed off before applying water.
   e) Irrigate the patient with sterile water and if the MSDS indicates use of water will not cause an adverse reaction. Body parts should be flushed for at least 1-2 minutes. Do not use sterile saline on chemical burns.
   f) Irrigate burns to the eye with sterile water for at least 20 minutes. Alkaline burns should receive continuous irrigation throughout transport.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Includes all components of *Emergency Medical Responder Care.*
2. Initiate ALS intercept and transport as soon as possible.
3. **Contact Medical Control** as soon as possible for significant burns.
**Burn Protocol**

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Includes all components of *Emergency Medical Responder Care*.

2. **IV Fluid Therapy**: 20mL/kg fluid bolus. Repeat if necessary.

3. **Contact Medical Control for “Physician Only Orders” for Morphine Sulfate**: 2-5mg IV every 5 minutes to reduce the patient’s anxiety and severity of pain. If unable to establish IV access, may give Morphine 2-5mg IM every 15 minutes *(with Medical Control order only)*.

4. **Contact Medical Control for “Physician Only Orders” for Fentanyl**: 50mcg IV, over 2 minutes for pain. Fentanyl 50mcg IV may be repeated every 5 minutes to a total of 200mcg. **Fentanyl**: 50mcg IM, if unable to initiate IV access. May be repeated as needed to a total of 200mcg. **Fentanyl**: IN *(See Intranasal Fentanyl Dosing Chart)*

5. Initiate ALS intercept and transport as soon as possible.

6. **Contact Medical Control** as soon as possible for significant burns.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Includes all components of *Emergency Medical Responder Care*.

2. Be prepared to intubate if necessary.

3. **IV Fluid Therapy**: 20mL/kg fluid bolus. Repeat if necessary.
4. Manage the patient’s pain by using one of the following medications.

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosing Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine Sulfate</td>
<td>2-5 mg IV every 5 minutes to reduce the patient’s anxiety and severity of pain. If unable to establish IV access, may administer Morphine 2-5 mg IM every 15 minutes.</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>50 mcg IV, over 2 minutes for pain. Fentanyl 50 mcg IV may be repeated every 5 minutes to a total of 200 mcg. If unable to establish IV access, may administer Fentanyl 50 mcg IM or IN. May be repeated as needed to a total of 200 mcg. (See dosing sheets for IN)</td>
</tr>
</tbody>
</table>

5. Transport and Contact Medical Control as soon as possible for significant burns.

6. **DRUG ASSISTED INTUBATION** **ALS Only**
   a. Consider Drug assisted intubation for impending airway collapse of a severely burned patients or patient with evidence of airway compromise due to burn(singed nasal airways, lip/tongue/throat burn or swelling, burned facial hair, respiratory distress)
   b. Call MEDICAL CONTROL for orders prior to initiating.
   c. Prepare all equipment
   d. Ensure BIADs are readily available.
   e. MIDAZOLAM 0.05mg/kg (max dose 10 mg) IV/IO slowly
   f. ETOMIDATE 0.5 mg/kg (max dose 40 mg) IV/IO over 30 seconds.
   g. BENZOCAINE topically to posterior throat
   h. Perform intubation.
   i. If after intubation patient exhibits movement that might lead to extubation, administer MIDAZOLAM 2 mg every 3-5 minutes, as necessary (max post-intubation dose 10mg).

**NOTES:**
- Closely monitor patient’s respiratory status. Continuous SpO2, cardiac monitoring, and capnography (if available) is required.
Burn Protocol

**Critical Thinking Elements**

- Monitor the patient for respiratory depression when administering narcotics.
- If respiratory depression or hypotension occurs after administration of Morphine or Fentanyl, ventilate the patient as necessary and administer Narcan.
- Monitor respiratory status, SPO2 and or Waveform Capnography if available.
- ***WaterJel® may be used for THERMAL BURNS (after the burn has been irrigated according to protocol) if it is available:
  1. Open the foil package, unfold dressing and apply to burn. **NOTE:** Do not remove burned clothing - apply gel-soaked dressing directly on top.
  2. Pour excess gel from the foil package directly onto the burn dressing or surrounding skin.
  3. Loosely wrap sterile gauze over the dressing to hold it in place.
- WaterJel® helps reduce pain from burns and cools the skin to help prevent burn progression and helps protect the burn against airborne contamination.
- BurnJel® contains Lidocaine and may **NOT** be used in the OSF St. James Area EMS System.
- Treat other symptoms or trauma per the appropriate protocol (e.g. if someone suffers from smoke inhalation along with being burned, refer to the Smoke Inhalation Protocol).
- IV access should not be obtained through burned tissue unless no other site is available.
- Closely monitor the patient’s response to IV fluids and assess for pulmonary edema.
- Closely monitor the patient’s airway – have BVM, suction and/or intubation equipment readily available.
- Do not delay transport of a “Load and Go” trauma patient to care for burns.
- For chemical/powder burns, be aware of inhalation hazards and closely monitor for changes in respiratory status.
- In patients with known renal failure, the Fentanyl dose must be reduced to 25mcg. The dose may be repeated one time to a maximum dose of 50mcg.
Smoke Inhalation/Cyanide Poisoning Protocol

Smoke inhalation injury is the result of various inhaled components of combustion and direct thermal injury to the airway. Signs and symptoms include: evidence of exposure to fire, stridor, wheezing, acute upper airway obstruction, chemical pneumonia and non-cardiac pulmonary edema. Effects of the exposure may be immediate or delayed several hours.

Carbon monoxide (CO) poisoning is a common secondary complication to smoke inhalation. Direct exposure to the gas is also common (especially in winter months). Signs and symptoms include: evidence of exposure to fire or natural gases produced by incomplete combustion, headache, dizziness, tinnitus, nausea, weakness, chest pain and ALOC.

Suspect cyanide toxicity in patients who were in enclosed spaces during a fire and have soot in the nares or oropharynx and exhibit altered mental status.

- Disorientation, confusion, and severe headache are potential indications of cyanide poisoning IN THE SETTING of smoke inhalation.
- Hypotension without other obvious cause IN THE SETTING of smoke inhalation increases the likelihood of cyanide poisoning.

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the Universal Patient Care Protocol.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. **Consider intercept**.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the Universal Patient Care Protocol.
Smoke Inhalation/Cyanide Poisoning Protocol

BLS Care (continued)

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. Initiate ILS/ALS intercept and transport as soon as possible.

4. **Proventil (Albuterol)**: 2.5mg in 3mL of normal saline via nebulizer over 15 minutes. May repeat Albuterol 2.5mg every **15 minutes** as needed (with Medical Control order).

5. Contact the receiving hospital as soon as possible or Medical Control if necessary and consider intercept.

ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. **Duoneb OR Proventil (Albuterol)**: 2.5mg in 3mL normal saline mixed with **Ipratropium (Atrovent)**: 0.5mg via nebulizer over **15 minutes**. Repeat Albuterol 2.5mg with Atrovent 0.5mg every 15 minutes as needed. You may have this premixed as Duoneb. In-line nebulizer may be utilized if the patient is unresponsive or in respiratory arrest.

4. Initiate ALS intercept if needed and transport as soon as possible.

5. Contact the receiving hospital as soon as possible or Medical Control if necessary and consider intercept.

ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. **Duoneb OR Proventil (Albuterol)**: 2.5mg in 3mL normal saline mixed with **Ipratropium (Atrovent)**: 0.5mg via nebulizer over **15 minutes**. Repeat Albuterol 2.5mg with Atrovent 0.5mg every 15 minutes as needed. You may have this premixed as Duoneb. In-line nebulizer may be utilized if the patient is unresponsive or in respiratory arrest.

4. Initiate ALS intercept if needed and transport as soon as possible.

5. Contact the receiving hospital as soon as possible or Medical Control if necessary and consider intercept.
Smoke Inhalation/Cyanide Poisoning Protocol

ALS Care (continued)

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM (or intubate) if necessary.

3. **If respiratory distress with wheezing or stridor present consider CPAP**. (See CPAP Protocol)

4. **Duoneb OR Proventil (Albuterol)**: 2.5mg in 3mL normal saline **mixed with Ipratropium (Atrovent)**: 0.5mg via nebulizer over **15 minutes**. Repeat Albuterol 2.5mg with Atrovent 0.5mg every 15 minutes as needed. You may have this premixed as Duoneb. In-line nebulizer may be utilized if the patient is unresponsive or in respiratory arrest.

5. **If cardiac or respiratory arrest, seizing, or SBP <80 with signs of hypoperfusion after exposure to smoke in an enclosed space**: If you have this kit, give:
   - CyanoKit (Hydroxycobalamin) 5grams IV over 15 minutes. If signs and symptoms persist, a repeat dose can be administered. The infusion rate for the second does is usually 15 minutes to 2 hours. (Depending on clinical condition). See medication sheet for questions.

6. Transport as soon as possible.

7. Contact the receiving hospital as soon as possible.
Near drowning results from submersion in water or other liquid for a period of time that does not result in irreversible death. The time interval of submersion that causes irreversible death is dependent on several factors such as: temperature of the water, the health of the victim and any trauma suffered during the event. All persons submerged 1 hour or less should be vigorously resuscitated in spite of apparent death. Initial care of the near drowning victim should begin in the water.

**Near Drowning Protocol**

Near drowning results from submersion in water or other liquid for a period of time that does not result in irreversible death. The time interval of submersion that causes irreversible death is dependent on several factors such as: temperature of the water, the health of the victim and any trauma suffered during the event. All persons submerged 1 hour or less should be vigorously resuscitated in spite of apparent death. Initial care of the near drowning victim should begin in the water.

**Emergency Medical Responder Care**

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol* and *Universal Trauma Care Protocol*.
2. Make sure the scene is safe. Use appropriate personnel and equipment for rescue.
3. Establish and maintain spinal immobilization.
4. **Oxygen**: Measure pulse Oximetry. 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to clear the airway and support the patient’s respirations with BVM if necessary.
5. Initiate **CPR** if indicated.
6. Treat respiratory and/or cardiac symptoms per the appropriate protocol.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Includes all components of *Emergency Medical Responder Care*.
2. Consider Proventil (Albuterol) for respiratory distress: Proventil (Albuterol): 2.5 mg in 3mL of normal saline via nebulizer over 15 min. May repeat Albuterol 2.5 mg every 15 minutes as needed. (If wheezes still present)
3. Consider CPAP if available for respiratory distress: If the systolic BP>100mmHg.
   a. If
b. systolic B/P is between 90-100mmHg, contact Medical Control prior to initiating CPAP.

c. **Do not** initiate CPAP if the systolic B/P is less than 90mmHg.


5. Initiate ALS intercept and transport as soon as possible.

6. Contact the receiving hospital as soon as possible.

**Near Drowning Protocol**

**BLS Care (continued)**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Includes all components of *Emergency Medical Responder Care*.

2. Consider Proventil (Albuterol) for respiratory distress: Proventil (Albuterol): 2.5 mg in 3mL of normal saline via nebulizer over 15 min. May repeat Albuterol 2.5 mg every 15 minutes as needed. (If wheezes still present). In-line nebulizer may be utilized if patient is unresponsive or in respiratory arrest.

3. Consider CPAP if available for respiratory distress: If the systolic BP>100mmHg.
   - If systolic B/P is between 90-100mmHg, contact Medical Control prior to initiating CPAP.
   - **Do not** initiate CPAP if the systolic B/P is less than 90mmHg.

4. Measure Pulse Oximetry or Capnography if available.

5. Consider 12 lead EKG.

6. Initiate ALS intercept and transport as soon as possible.

7. Contact the receiving hospital as soon as possible.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Includes all components of *Emergency Medical Responder Care*. 
Near Drowning Protocol

ALS Care (continued)

2. Consider Proventil (Albuterol) for respiratory distress: Proventil (Albuterol): 2.5 mg in 3mL of normal saline via nebulizer over 15 min. May repeat Albuterol 2.5 mg every 15 minutes as needed. (If wheezes still present). In-line nebulizer maybe utilized if patient is unresponsive or in respiratory arrest.

3. If the systolic BP>100mmHg. a. If systolic B/P is between 90-100mmHg, contact Medical Control prior to initiating CPAP.
   b. Do not initiate CPAP if the systolic B/P is less then 90mmHg.

4. Measure Pulse Oximetry or Capnography if available.

5. Consider 12 lead EKG.

6. Transport as soon as possible.

7. Contact the receiving hospital as soon as possible.

Critical Thinking Elements:

- Have a high index of suspicion for possible spinal injuries. All Drowning/Near Drowning patients should be immobilized.
- With Cold water no time limit (resuscitate all). These patients have an increased chance of survival.
- Some patients may develop delayed respiratory distress.
- All victims should be transported for evaluation due to potential for worsening over the next several hours.
TRAUMA PROTOCOLS
**Universal Trauma Care Protocol**

Assessment and management of patients with injury or suspected injury shall be conducted in accordance with ITLS guidelines. Time from injury to definitive trauma center care is a critical factor in the morbidity and mortality of the injured patient. Scene times should be kept to a minimum and the patient should be promptly transported to the trauma center. *Trauma notification should be made via telemetry as soon as possible.*

**Emergency Medical Responder Care, BLS Care, ILS Care, ALS Care**

1. **Scene Assessment (Scene Size-Up)**
   - Ensure scene safety – identify any hazards (e.g. fire, downed power lines, unstable vehicle, leaking fuel, weapons).
   - Determine the number of patients.
   - Identify the **mechanism of injury** (gunshot wound, vehicle rollover, high speed crash, ejection from the vehicle).
   - Identify special extrication needs, if any.
   - Call for additional resources if needed.

2. **Primary Survey (Initial Assessment)**
   *The purpose of the primary assessment is for the prehospital provider to rapidly identify and manage life-threatening conditions:*
   - Obtain a general impression of the patient’s condition.
   - Assess, secure and maintain a patent airway while simultaneously using C-spine precautions.
   - Assess breathing and respiratory effort:
     - Approximate respiratory rate.
     - Assess quality of respiratory effort (depth of ventilation and movement of air).
     - **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared suction the airway and support the patient’s respirations with BVM if necessary.
     - **Needle Chest Decompression (ALS only)**: if patient is in severe respiratory distress or cardiac arrest with s/s of tension pneumothorax.
   - Assess circulation:
     - Evaluate carotid and radial pulses.
     - Evaluate skin color, temperature and condition.
     - Immediately control major external bleeding.

   - **Critical Decision** (based on mechanism of injury & initial exam):
     - Limit scene time to 10 minutes or less if the patient has a significant mechanism of injury or meets “Load & Go” criteria.
2. Primary Survey (Initial Assessment) (continued)
   - Determine disability (level of consciousness):
     - \( A \) – Alert
     - \( V \) – Responds to verbal stimuli
     - \( P \) – Responds to painful stimuli
     - \( U \) – Unresponsive
   - Expose the patient:
     - Cut the patient’s clothing away quickly to adequately assess for the presence (or absence) of injuries.

3. Secondary Survey (Focused History & Physical Exam)
   *The secondary survey is a hear-to-toe evaluation of the patient. The object of this survey is to identify injuries or problems that were not identified during the primary survey.*
   - Examine the head:
     - Search for any soft tissue injuries.
     - Palpate the bones of the face & skull to identify deformity, depression, crepitus or other injury.
     - Check pupils for size, reactivity to light, equality, accommodation, roundness and shape.
   - Examine the neck:
     - Examine for contusions, abrasions, lacerations or other injury.
     - Check for JVD, tracheal deviation, deformity.
     - Palpate the c-spine for deformity & tenderness.
   - Examine the chest:
     - Closely examine for deformity, contusions, redness, abrasions, lacerations, penetrating trauma or other injury.
     - Look for flail segments, paradoxical movement & crepitus.
     - Auscultate breath sounds.
     - Watch for supraclavicular and intercostals retractions.
   - Examine the abdomen:
     - Examine for contusions, redness, abrasions, lacerations, penetrating trauma or other injury.
     - Palpate the abdomen and examine for tenderness, rigidity and distention.
   - Examine the pelvis:
     - Examine for contusions, redness, abrasions, lacerations, deformity or other injury.
     - Palpate for instability and crepitus
3. Secondary Survey (Focused History & Physical Exam) (continued)

- Examine the back:
  - Log roll with a minimum of 2 rescuers protecting the spine.
  - Look for contusions, abrasions, lacerations, penetrating trauma, deformity or any other injury.
  - Log roll onto long spine board and immobilize.

- Examine the extremities:
  - Examine for contusions abrasions, lacerations, penetrating trauma, deformity or any other injury.
  - Manage injuries en route to the hospital.

- Neurological exam:
  - Calculate Glasgow Coma Scale (GCS)
  - Reassess pupils
  - Assess grip strength & equality and sensation.
  - Calculate Revised Trauma Score (RTS)

- Vital signs:
  - Blood pressure
  - Pulse
  - Respirations
  - Pulse Oximetry

- History:
  - Obtain a SAMPLE history if possible.
  - Signs & symptoms
  - Allergies
  - Medications
  - Past medical history
  - Last oral intake
  - Events of the incident

- Interventions (en route)
  - Cardiac monitor
  - Blood glucose level
  - IV access / fluid bolus
  - Wound care
  - Splinting

4. Monitoring and Reassessment (Ongoing Assessment)

- Evaluate effectiveness of interventions
• Vital signs every 5 minutes
• Reassess mental status (GCS) every 5 minutes

**Universal Trauma Care Protocol**

**Emergency Medical Responder Care, BLS Care, ILS Care, ALS Care**

5. **CONTACT MEDICAL CONTROL VIA TELEMETRY AS SOON AS POSSIBLE**

**Critical Thinking Elements**

- Prompt transport with *early* Medical Control contact & receiving hospital notification will expedite the care of the trauma patient.

- IVs should be established en route to the hospital thereby not delaying transport of critical trauma patients (unless scene time is extended due to prolonged extrication).

- Trauma patients should be transported to the closest *most appropriate* trauma center. Medical Control should be contacted immediately if there is ANY question as to which trauma center the patient should be transported to.
### Universal Trauma Care Protocol

#### Glasgow Coma Scale

<table>
<thead>
<tr>
<th>Eye Opening</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneous</td>
<td>4</td>
</tr>
<tr>
<td>To Voice</td>
<td>3</td>
</tr>
<tr>
<td>To Pain</td>
<td>2</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Verbal Response</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oriented</td>
<td>5</td>
</tr>
<tr>
<td>Confused</td>
<td>4</td>
</tr>
<tr>
<td>Inappropriate Words</td>
<td>3</td>
</tr>
<tr>
<td>Incomprehensible Words</td>
<td>2</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motor Response</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obeys Commands</td>
<td>6</td>
</tr>
<tr>
<td>Localizes Pain</td>
<td>5</td>
</tr>
<tr>
<td>Withdraw (pain)</td>
<td>4</td>
</tr>
<tr>
<td>Flexion (pain)</td>
<td>3</td>
</tr>
<tr>
<td>Extension (pain)</td>
<td>2</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
</tr>
</tbody>
</table>

TOTAL

#### Revised Trauma Score

<table>
<thead>
<tr>
<th>A. Ventilatory Rate</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-29/min</td>
<td>4</td>
</tr>
<tr>
<td>&gt; 29/min</td>
<td>3</td>
</tr>
<tr>
<td>6-9/min</td>
<td>2</td>
</tr>
<tr>
<td>1-5/min</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Systolic Blood Pressure</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 89 mmHg</td>
<td>4</td>
</tr>
<tr>
<td>76-89 mmHg</td>
<td>3</td>
</tr>
<tr>
<td>50-75 mmHg</td>
<td>2</td>
</tr>
<tr>
<td>01-49 mmHg</td>
<td>1</td>
</tr>
<tr>
<td>No pulse</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. Glasgow Coma Scale Score</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-15</td>
<td>4</td>
</tr>
<tr>
<td>9-12</td>
<td>3</td>
</tr>
<tr>
<td>6-8</td>
<td>2</td>
</tr>
<tr>
<td>4-5</td>
<td>1</td>
</tr>
<tr>
<td>&lt; 4</td>
<td>0</td>
</tr>
</tbody>
</table>

RTS Total = A+B+C
Common signs and symptoms of shock include:
- Confusion
- Restlessness
- Combativeness
- ALOC
- Pallor
- Diaphoresis
- Tachycardia
- Tachypnea
- Hypotension

Conditions that may indicate impending shock include:
- Significant mechanism of injury
- Tender and/or distended abdomen
- Pelvic instability
- Bilateral femur fractures

“Load & Go” with any trauma patient with signs and symptoms of shock – on scene treatment should be minimal. Conduct a Primary Survey, manage the airway, take C-spine precautions & immobilize and control any life-threatening hemorrhage. Contact Medical Control as early as possible.

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the Universal Patient Care Protocol and Universal Trauma Care Protocol.

2. Oxygen: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. Control bleeding using direct pressure, pressure dressings and pressure points.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.
1. Render initial care in accordance with the Universal Patient Care Protocol and Universal Trauma Care Protocol.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. Control bleeding using direct pressure, pressure dressings and pressure points.

4. Initiate ALS intercept and transport as soon as possible.

5. Contact Medical Control as soon as possible.

**BLS Care (continued)**

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the Universal Patient Care Protocol and Universal Trauma Care Protocol.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. Control bleeding using direct pressure, pressure dressings and pressure points.

4. **IV Fluid Therapy**: 20mL/kg fluid bolus if needed to obtain a systolic BP of at least 100mmHg.

5. Initiate ALS intercept if needed and transport as soon as possible.

6. **Contact Medical Control** as soon as possible.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.
1. Render initial care in accordance with the *Universal Patient Care Protocol* and *Universal Trauma Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. Control bleeding using direct pressure, pressure dressings and pressure points.

4. **IV Fluid Therapy**: 20mL/kg fluid bolus if needed to obtain a systolic BP of at least 100mmHg.

5. Transport as soon as possible.

6. **Contact Medical Control** as soon as possible.

**Critical Thinking Elements**

- Hypotension may not occur in the early stages of shock. However, aggressive therapy is indicated if there is a significant mechanism of injury and/or shock is suspected.

- IV access should be obtained en route and should not delay transport time.

- IV fluid bolus/flow rate should be regulated and patient response to fluid monitored closely.

- If intubation is required, refer to KING LTS-D *Airway Procedure*. Do not attempt to intubate.

**Head Trauma Protocol**

Injuries to the head may cause underlying brain tissue damage. Increased intracranial pressure from bleeding or swelling tissue is a common threat after head trauma.

Common signs and symptoms of increased intracranial pressure include:
Priorities for the treatment of head injury patients include airway management, maintenance of adequate oxygenation & blood pressure as well as appropriate C-spine control & immobilization.

**Emergency Medical Responder Care**

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Be prepared for vomiting and have suction readily available.
3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.
4. Control bleeding using direct pressure, pressure dressings and pressure points.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol* and *Universal Trauma Care Protocol*.
2. Be prepared for vomiting and have suction readily available.

**Head Trauma Protocol**

3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.
4. Control bleeding using direct pressure, pressure dressings and pressure points.

5. Repeat vital signs, GCS & RTS every 5 minutes.

6. If patient has an altered mental status, perform blood glucose level test.

7. **Oral Glucose**: 15g PO if the patient’s blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

8. **Glucagon**: 2mg IN/IM if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

9. Initiate ALS intercept and transport as soon as possible.

10. **Contact Medical Control** as soon as possible.

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol* and *Universal Trauma Care Protocol*.

2. Be prepared for vomiting and have suction readily available.

3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

4. Control bleeding using direct pressure, pressure dressings and pressure points.

5. Repeat vital signs, GCS & RTS every 5 minutes.

6. **IV Fluid Therapy**: 20mL/kg fluid bolus if needed to obtain a systolic BP of 100mmHg.
If signs of increased ICP are not present and the patient has an altered mental status:

7. Perform **blood glucose level test**.

8. **Oral Glucose**: 15g PO if the patient’s blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

   **Dextrose 50%**: 25g IV if blood sugar is < 60mg/dL.

   **Glucagon**: 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

8. **Narcan**: 2mg IV/IM if no response to Dextrose or Glucagon within 2 minutes and narcotic overdose is suspected. May repeat 2mg IV or IM if no response in **5 minutes** (with Medical Control order).

   **Narcan**: 2mg IN if unable to obtain IV access.

9. Initiate ALS intercept if needed and transport as soon as possible.

10. **Contact Medical Control** as soon as possible.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol* and *Universal Trauma Care Protocol*.

2. Be prepared for vomiting and have suction readily available.

3. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.
4. Control bleeding using direct pressure, pressure dressings and pressure points.

5. Repeat vital signs, GCS & RTS every 5 minutes.

6. **IV Fluid Therapy**: 20mL/kg fluid bolus if needed to obtain a systolic BP of 100mmHg.

*If signs of increased ICP are not present and the patient has an altered mental status:*

7. Perform **blood glucose level test**.

8. **Oral Glucose**: 15g PO if the patient’s blood sugar is < 60mg/dL, the patient is alert to verbal stimuli, is able to sit in an upright position, has good airway control and has an intact gag reflex.

   **Dextrose 50%**: 25g IV if blood sugar is < 60mg/dL.

   **Glucagon**: 1mg IM or (if available) 2mg IN if blood sugar is less than 60mg/dL, the patient is unresponsive and/or has questionable airway control or absent gag reflex.

9. **Narcan**: 2mg IV/IM if no response to Dextrose or Glucagon within 2 minutes and narcotic overdose is suspected. May repeat 2mg IV or IM if no response in 5 minutes

   **Narcan**: 2mg IN if unable to obtain IV access.

10. **Contact Medical Control** as soon as possible.
Critical Thinking Elements

- Head trauma patients should receive oxygen to keep $\text{SpO}_2 > 95\%$, preferably via NRM. Patients with poor respiratory effort may require ventilation with a BVM at 8-10 breaths/min.

- *Cushing's response* refers to the ominous combination of markedly increased arterial blood pressure and resultant bradycardia indicating cerebral herniation.

- Avoid prophylactic hyperventilation of a head trauma patient as this can cause cerebral vasoconstriction. However, if s/s of increased ICP are present, then controlled hyperventilation may be needed (with Medical Control order) until s/s of increased ICP have subsided:
  - 20 breaths/min for adults
  - 25 breaths/min for children
  - 30 breaths/min for infants

- Deeply comatose patients may require advanced airway placement (GCS < 8). Refer to the King LTS-D Airway Procedure.

- Treat for hemorrhagic shock if the patient’s systolic BP is < 100mmHg. Hypotension decreases cerebral perfusion and worsens brain injury and must be corrected.

- If significant facial trauma involved, withhold IN medications and use only IM or IV.
Injuries to the spine commonly result from mechanism of injury involving high kinetic energy. Any neurovascular impairment or spinal deformities are indicative of possible spinal trauma.

Mechanisms of injury suggesting possible spinal injury include:
- Falls
- Motor vehicle crashes (MVCs)
- Gunshot wounds to the head, neck or back
- Forceful blows to the head and neck

**Emergency Medical Responder Care**

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. Frequently reassess the patient’s airway & ventilatory status.

4. Assess and record any pain on palpation of the spine, any motor/sensory deficits of the extremities, abnormal arm position, ptosis and/or priapism.

5. Assess skin for temperature which will initially be warm, flushed and dry (below the point of injury). Cover the patient and keep him/her warm.

6. Assess for neurogenic shock: decreased BP, decreased pulse, & decreased respiratory rate.

7. Fully immobilize the patient and protect paralyzed limbs by securing the patient to the backboard.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*. 
2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. Frequently reassess the patient’s airway & ventilatory status.

4. Assess and record any pain on palpation of the spine, any motor/sensory deficits of the extremities, abnormal arm position, ptosis and/or priapism.

5. Assess skin for temperature which will initially be warm, flushed and dry (below the point of injury). Cover the patient and keep him/her warm.

6. Assess for neurogenic shock: decreased BP, decreased pulse, & decreased respiratory rate.

7. Fully immobilize the patient and protect paralyzed limbs by securing the patient to the backboard.

8. Repeat vital signs, GCS & RTS every **5 minutes**.

9. Initiate ALS intercept and transport as soon as possible.

10. **Contact Medical Control** as soon as possible.

---

**ILS Care**

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. Frequently reassess the patient’s airway & ventilatory status.

4. Assess and record any pain on palpation of the spine, any motor/sensory deficits of the extremities, abnormal arm position, ptosis and/or priapism.
5. Assess skin for temperature which will initially be warm, flushed and dry (below the point of injury). Cover the patient and keep him/her warm.

6. Assess for neurogenic shock: decreased BP, decreased pulse, & decreased respiratory rate.

7. Fully immobilize the patient and protect paralyzed limbs by securing the patient to the backboard.

8. Repeat vital signs, GCS & RTS every 5 minutes.

9. IV Fluid Therapy: 20mL/kg fluid bolus if needed to obtain a systolic BP of at least 100mmHg.

10. Initiate ALS intercept if needed and transport as soon as possible.

11. Contact Medical Control as soon as possible.

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. Render initial care in accordance with the Universal Patient Care Protocol.

2. Oxygen: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. Frequently reassess the patient’s airway & ventilatory status.

4. Assess and record any pain on palpation of the spine, any motor/sensory deficits of the extremities, abnormal arm position, ptosis and/or priapism.

5. Assess skin for temperature which will initially be warm, flushed and dry (below the point of injury). Cover the patient and keep him/her warm.
OSF St. James-John W. Albrecht Medical Center

6. Assess for neurogenic shock: decreased BP, decreased pulse, & decreased respiratory rate.

7. Fully immobilize the patient and protect paralyzed limbs by securing the patient to the backboard.

8. Repeat vital signs, GCS & RTS every 5 minutes.

9. **IV Fluid Therapy**: 20mL/kg fluid bolus if needed to obtain a systolic BP of at least 100mmHg.

10. **Dopamine**: If the patient remains hypotensive. Begin infusion at 24gtts/min. Increase by 12gtts/min every 2 minutes to achieve and maintain a systolic BP of at least 100mmHg. Closely monitor vital signs.

    - Dopamine is provided premixed (400mg in 250mL D5W). This yields a concentration of 1600mcg/mL. The initial rate of infusion is 1-10mcg/kg/min which can be achieved with a 24gtts/min infusion rate.

11. Transport as soon as possible.

12. Contact Medical Control as soon as possible.
Spinal Care Guidelines

**Purpose:**
Spinal motion restriction can prevent spinal cord damage and subsequent paralysis in patients with traumatic injuries. However, spinal motion restriction is not without risks and potential complications such as occipital headaches, pressure sores, and tissue ischemia. The intent of these guidelines is to decrease the injury and discomfort to patients caused by arbitrary spinal motion restriction while ensuring that no spinal injuries are missed.

**Policy:**
- Any patient meeting or potentially meeting trauma triage criteria based on the Field Triage Decision Scheme and transfers to a trauma center require full spine motion restriction.
- All patients with a definite potential or questionable mechanism of injury (MOI) for head injury or spine injury will be assessed using the Spine Assessment Procedure.
- Spine motion restriction may be deferred for patients meeting all exclusion criteria listed in the Spine Assessment Procedure.
- Only cervical spine splinting with an appropriate sized C-collar is required for patients who do not fall into trauma triage criteria, but are unable to meet all exclusionary criteria of the Spine Assessment Procedure.
  - Long spine board, straps, and head blocks may be used for these patients with the EMS provider’s discretion.
- Patients, for whom spinal restriction is deferred, must meet all exclusionary criteria as indicated in the Spine Assessment Procedure.
- Victims of isolated penetrating trauma to the head, neck, and/or torso SHOULD NOT have spine motion restriction applied unless there is an obvious neurologic deficit to the extremities or if there is a significant secondary blunt MOI (e.g., falling down stairs after getting shot).
- Pediatric patients will be assessed by the EMS Provider to determine the most appropriate method of spinal immobilization (car seat, towel rolls, cervical collar, KED, or specialized pediatric device).
- If there is any doubt of potential spine injury, initiate spine motion restriction.

**Documentation:**
- Prehospital personnel must clearly document all pertinent findings consistent with the assessment of the patient’s need, or lack of need, for spine motion restriction.
Spinal Care Guidelines

Requirements:

- All EMS providers must successfully complete the didactic & skills training prior to performing the Spine Assessment Procedure in the field.
- Documentation of annual competency training for EMS providers and current personnel roster must be submitted to the EMS office by all agencies.
The spine assessment procedure evaluates the risk of spine injury in patients with definite or potential/questionable mechanism of injury. Using evidence-based medicine, this procedure is utilized to balance the risks and benefits of spine motion restriction. Cervical spine clearance should not be attempted by EMS in patients less than 12 and greater than 65. However backboard rules apply.

### Procedure:

1. Explain the procedure to the patient. Ensure the patient expresses understanding of the procedure being performed. Patient must be sober and reliable with no distracting injuries.
2. Ask the patient to **verbally** report any pain or tenderness. Emphasize to the patient to not shake or nod their head during questioning.
3. Hold the spine in a neutral position to limit movement.
4. Palpate the midline spine starting at the base of the skull for tenderness and proceed inferiorly along each individual vertebra along the cervical spine. If any evidence of tenderness to palpation, crepitus, or step-off sign is noted, immediately place a cervical splinting device.
5. If no tenderness to palpation, crepitus or step-off sign is present, ask the patient to rotate their head to one side, and if no pain, rotate their head to the other side. For any evidence of pain, immediately place a cervical splinting device.
6. Once the cervical spine has been assessed, the patient may be log rolled to assess the thoracic, lumbar, and sacral spine by palpating each individual vertebra for tenderness, crepitus, or step-off sign.
7. If a C-collar is applied, the patient needs to remain supine. If patient comfort is a factor, the head can be elevated to a maximum of 30 degrees.

---

### Clinical Indications:

- **Patients with traumatic neck/back pain, head injury or facial trauma, or with a significant or uncertain MOI or high index of suspicion for spinal trauma (e.g. axial load (diving), MVC* or bicycle, falls…).** In high-risk patients (e.g. elderly, osteoporotic, degenerative disorders) less forceful mechanisms can cause significant injuries.

---

### Spinal Assessment Algorithm

- **Does the patient meet Field Trauma Criteria?**
  - **YES** → **Apply full spinal motion restriction**
    - **Exception:** Penetrating trauma without neurological deficits**
  - **NO**
    - **Unreliable Patient?**
      - **YES** → **Split cervical spine using an appropriate sized C-collar**
        - **No backboard required**
      - **NO**
        - **Distracting Injury?**
          - **YES** → **Abnormal Sensory or Motor Exam?**
            - **YES** → **Spinal Motion Restriction Not Required**
            - **NO** → **Spine Pain/Tenderness?**
          - **NO**
Critical Thinking Elements

- MVC applies to crashes of all motorized vehicles; e.g. automobile, motorcycle, snowmobile, etc.
- Proper assessment of the spine requires the patient to be calm, cooperative, sober, able to understand questioning, and alert without language barrier.
- Distracting injury includes any injury that produces clinically apparent pain that might distract the patient from the pain of a spine injury – pain would include medical as well as traumatic etiologies of pain.
- Motor: Can the patient move fingers and toes? Can the patient dorsi flex and plantar flex the feet? Are grips strong and equal?
- Sensory: Can the patient feel you touch fingers and toes? Does the unconscious patient respond when you pinch fingers and toes?
Spinal injury should be suspected in all patients presenting with
- Head, neck, or facial trauma (i.e., injury above the clavicles)
- ALOC with unknown history of events
- Physical findings suggesting neck or back pain/injury
- High mechanism of injury despite complaints
- Complaints of neck or back pain unrelated to the patient’s past medical history
- Complaint of head pain related to trauma
- Unknown mechanism of injury
- Suspected deceleration injuries

Spinal management of patients in a supine position.

1. Immediately establish manual stabilization of the cervical spine.
   - Stabilize the patient’s head & neck in a neutral, in-line position by grasping the patient’s head along the lateral aspects (and perform a modified jaw thrust if indicated)
2. Apply a rigid C-collar after airway, breathing, and circulatory status have been assessed.
3. Log roll the patient onto a long spine backboard. Assess and document neurovascular status before and after immobilization.
4. Secure the patient’s torso and extremities to the backboard using spider straps or belts.
5. Reassess (perform ongoing assessment).

Spinal management of the patients in a sitting position.

1. Patients found in a sitting position that have a suspected spinal injury should be secured to an extrication device (i.e. KED) prior to being moved. Assess and document neurovascular status before and after immobilization.
2. Patients who meet “Load & Go” criteria should be moved using the rapid extrication technique. Proper manual stabilization must be maintained throughout the extrication. Assess and document neurovascular status before and after immobilization.
   - Secure neutral, in-line stabilization of the head & neck (as per General Spinal Management).
   - Keeping the patient’s spine in a neutral position, pivot the patient in order to place and long backboard under the patient’s buttocks and behind his/her back.
- Lower the patient to the long backboard and secure (as per General Spinal Management).

Traumatic Arrest Protocol

Resuscitation success rates of trauma patients in cardiac arrest are extremely poor, usually due to prolonged hypoxia. Efforts to resuscitate are more likely to be successful if EMS arrives early in the arrest, understands the differences between traumatic cardiac arrest patients & medical cardiac arrest patients and treatment is directed at identifying & treating the underlying cause. Traumatic arrest is usually caused by airway problems (unmanaged airway during unconsciousness), breathing problems (from chest trauma) and/or circulatory problems (internal or external hemorrhaging).

Patients who are found in asystole after massive blunt trauma or penetrating trauma of a vital organ are dead and may be pronounced dead at scene with the concurrence of Medical Control.

Emergency Medical Responder Care, BLS Care, ILS Care, ALS Care

Emergency Medical Responder, BLS, ILS & ALS Care should be focused on rapid assessment confirming that the patient is in cardiac arrest and determine if resuscitation will be attempted. Medical Control must be consulted for death determination on scene. If resuscitative efforts are going to be attempted, begin resuscitation immediately and “Load & Go” with the patient.

1. Rapidly assess to determine possible causes of the arrest and determine if resuscitation will be attempted.

2. Initiate cardiac arrest protocols and procedures.

3. Rapidly extricate, fully immobilize and “Load & Go”.

4. “Load & Go” with any type of penetrating trauma.

5. BLS Care, ILS Care and ALS Care: Place a KING LTS-D Airway using in-line stabilization of the cervical spine or use basic airway control measures.

6. ILS Care and ALS Care: Obtain IV access en route to the hospital with a 14g or 16g IV catheter (if possible). A 2nd line may be established if time permits.
7. **ILS Care** and **ALS Care**: **IV Fluid Therapy**: 20mL/kg fluid bolus to achieve and maintain a systolic BP of at least 100mmHg.

8. **ALS Care**: **Needle chest decompression** if chest trauma is present and/or the patient is in PEA and tension pneumothorax is suspected.

9. **ALS Only**: Consider **Needle Cric if indicated**

---

### Critical Trauma Procedure

** (“Load & Go” Situations)**

**“Load & Go” Criteria**

1. Head injury with a decreasing LOC, unresponsiveness or unequal pupils
2. GCS ≤ 10
3. Airway obstruction that cannot be quickly relieved by mechanical methods such as suction, Magill forceps or intubation
4. Large open chest wound (sucking chest wound)
5. Large flail chest
6. Tension pneumothorax
7. Major blunt chest trauma
8. Laryngotracheal fracture
9. Traumatic cardiac arrest (when the decision has been made to attempt resuscitation)
10. Shock
11. Tender, distended abdomen
12. Pelvic instability
13. Bilateral femur fractures
14. Penetrating trauma of the head, neck, torso or groin
15. Ejection from a vehicle
16. Amputation above the wrist or ankle
17. Trauma combined with ≥ 20% TBSA Burn
18. Falls > 20 feet
19. Pregnancy ≥ 24 weeks

*Consider arranging a scene response from Life Flight (or other available helicopter services) for any of the above conditions when there is the anticipation of entrapment or prolonged extrication and/or delay or prolonged transport.*
**Critical Trauma Procedure**
(“Load & Go” Situations)

**IDPH Section 515.APPENDIX C  Minimum Trauma Field Triage Criteria**

**Category I**
Blunt or Penetrating Trauma with Unstable Vital Signs and/or:
- Hemodynamic compromise as evidenced by:
  - BP ≤ 90 Systolic
  - Peds BP ≤ 80 Systolic
- Respiratory compromise as evidenced by:
  - Respiratory rate <10 or >29
- Altered mentation as evidenced by:
  - Glasgow Coma Scale ≤10

Anatomical Injury
- Penetrating injury of head, neck, torso or groin
- Two or more body regions with potential life or limb threat
- Combination trauma with ≥ 20% TBA Burn
- Amputation above wrist or ankle
- Limb paralysis and/or sensory deficit above the wrist and ankle
- Flail chest

**Category II**
Mechanism of Injury
- Ejection from motor vehicle
- Death in same passenger compartment
- Falls > 20 feet

SUSTAINED HYPOTENSION – BP ≤ 90 SYSTOLIC (Peds ≤ 80 SYSTOLIC) ON TWO CONSECUTIVE MEASUREMENTS FIVE MINUTES APART

**YES →**
MANDATORY NOTIFICATION OF THE TRAUMA SURGEON FROM THE FIELD

**YES →**
INITIATE FIELD TRAUMA TREATMENT PROTOCOLS
RAPID TRANSPORT TO TRAUMA CENTER**

**INITIATE FIELD TRAUMA TREATMENT PROTOCOLS**
RAPID TRANSPORT TO TRAUMA CENTER**
**Based on minimum Trauma Field Triage Criteria, any Category I trauma patient shall be transported to the highest level Trauma Center unless transport time is \textgreater 30 \text{ minutes to that Trauma Center.}**

Any Category II patient will be transported to the closest Level I or Level II Trauma Center unless the transport time is \textgreater 30 \text{ minutes} to the Trauma Center.

**Trauma Centers:**

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSF Saint Francis – Peoria</td>
<td>OSF St. Joes - Bloomington</td>
</tr>
<tr>
<td>Carle Hospital – Champaign</td>
<td>BroMenn - Normal</td>
</tr>
<tr>
<td>St. James – Olympia Fields</td>
<td>Methodist - Peoria</td>
</tr>
<tr>
<td></td>
<td>Riverside - Kankakee</td>
</tr>
<tr>
<td></td>
<td>St. Mary’s - Kankakee</td>
</tr>
<tr>
<td></td>
<td>Morris Hospital - Morris</td>
</tr>
<tr>
<td></td>
<td>Provena St. Joes - Joliet</td>
</tr>
<tr>
<td></td>
<td>Silver Cross - Joliet</td>
</tr>
</tbody>
</table>
Extremity Injury Protocol

Attention should be given to extremity injuries to limit further damage and discomfort for the patient. However, extremity care should never interfere with lifesaving decisions or interventions and should not delay transport of trauma patients.

Signs of extremity injury include:
- Pain
- Deformity
- Contusion
- Tenderness
- Swelling
- Instability
- Crepitus
- Absence of distal pulses

**Emergency Medical Responder Care, BLS Care, ILS Care, ALS Care**

Care should be focused on assessing the situation and initiating care to assure the patient is maintaining an airway, is breathing, has a perfusing pulse and beginning treatment for shock.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. Control any external bleeding:
   - a) Apply direct pressure and pressure dressing.
   - b) Elevate the extremity if possible.
   - c) Use pressure points.
   - d) Assess distal pulse, motor & sensation.

4. Splint musculoskeletal injuries:
   - a) Immobilize the joints with a rigid splint above and below the injury for long bone injuries.
   - b) Immobilize the long bones with a rigid splint above and below the injured site for joint injuries.
c) Assure the joints and bones are immobilized sufficiently to stabilize the injured structures (especially when using a soft splint or pillow).

d) Assess distal pulse, motor & sensation.

5. If the extremity is angulated and no distal pulse is present, reduce by gently applying manual traction until the pulse returns.

   a) Reassess distal pulse, motor and sensation

---

**Emergency Medical Responder Care, BLS Care, ILS Care, ALS Care**

6. Amputation cases:

   a) Control external bleeding.
   b) Dress, bandage and/or splint the injured extremity.
   c) Attempt to recover the severed part:
      - Wrap in sterile gauze, towel or sheet.
      - Wet dressing with sterile water or .9% Normal Saline.
      - Place severed part in waterproof bag or container and seal.
      - Place the bag/container in another container filled with ice or cold water.
      - DO NOT immerse the amputated part in any solutions.
      - DO NOT allow the tissue to freeze.
      - Transport the container with the patient.

7. Initiate ALS intercept if needed and transport as soon as possible.

8. Contact the receiving hospital as soon as possible or Medical Control if necessary.

---

**ILS Care**

1. **IV Fluid Therapy**: 20mL/kg fluid bolus if the patient is hypotensive to obtain a systolic BP of at least 100mmHg.

2. **Contact Medical Control for “Physician Orders Only” for Morphine Sulfate**: 2-5mg IV every 5 minutes as needed to reduce the patient’s anxiety and severity of pain. If unable to establish IV access, may administer Morphine 2-5mg IM every 15 minutes.

   OR **Contact Medical Control for “Physician Orders Only”**
Fentanyl: 50mcg IV, over 2 minutes for pain. Fentanyl 50mcg IV may be repeated every 5 minutes to a total of 200mcg.

Fentanyl: 50mcg IM, if unable to initiate IV access. May be repeated as needed to a total of 200mcg.

Fentanyl: IN (See Intranasal Fentanyl Dosing Chart)

3. Ondansetron (Zofran): 4mg IV/PO orally disintegrating tablet for nausea and vomiting

4. Initiate ALS intercept if needed and transport as soon as possible.

5. Contact the receiving hospital as soon as possible or Medical Control if necessary.

1. IV Fluid Therapy: 20mL/kg fluid bolus if the patient is hypotensive to obtain a systolic BP of at least 100mmHg.

2. Ondansetron (Zofran): 4mg IV over 2 minutes for nausea and/or vomiting.

   Ondansetron (Zofran): 4mg IM

   Ondansetron (Zofran): 4mg PO orally disintegrating tablet

3. Manage the patient’s pain by using one of the following medications.

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Dosing Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine Sulfate</td>
<td>2-5 mg IV every 5 minutes to reduce the patient’s anxiety and severity of pain. If unable to establish IV access, may administer Morphine 2-5 mg IM every 15 minutes.</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>50 mcg IV, over 2 minutes for pain. Fentanyl 50 mcg IV may be repeated every 5 minutes to a total of 200 mcg. If unable to establish IV access, may administer Fentanyl 50 mcg IM or IN. May be repeated as needed to a total of 200 mcg. (See dosing sheets for IN)</td>
</tr>
</tbody>
</table>

4. Contact the receiving hospital as soon as possible or Medical Control if necessary.

Critical Thinking Elements

- In patients with known renal failure, the Fentanyl dose must be reduced to 25mcg. The dose may be repeated one time to a maximum dose of 50mcg.
- Avoid use of Zofran in patients with congenital long QT syndrome as these patients are at particular risk for Torsades de Pointes.
Crush/Suspension Injury Protocol

**Emergency Medical Responder Care**

1. Routine Trauma care

2. If extremity involved, place tourniquet on affected extremity as close to crush area as possible.

3. Keep patient upright if possible (consider use of KED or similar device for SMR.

**BLS/ILS Care**

1. Emergency Medical Responder care

2. PRIOR to release of Compression/suspension force administer nebulized Albuterol. Repeat x one. (Do not administer ipratropium unless otherwise indicated)

**ALS Care**

1. All previous

2. Administer 1000 ml normal saline IV bolus

3. If large area involved and prolonged crush situation - In addition to normal saline bolus
   - Administer Sodium Bicarbonate. Mix 50 mEq in 1000 ml of Normal Saline. Administer the entire 1000 ml bolus at wide open rate (use 10 gtts tubing if possible)

1. PRIOR to release of Compression/suspension force administer nebulized Albuterol. Repeat X one. (Do not administer ipratropium unless otherwise indicated)
2. AFTER release of Compression/Suspension force If hyperkalemia is suspected (compression > 4 hours; abnormal ECG showing peaked T-waves, absent P-waves or widened QRS, Calcium Chloride 1 gm slow IVP with order from Medical Control

---

**Needle Thoracentesis Procedure**  
( Needle Chest Decompression ALS Only )

Thoracic decompression involves placement of a needle through the chest wall of a critical patient who has a life-threatening tension pneumothorax and is rapidly deteriorating due to intrathoracic pressure.

Signs and symptoms of tension pneumothorax include:

- Restlessness and agitation
- Severe respiratory distress
- Increased airway resistance with ventilations
- JVD
- Tracheal deviation
- Subcutaneous emphysema
- Unequal breath sounds
- Absent lung sounds on the affected side
- Hyper resonance to percussion on the affected side
- Hypotension
- Cyanosis
- Respiratory arrest
- Traumatic cardiac arrest

Initiate *Universal Trauma Care*. If a tension pneumothorax is identified:

1. Locate the 2nd intercostal space in the midclavicular line on the side of the pneumothorax.
2. Cleanse the site with providone-iodine preps and maintain as much of a sterile field as possible.
3. Attach a 10-20mL syringe to a 2 inch, 14g IV catheter.
4. Puncture the skin perpendicularly, just superior to the 3rd rib (in the 2nd intercostal space). Direct the needle just over the 3rd rib and into the thoracic cavity. A “pop” should be felt as well as a “rush of air” along with the plunger of the syringe moving outward.
5. Advance the catheter while removing the needle and syringe.
6. Secure the catheter in the chest with a dressing and tape.
7. Monitor the patient **closely** and continue to reassess.

**Critical Thinking Elements**

- Nerve bundles and blood vessels are located under the ribs and puncturing them could cause nerve damage and extensive bleeding. Ensure that the puncture is being made over the **top** of the 3\(^{rd}\) rib.

**OB/GYN PROTOCOLS**
Childbirth Protocol

Childbirth is a natural process. EMS providers called to a woman in labor should determine whether there is enough time to transport the expected mother to the hospital or if delivery is imminent. If childbirth appears imminent, immediately prepare to assist with the delivery.

**Emergency Medical Responder Care, BLS Care, ILS Care, ALS Care**

Emergency Medical Responder, BLS, ILS & ALS Care should be focused on assessing the situation, initiating routine patient care and preparing for or providing patient transport. Special attention should be given to the privacy of the mother and concerns of immediate family members should be addressed.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. Oxygen: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.

3. Obtain a history on the patient including:
   - Gravida (# of pregnancies)
   - PARA (# of live births)
   - Expected delivery date
   - Length of previous labor
   - Complications of previous pregnancies
   - Onset of contractions
   - Prenatal care (if any)

4. Allow the expectant mother to remain in a position that is most comfortable.

5. If delivery is not imminent, transport the patient on her left side.

6. Determine if there is adequate time to transport:
   - a) Assess the nature, extent and time of contractions.
   - b) Assess the patient for high-risk factors.
c) Assess the status of the membranes and any discharge.
d) Assess for pushing with contractions.
e) Take into consideration the length of previous labor.

7. If delivery is imminent:
a) DO NOT ATTEMPT TO RESTRAIN OR DELAY DELIVERY
b) Position the mother supine on a flat surface if possible.
c) Use full PPE – gloves, gown & goggles.

8. (ILS & ALS) IV Fluid Therapy: 20mL/kg fluid bolus if the patient is hypotensive to obtain a systolic BP of at least 100mmHg.

Childbirth Protocol

Emergency Medical Responder Care, BLS Care, ILS Care, ALS Care

9. Prepare for delivery:
a) Control delivery of the head so that it does not emerge too quickly. Support the infant’s head as it emerges and protect the perineum with gentle hand pressure.
b) Puncture the amniotic membrane with gentle finger pressure if it is still intact and visible outside the vagina.
c) Assess for nuchal cord and, if present, gently remove the cord from around the newborn’s neck.
d) Suction the mouth, then nose of the newborn with a bulb syringe as soon as the head is delivered.
e) As the shoulders emerge, guide the head & neck downward to deliver the anterior shoulder. Support and lift the head & neck slightly to deliver the posterior shoulder.
f) Ensure a firm hold on the baby as the rest of the newborn’s body delivers.
g) Keep the newborn level with the mother’s vagina until the cord stops pulsating and is double clamped.

Infant Post Partum Care

1. Begin the *Emergency Childbirth Record*.

2. Continue to suction the nose and mouth. Spontaneous respirations should begin within 15 seconds.
   - If spontaneous respirations are not present, begin artificial ventilations with BVM & 100% O₂ at 30-40 vpm.
   - If no brachial pulse is present OR the pulse is less than 100 bpm, begin CPR.

3. Dry the newborn and wrap in a warm blanket, keeping the baby at the level of the mother’s vagina until the cord is clamped and cut.
4. After the umbilical cord stops pulsating, clamp the cord at 3” & at 4” from the newborn’s abdomen and cut between the clamps with the sterile scalpel found in the OB kit.

5. Assess the cord for bleeding and note the number of vessels present.

6. Obtain an APGAR score at **1 minute** and again at **5 minutes** after delivery.

7. Place ID tags on the mother and infant with the following information:
   - Name of the mother
   - Sex of the infant
   - Date and time of delivery

8. **DO NOT** separate the mother and infant unless both have ID tags.

---

**Post Partum Care of the Mother**

1. The placenta should deliver within 5-20 minutes. Collect the placenta in a plastic bag and bring it to the hospital with the mother. **DO NOT** pull on the cord to facilitate delivery of the placenta.

2. Do not delay transport for delivery of the placenta.

3. If the perineum is torn and bleeding, apply direct pressure with a 5x9 dressing or trauma dressing and have the patient bring her legs together.

4. Massage the uterus until firm.

   *To massage the uterus, place one hand with fingers fully extended just above the mother’s pubic bone and use the other hand to press down into the abdomen and gently massage the uterus approximately 3 to 5 minutes until it becomes firm.*

---

**Documentation Requirements**

1. Completed *Emergency Childbirth Record*
2. Document the date, time and place of delivery
3. Presence or absence of a nuchal cord
   - *If nuchal cord is present, document how many times the cord was wrapped around the baby’s neck.*
4. Appearance of the amniotic fluid
5. Time the placenta was delivered and its condition
6. APGAR score at 1 minute and 5 minutes
7. Any resuscitation / treatment rendered and newborn response to treatment

**High-Risk Pregnancy Factors**

- Lack of prenatal care
- Drug abuse
- Teenage pregnancy
- Diabetes
- Hypertension
- Cardiac disease
- Previous breech or C-section delivery
- Pre-eclampsia / Toxemia / Eclampsia
- Twins / Multiple birth pregnancy

**Childbirth Protocol**

**Critical Thinking Elements**

- Lower than normal blood pressure and higher than usual heart rate are normal vital sign changes with pregnancy.

- Signs & symptoms of shock in the pregnant patient include a systolic BP less than 90mmHg, lightheadedness and ALOC.

- Average labor lasts 8-12 hours but can be as short as 5 minutes.

- The desire to push during contractions is an indicator that delivery is imminent.

- Be respectful of the expected mother’s privacy.

- Assess the patient for peripheral edema. This may indicate Pre-eclampsia / Eclampsia. Monitor patient closely and watch for seizure activity.

- Tag the mother and baby with the same information by wrapping tape around their wrists.

- Green or brown amniotic fluid indicates the presence of Meconium (fetal stool) and should be reported immediately to the receiving facility staff.
Emergency Childbirth Record  
(Complete and attach to the newborn patient care record)

1. Presentation (head or feet): ______________________________________________________

2. Date of Birth: __________________________________________________________________

3. Time of Birth (military time): __________________________________________________

4. Nuchal Cord:  YES  NO  # of times cord wrapped around neck: ______________

5. Time membranes ruptured (military time): __________________________________________

6. Appearance of amniotic fluid:  CLEAR (Cloudy)  MECONIUM  BLOOD-TINGED

7. **APGAR Score**: Must be completed at 1 minute and again at 5 minutes.

<table>
<thead>
<tr>
<th>Element</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>1 minute Score</th>
<th>5 minute Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance (Color)</td>
<td>Body and extremities blue, pale</td>
<td>Body pink, extremities blue</td>
<td>Completely pink</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulse rate</td>
<td>Absent</td>
<td>&lt; 100 bpm</td>
<td>&gt; 100 bpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grimace (Irritability)</td>
<td>No response</td>
<td>Grimace</td>
<td>Cough, sneeze, cry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity (Muscle tone)</td>
<td>Limp</td>
<td>Some flexion of extremities</td>
<td>Active motion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiration</td>
<td>Absent</td>
<td>Slow and irregular</td>
<td>Strong cry</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL SCORE:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. Time placenta delivered (military time): _______________  INTACT  NOT INTACT
9. Number of vessels in cord: __________

10. Infant resuscitation: STIMULATION only OXYGEN O₂ with BVM

   → CPR Time CPR began: _____________ Time CPR terminated: _____________

11. Remarks: __________________________________________________________________

   ___________________________________________________________________________

12. Signature & ID# of Paramedic/EMT: 1. ________________________________

   3. ________________________________

### Obstetrical Complications Protocol

Obstetrical complications can rapidly lead to hypovolemic shock and threaten the life of the mother and child. Care should be focused on assessing the situation, initiating routine patient care and beginning treatment for shock. Monitor vitals closely.

**Emergency Medical Responder Care, BLS Care, ILS Care, ALS Care**

#### General Guidelines

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. Frequently reassess the patient’s airway & ventilatory status.

### Placenta Previa

*Placenta previa* occurs as a result of abnormal implantation of the placenta on the lower half of the uterine wall. Bleeding occurs when the lower uterus begins to contract and dilate in preparation for labor and pulls the placenta away from the uterine wall. The hallmark of *placenta previa* is the onset of *painless* bright red vaginal bleeding, usually in the 3rd trimester of pregnancy.

1. Note the amount of bleeding.
2. Place the patient on her left side.

3. Load and transport as soon as possible.

4. **(ILS & ALS) IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive to obtain a systolic BP of at least 100mmHg.

5. **Contact Medical Control** as soon as possible.

---

**Obstetrical Complications Protocol**

**Emergency Medical Responder Care, BLS Care, ILS Care, ALS Care**

**Abruptio Placentae**

* Abruptio placentae *is the premature separation of a normally implanted placenta from the uterine wall. Signs and symptoms can vary depending on the extent and character of the abruption.

* Central Abruptio (partial abruption):* Characterized by a sudden sharp, tearing pain and development of a stiff, board like abdomen but no vaginal bleeding (blood is trapped between the placenta and the uterine wall).

* Complete Abruptio Placentae:* Characterized by massive vaginal bleeding and profound maternal hypotension.

1. Note the amount of bleeding.

2. Place the patient on her left side.

3. Load and transport as soon as possible.

4. **(BLS)** Initiate ALS intercept.

5. **(ILS & ALS) IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive to obtain a systolic BP of at least 100mmHg.
6. Establish a 2nd IV en route if time permits.

7. **Contact Medical Control** as soon as possible.

### Pre-Eclampsia and Eclampsia

Pre-eclampsia is defined as an increase in systolic blood pressure by 30mmHg and/or a diastolic increase of 15mmHg over baseline on at least two occasions at least 6 hours apart. Pre-eclampsia is most commonly seen in the last 10 weeks of gestation and is thought to be caused by abnormal vasospasm.

**Pre-Eclampsia:** Characterized by hypertension and edema to the hands and face (and protein in the urine).

### Obstetrical Complications Protocol

**Emergency Medical Responder Care, BLS Care, ILS Care, ALS Care**

#### Pre-Eclampsia and Eclampsia (continued)

Severe Pre-Eclampsia: Characterized by marked hypertension (160/100 or higher), generalized edema, headache, visual disturbances, pulmonary edema and a dramatic decrease in urine output (along with a significant increase of protein in the urine).

Eclampsia: Characterized by generalized tonic-clonic seizure activity often preceded by flashing lights or spots before the eyes. The development of right upper quadrant pain or epigastric pain can also indicate impending seizure.

**Note:** The risk of fetal mortality increases by 10% with each maternal seizure.

1. Assure minimal CNS stimulation to prevent seizures (*i.e.* do not check papillary light reflex).

2. Place the patient on her left side.

3. Load and transport as soon as possible.

4. **(BLS)** Initiate ALS intercept.

5. **(ILS & ALS) IV Fluid Therapy:** TKO.
6. **(ILS & ALS) Midazolam (Versed):** 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every 5 minutes as needed to a total of 10mg.
   - **Midazolam (Versed):** Versed Intranasal may also be used if unable to give IV Versed. *(See intranasal dosing sheet).*

7. **(ILS and ALS) Magnesium Sulfate:** 2gm slow IV (rate no faster than 1gm/min), hold if BP less than 130/80

8. **Contact Medical Control** as soon as possible.

---

**Obstetrical Complications Protocol**

**Ectopic Pregnancy**

_Ectopic Pregnancy_ refers to the abnormal implantation of the fertilized egg outside of the uterus, usually in the fallopian tube. It can be a life-threatening condition and accounts for approximately 10% of maternal mortality.

**Emergency Medical Responder Care, BLS Care, ILS Care, ALS Care**

**Ectopic Pregnancy (continued)**

Ectopic pregnancy presents as abdominal pain which starts out as diffuse tenderness and then localizes as a sharp pain in the lower abdomen on the effected side. Assume that any female of childbearing age with lower abdominal pain is experiencing an ectopic pregnancy.

1. Place the patient on her left side.
2. Load and transport as soon as possible.
3. **(BLS)** Initiate ALS intercept.
4. **(ILS & ALS) IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is hypotensive to obtain a systolic BP of at least 100mmHg.
5. **Contact Medical Control** as soon as possible.

---

### Abnormal Delivery Protocol

**Emergency Medical Responder Care, BLS Care, ILS Care, ALS Care**

Abnormal delivery situations can be especially challenging in the pre-hospital setting. Care should be focused on initiating *Routine Patient Care* to treat for shock and rapid transport to the hospital.

#### Breech Presentation

A *breech* presentation is the term used to describe a situation in which either the buttocks or both feet present first.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. Load and transport as soon as possible.

4. (BLS) Initiate ALS intercept.

5. Never attempt to pull the baby from the vagina by the trunk or legs.

6. As soon as the legs are delivered, support the baby’s body (wrapped in a towel).
7. After the shoulders are delivered, gently elevate the trunk and legs to aid in the delivery of the head.

8. The head should deliver in 30 seconds. If it does not – reach 2 fingers into the vagina to locate the infant’s mouth. Press the vaginal wall away from the baby’s mouth to provide unrestricted respirations.

9. Contact Medical Control as soon as possible.

### Prolapsed Cord

A *prolapsed cord* occurs when the umbilical cord precedes the fetal presenting part. This causes the cord to be compressed between the fetus and the pelvis and blocks fetal circulation. Fetal death will occur quickly without prompt intervention.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. **Oxygen:** 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

### Abnormal Delivery Protocol

**Emergency Medical Responder Care, BLS Care, ILS Care, ALS Care**

### Prolapsed Cord (continued)

3. (BLS) Initiate ALS intercept.

4. Elevate the mother’s hips.

5. **Do not pull on the cord and do not attempt to push the cord back into the vagina.**

6. Place a gloved finger/hand in the vagina between the pubic bone and the presenting part with the cord between the fingers and exert counter pressure against the presenting part.

7. Palpate the cord for pulsations.

8. Keep the exposed cord warm and moist.

9. Keep the hand in position and transport immediately.

10. **Contact Medical Control** as soon as possible.

### Limb Presentation
Although relatively uncommon, the baby may be lying transverse across the uterus. In these cases, an arm or leg is the presenting part protruding from the vagina and will require delivery by cesarean section. **Under no circumstances should you attempt a field delivery** with a limb presentation.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. **(BLS)** Initiate ALS intercept.

4. Elevate the mother’s hips.

5. Avoid touching the limb (doing so may stimulate the infant to gasp). **Do not pull on the extremity and do not attempt to push the limb back into the vagina.**

6. **Contact Medical Control** as soon as possible.

**Rape/Sexual Assault Protocol**

Rape and sexual assault are acts of violence and may be associated with traumatic injuries, both external and internal. A thorough assessment of the patient’s condition should be done and special attention should be given to the patient’s mental health needs as well.

**Emergency Medical Responder Care, BLS Care, ILS Care, ALS Care**

Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask. Be prepared to support the patient’s respirations with BVM if necessary.

3. Treat injuries according to the appropriate protocol.

4. Survey the scene and give special consideration to preserving any articles of evidence on or around the patient.
• Strongly discourage the patient from urinating, washing/showering or changing clothes.
• Collaborate with police to determine what articles (i.e. clothing) will be transported with the patient.
• **Do not** physically examine the genital area unless there are obvious injuries that require treatment.
• All linen used by the patient should be left with the patient in the Emergency Department.

5. Transport the patient and notify law enforcement of patient destination.

6. The following information / telephone numbers regarding services available to victims of abuse shall be offered to all victims of abuse, whether they are treated & transported or if they refuse treatment & transport to the hospital:

   • Domestic Violence and Sexual Assault Services 1 800 892 3375
   • Crime Victims Compensation Program (312) 814-2581

---

**Date Rape Drugs**

*Rohypnol* — A potent benzodiazepine that produces a sedative effect, amnesia, muscle relaxation and slowing of psychomotor response. It is colorless, odorless & tasteless and can be dissolved in a drink without being detected. Street names include: *Ruffies, R2, Roofies, Forget-Pill and Roche.*

*GHB* — An odorless, colorless liquid depressant with anesthetic-type qualities. It causes relaxation, tranquility, sensuality and loss of inhibitions. Street names include: *Liquid Ecstasy and Liquid X.*

*Ketamine* — A potent anesthetic agent that is chemically similar to LSD. It causes hallucinations, amnesia and dissociation. Street names include: *K, Special K, Jet and Super Acid.*

*Ecstasy* — Causes psychological difficulties including confusion, depression, sleep problems, severe anxiety and paranoia. It can also cause physical symptoms including muscle tension, involuntary teeth clenching, nausea, blurred vision, faintness, chills and sweating. Street names include: *Beans, Adam, XTC, Pill, E, M and X.*
ABERRANT SITUATIONS
Illinois law establishes requirements that any person licensed, certified or otherwise authorized to provide healthcare shall offer immediate and adequate information regarding services available to abuse and neglect victims.

Abuse is defined as physical, mental or sexual injury to (a child or) eligible adult. An eligible domestic partner is defined as a spouse or person who resides in a domestic living situation with another individual suspected of abuse. EMS personnel should not rely on another mandated reporter to file a report on the victim’s behalf.

**Emergency Medical Responder Care, BLS Care, ILS Care, ALS Care**

Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Maintain control of the scene and request law enforcement if they have not already been called.
3. Survey the scene for evidence of factors that could adversely affect the patient’s welfare:
• Environmental
• Interaction with family members
• Discrepancies in history of events
• Injury patterns that do not correlate with the history of patient use and mobility
• Signs of intentional injury or emotional harm

4. Treat injuries and/or illness according to protocol.
5. Initiate transport as soon as possible.

Reporting Methods

The following telephone numbers regarding services available to victims of abuse shall be offered to all victims of abuse whether they are treated & transported or if they refuse treatment & transport to the hospital:

- Elderly Abuse Hotline: (800)559-7233
- Domestic Violence and Sexual Assault Services: (800)892-3375
- Crime Victims Compensation Program: (800)228-3368

Behavioral Emergencies / Chemical Restraint Protocol

Behavioral episodes may range from despondent and withdrawn behavior to aggressive and violent behavior. Behavioral changes may be a symptom of a number of medical conditions including head injury, trauma, substance abuse, metabolic disorders, stress and psychiatric disorders. Patient assessment and evaluation of the situation is crucial in differentiating medical intervention needs from psychological support needs.

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as assuring personal safety.

1. Render initial care in accordance with the Universal Patient Care Protocol.

2. Maintain control of the scene and request law enforcement if needed.

3. Determine if the patient is a threat to self or others.

4. Contact Medical Control as early as possible if restraints are needed. An order for restraints is a must.
BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as assuring personal safety and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. Maintain control of the scene and request law enforcement if needed.

3. Determine if the patient is a threat to self or others.

4. **Contact Medical Control** as early as possible if *restraints* are needed. An order for restraints is a **must**.

5. Initiate transport as soon as possible.

ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, ensuring personal safety and preparing for or providing patient transport.

### Behavioral Emergencies / Chemical Restraint Protocol

**Midazolam (Versed):** 2mg IV for sedation *if absolutely necessary*. **Contact Medical Control** for further orders.

**Midazolam (Versed):** 5mg IM for sedation *if absolutely necessary and attempts at IV access have been unsuccessful*. **Contact Medical Control** for further orders.
**Midazolam (Versed):** Versed Intranasal if unable to obtain IV access. *(See intranasal dosing sheet).*

6. Initiate transport as soon as possible.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, ensuring personal safety and preparing for or providing patient transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol.*

2. Maintain control of the scene and request law enforcement if needed.

3. Determine if the patient is a threat to self or others.

4. If the patient is a threat to self or others, **restrain the patient** and **contact Medical Control as soon as possible.** An order for restraints is a *must.*
   - If after physical restraint the patient is still a risk to self or others, consider chemical restraint

5. **Ketamine:** 4mg/kg IM or 1.5 mg/kg IV If absolutely necessary. **Contact Medical Control for further orders.**
   - Have airway management supplies and equipment ready. (Capnography, King, ET, airway adjunct and suction)
   - Generally only limited injection volumes can be given by intramuscular injection: **2 ml** in the deltoid and thigh muscles, and up to **5 ml** in the gluteus maximus. The point of injection should be as far as possible from major nerves and blood vessels to avoid neural damage and accidental intravenous administration. ([pharmlabs.unc.edu/labs/parenterals/intramuscular.htm](pharmlabs.unc.edu/labs/parenterals/intramuscular.htm))

6. **Control** for further orders.
ALSA Care (continued)

7. Initiate transport as soon as possible.

Critical Thinking Elements

- Document the patient’s behavior, statements, actions and surroundings.
- Verbally attempt to calm and/or re-orient the patient to reality.
- If restraints are used, thoroughly document the reasons for applying restraints, time of application, condition of the patient before and after application, method of restraint and any law enforcement involvement, including any use of law enforcement equipment (e.g. handcuffs) and the time Medical Control was contacted.
- Consider medical etiologies of apparent behavioral disorders such as hypoxia, stroke/head bleed, substance abuse/overdose, and hypoglycemia.
EMS providers should consider the mental health needs of a patient who appears emotionally or mentally incapacitated. This involves cases that the EMS provider has reasonable cause or evidence to suspect a patient may intentionally or unintentionally physically injure himself/herself or others, is unable to care for his/her own physical needs, or is in need of mental health treatment against his/her will.

This does not include a person whose mental processes have merely been weakened or impaired by reason of advanced years and the patient is under the supervision of family or another healthcare provider, unless the family or healthcare provider has activated EMS for a specific behavioral emergency.

1. Attempt to persuade the patient that there is a need for evaluation and compel him/her to be transported to the hospital.

2. If persuasion is unsuccessful, contact Medical Control and relay the history of the event. Clearly indicate your suspicions and/or evidence and have the base station physician discuss the patient’s needs with the parties involved in the situation.

3. The EMS crew will then follow the direction of the base station physician in determining the disposition of the patient or termination of patient contact. Another agency’s or party’s opinion should not influence the EMS provider’s assistance to a mental health need.

4. Under no circumstances does transport of the patient, whether voluntarily or against his/her will, commit the patient to a hospital admission. It simply enables the EMS providers to transport a person suspected to be in need of mental health treatment.

5. If a patient is combative or may harm self or others, call law enforcement for assistance and follow the Patient Restraint Policy.
Patients will only be restrained if clinically justified. The use of restraints is only utilized if the patient is violent and may cause harm to themselves or others. Physical and/or chemical restraints are a last resort in caring for the emotionally disturbed patient.

1. To safely restrain the patient, use a minimum of 4 people.

2. **Contact Medical Control** as soon as possible for an order / guidance, however if the situation is dangerous for the patient or EMS crew, restraints may be started and then contact hospital ASAP.

3. If available, may use police protective custody.

4. Explain the procedure to the patient (and family) if possible. The team leader should be the person communicating with the patient.

5. If attempts at verbally calming the patient have failed and the decision is made to use restraints, do not waste time bargaining with the patient.

6. Remember to remove any equipment from your person which can be used as a weapon against you (e.g. trauma shears).

7. Assess the patient and surroundings for potential weapons.

8. Approach the patient, keeping the team leader near the head to continue communications and at least one person on each side of the patient.

9. Move the patient to a backboard or the stretcher.

10. Place the patient supine and place soft, disposable restraints on 2-4 limbs and fasten to the backboard or stretcher. Avoid restraining the patient prone if at all possible.

11. Transport as soon as possible.

12. Document **circulation checks** every 15 minutes (of all restrained limbs) and thoroughly document the reasons for applying restraints, time of application, condition of the patient before and after application, method of restraint and any law enforcement involvement, including any use of law enforcement equipment (e.g. handcuffs) and the time Medical Control was contacted.

13. Do not remove restraints until released by medical personnel at the receiving hospital.
As law enforcement agencies look for alternative means of subduing dangerous subjects and bringing individuals into custody, they have begun using a set of devices known as “less than lethal” weapons. These include but are not limited to:

- Bean bag guns
- Teargas / Oleoresin capsicum sprays (i.e. pepper spray)
- Tasers

All levels of providers in the System should do the following when encountering these patients:

1. Ensure that the scene has been secured by law enforcement personnel and that the scene is safe to enter.
2. Ensure no cross contamination occurs to providers or equipment.
3. Ensure that the patient is subdued and is no longer a threat to EMS personnel.

**Emergency Medical Responder Care**

Emergency Medical Responder Care should be focused on assessing the airway and breathing.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Oxygen: For agitation, shortness of breath or chest pain: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.
3. Flush eyes (if affected) with sterile water to get rid of gross contamination and to aid in recovery.

**BLS Care**

BLS Care should be directed at conducting a thorough patient assessment and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.
2. Oxygen: For agitation, shortness of breath or chest pain: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
3. Proventil (Albuterol): 2.5mg in 3mL of normal saline via nebulizer over 15 minutes *if the patient is short of breath and wheezing*. May repeat Albuterol 2.5mg every 15 minutes as needed (with Medical Control order).
4. Flush eyes (if affected) with sterile water to get rid of gross contamination and to aid in recovery.

5. Assess for secondary trauma that may be present and treat appropriately per trauma protocols.

6. Assess for any secondary causes of patient behavior which lead to law enforcement subduing the patient. These secondary causes include:
   - Alcohol intoxication
   - Drug abuse
   - Hypoglycemia or other medical disorder
   - Psychotic disorder

7. Contact Medical Control if restraints are needed. An order for restraint is a MUST.

8. If the patient has an altered mental status, then the patient must be assumed incompetent to refuse care. Contact Medical Control for ALL refusal issues.

9. Initiate ALS intercept if needed and transport as soon as possible.

10. Contact receiving hospital as soon as possible or Medical Control if necessary.

**ILS Care**

ILS Care should be directed at conducting a thorough patient assessment and preparing the patient for or providing transport.

1. Render initial care in accordance with the Universal Patient Care Protocol.

2. Oxygen: For agitation, shortness of breath or chest pain: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
**Less than Lethal Weapons Protocol**

**Teargas / Oleoresin Capsicum (Pepper Spray) Exposure (continued)**

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.

1. **Duoneb OR Proventil (Albuterol):** 2.5mg in 3mL normal saline **mixed with Ipratropium (Atrovent):** 0.5mg via nebulizer over **15 minutes if the patient is short of breath and wheezing.** Repeat Albuterol 2.5mg with Atrovent 0.5mg every 15 minutes as needed.

3. **Flush eyes (if affected) with sterile water** to get rid of gross contamination and to aid in recovery.

4. Assess for secondary trauma that may be present and treat appropriately per trauma protocols.

5. Assess for any secondary causes of patient behavior which lead to law enforcement subduing the patient. These secondary causes include:
   - Alcohol intoxication
   - Drug abuse
   - Hypoglycemia or other medical disorder
   - Psychotic disorder

6. **Contact Medical Control** if restraints are needed. An order for restraint is a MUST.

7. **IV Fluid Therapy:** 20mL/kg fluid bolus if the patient is cooperative and if the vital signs reflect tachycardia or hypotension to achieve a systolic BP of at least 100mmHg.

8. Initiate cardiac monitoring per **Routine Care** or if the patient appears agitated.

9. If the patient has an altered mental status, then the patient must be assumed incompetent to refuse care. **Contact Medical Control** for ALL refusal issues.

10. Initiate ALS intercept if needed and transport as soon as possible.

11. Contact receiving hospital as soon as possible or Medical Control if necessary.
2. Render initial care in accordance with the *Universal Patient Care Protocol*.

**Teargas / Oleoresin Capsicum (Pepper Spray) Exposure (continued)**

**ALS Care (continued)**

3. **Oxygen**: For agitation, shortness of breath or chest pain: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

4. **Proventil (Albuterol)**: 2.5mg in 3mL normal saline *mixed with Ipratropium (Atrovent)*: 0.5mg via nebulizer over *15 minutes if the patient is short of breath and wheezing*. Repeat Albuterol 2.5mg with Atrovent 0.5mg every 15 minutes as needed.

5. **Flush eyes (if affected) with sterile water** to get rid of gross contamination and to aid in recovery.

6. Assess for secondary trauma that may be present and treat appropriately per trauma protocols.

7. Assess for any secondary causes of patient behavior which lead to law enforcement subduing the patient. These secondary causes include:
   - Alcohol intoxication
   - Drug abuse
   - Hypoglycemia or other medical disorder
   - Psychotic disorder

8. **Restrain the patient** if needed and **contact Medical Control**. An order for restraint is a MUST.

9. **IV Fluid Therapy**: 20mL/kg fluid bolus if the patient is cooperative and if the vital signs reflect tachycardia or hypotension to achieve a systolic BP of at least 100mmHg.

10. Initiate cardiac monitoring per *Routine Care* or if the patient appears agitated.

11. If the patient has an altered mental status, then the patient must be assumed incompetent to refuse care. **Contact Medical Control** for ALL refusal issues.

12. Initiate transport as soon as possible and **contact Medical Control** if needed.
Taser-Related Injuries

A taser is an electrical device that is capable of shooting out two small barbed probes that are designed to pierce a subject’s skin for the purpose of delivering a subduing pulse of electricity that causes the subject to lose voluntary muscular control. Anecdotal and theoretical consequences of taser use include cardiac arrhythmias and seizures (especially if the subject is under the influence of alcohol and/or illegal drugs).

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the airway, breathing and circulation.

1. Render initial care in accordance with the Universal Patient Care Protocol.

2. **Oxygen**: For agitation, shortness of breath or chest pain: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. Ask law enforcement to remove taser probes. **EMS personnel are not to remove the probes unless** specifically trained and are comfortable doing so.

4. If the probes are in a sensitive area such as the face, eye, neck, genitalia or a female’s breast, leave the probes in place and bandage.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment and preparing the patient for or providing transport.

1. Render initial care in accordance with the Universal Patient Care Protocol.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. Ask law enforcement to remove taser probes. **EMS personnel are not to remove the probes unless** specifically trained and are comfortable doing so.

4. If the probes are in a sensitive area such as the face, eye, neck, genitalia or a female’s breast, leave the probes in place and bandage.
5. Assess for any secondary causes of patient behavior which lead to law enforcement subduing the patient. These secondary causes include:

- Alcohol intoxication
- Drug abuse
- Hypoglycemia or other medical disorder
- Psychotic disorder

6. **Contact Medical Control** if restraints are needed. An order for restraint is a MUST.

7. If the patient has an altered mental status, then the patient must be assumed incompetent to refuse care. **Contact Medical Control** for ALL refusal issues.

8. Initiate ALS intercept if needed and transport as soon as possible.

9. Contact receiving hospital as soon as possible or Medical Control if necessary.

**ILS Care**

ILS Care should be directed at conducting a thorough patient assessment and preparing the patient for or providing transport.

1. Render initial care in accordance with the *Universal Patient Care Protocol*.

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. Ask law enforcement to remove taser probes. **EMS personnel are not to remove the probes** unless specifically trained and are comfortable doing so.

4. If the probes are in a sensitive area such as the *face, eye, neck, genitalia* or a *female’s breast*, leave the probes in place and bandage.
5. Assess for any secondary causes of patient behavior which lead to law enforcement subduing the patient. These secondary causes include:
   - Alcohol intoxication
   - Drug abuse
   - Hypoglycemia or other medical disorder
   - Psychotic disorder

6. **Contact Medical Control** if restraints are needed. An order for restraint is a MUST.

7. Initiate cardiac monitoring.

8. **IV Fluid Therapy**: 20mL/kg fluid bolus if the patient is cooperative and if the vital signs reflect tachycardia or hypotension to achieve a systolic BP of at least 100mmHg.

9. **Midazolam (Versed)**: 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every 5 minutes as needed to a total of 10mg.

   **Midazolam (Versed)**: 5mg IM if the patient is seizing and attempts at IV access have been unsuccessful. May repeat dose one time in 15 minutes if needed

   **Midazolam (Versed)**: Intranasal if unable to obtain IV access. (See intranasal dosing sheet).

10. If the patient has an altered mental status, then the patient must be assumed incompetent to refuse care. **Contact Medical Control** for ALL refusal issues.

11. Initiate ALS intercept if needed and transport as soon as possible.

12. Contact receiving hospital as soon as possible or Medical Control if necessary.

**ALS Care**

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.
1. Render initial care in accordance with the *Universal Patient Care Protocol*.

**Less than Lethal Weapons Protocol**

2. **Oxygen**: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.

3. Ask law enforcement to remove taser probes. **EMS personnel are NOT to remove the probes unless** specifically trained and are comfortable doing so.

4. If the probes are in a sensitive area such as the *face, eye, neck, genitalia* or a *female’s breast*, leave the probes in place and bandage.

5. Assess for any secondary causes of patient behavior which lead to law enforcement subduing the patient. These secondary causes include:
   - Alcohol intoxication
   - Drug abuse
   - Hypoglycemia or other medical disorder
   - Psychotic disorder

6. **Restrain the patient** if needed and **contact Medical Control**. An order for restraint is a MUST.

7. Initiate cardiac monitoring.

8. **IV Fluid Therapy**: 20mL/kg fluid bolus if the patient is cooperative and if the vital signs reflect tachycardia or hypotension to achieve a systolic BP of at least 100mmHg.

9. **Midazolam (Versed)**: 2mg IV over 1 minute for seizure activity. May repeat Midazolam (Versed) 2mg IV every 5 minutes as needed to a total of 10mg.

   **Midazolam (Versed)**: 5mg IM if the patient is seizing and attempts at IV access have been unsuccessful. May repeat dose one time in 15 minutes if needed

   **Midazolam (Versed)**: Intranasal if unable to obtain IV access. (See intranasal dosing sheet).
12. If the patient has an altered mental status, then the patient must be assumed incompetent to refuse care. Contact Medical Control for ALL refusal issues.

13. Initiate transport as soon as possible and contact Medical Control if needed.

Critical Thinking Elements

- Refer to Behavioral Emergencies/Chemical Restraint Protocol for continued aggressiveness or violent behavior.
- Chemical defense sprays such as oleoresin capsicum (pepper spray) leave residue that may be contacted and transferred to providers. Care must be taken to ensure cross contamination does not occur. Avoid touching your own face, eyes or any other mucous membrane.
- Patients who have been subdued using less than lethal weapons are commonly agitated and may be combative. Safety of the EMS crew is of utmost importance.
- Many of these patients fit into a syndrome known as “excited delirium” that has been associated with adverse medical outcomes, including SUDDEN DEATH, especially when restraints are utilized. Careful monitoring should be exercised when dealing with these patients.
- Contaminated clothing should be removed and sealed in a plastic bag to prevent further irritation and to reduce cross contamination.
- Monitor the patient for respiratory depression when administering narcotics.
- If respiratory depression or hypotension occurs after administration of Dilaudid or Fentanyl, ventilate the patient as necessary and administer Narcan.
- Monitor respiratory status, SPO2 and or Waveform Capnography if available.
- If law enforcement has removed the probes, treat the probes as biohazards. Exercise caution to prevent accidental needlestick-like injuries.
- Ask law enforcement to eject the cartridge from the taser prior to patient contact.
- Patients who have been subdued using less than lethal weapons are commonly agitated and may be combative. If the patient is not yet subdued and/or is violent, do not initiate contact. Safety of the EMS crew is of utmost importance.
Resuscitation vs.
Cease Efforts Policy

Withholding Resuscitation / Criteria for Death

Policy:
It is the policy of the OSF St. James EMS System that CPR need not be initiated when death has been determined. Prehospital providers determine death based on pre-determined criteria outlined below. An assessment by an ILS/ALS provider or consultation with Medical Control is required for determination of death not covered in this policy.

Purpose:
A person is presumed dead on arrival when all five signs of death are present and at least one associated “Factor of Death” is present.

<table>
<thead>
<tr>
<th>Signs of Death (All must be present)</th>
<th>Factors of Death (At least one must be present)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medical</strong></td>
<td></td>
</tr>
<tr>
<td>• Unresponsiveness</td>
<td>• Lividity and/or any degree of generalized cyanosis</td>
</tr>
<tr>
<td>• Apnea</td>
<td>• Rigor mortis</td>
</tr>
<tr>
<td>• Pulselessness</td>
<td>• Presence of venous pooling in the body</td>
</tr>
<tr>
<td>• Non-reactive pupils</td>
<td>• Decomposition</td>
</tr>
<tr>
<td><strong>Trauma</strong></td>
<td></td>
</tr>
<tr>
<td>• Uunresponsiveness</td>
<td>• Incineration or extensive full thickness burns</td>
</tr>
<tr>
<td>• Absence of vital signs in a trauma victim upon arrival of EMS personnel despite a patent airway.</td>
<td>• Transection of head or trunk</td>
</tr>
<tr>
<td></td>
<td>• Major blunt or penetrating trauma</td>
</tr>
<tr>
<td></td>
<td>• Separation of heart and/or brain</td>
</tr>
<tr>
<td></td>
<td>• Deforming brain injury</td>
</tr>
</tbody>
</table>

Procedure:

Do not initiate resuscitation in the following:

Do Not Resuscitate orders: No resuscitation efforts should be initiated when the person or family has evidence of a valid Do Not Resuscitate (DNR) order in hand.

Scene safety: The physical environment is not safe for the EMS providers to enter.

Infant death (SIDS): An infant who is apneic, and meets the above criteria may be presumed dead.

Neonatal death: A neonate who is apneic, pulseless, and exhibits neonatal maceration (softening or degeneration of the tissues after death in utero), anencephaly (absence of a major portion of the brain, skull, and scalp), or if the gestational age is less than 22 weeks and
neonate shows signs of obvious immaturity (translucent and gelatinous skin, lack of fingernails, fused eyelids) may be presumed dead.

**Withholding Resuscitation / Criteria for Death**

**Notes:**

- Resuscitation may be initiated if the condition of the scene indicates that withholding resuscitation could cause a potential unsafe condition for the ambulance crew.

- If the EMS providers determine the situation warrants removal of the patient from the scene, resuscitation efforts must be initiated and continued throughout transportation to the hospital and the details documented in the patient care report.


**Critical Thinking Elements**

- Pediatric patients and patient with hypothermia may have no signs of life but still be viable. Prolonged resuscitative efforts are indicated in these cases.
Coroner Notification Policy

In accordance with Section 10.6, Chapter 31 of the Illinois Revised Statutes – Coroners:

1. Every law enforcement official, funeral director, ambulance attendant, hospital director of administration or person having custody of the body of a deceased person, where the death is one subjected to investigation under Section 10 of this Act, and any physician in attendance upon such a decedent at the time of his death, shall notify the coroner promptly. Any such person failing to notify the coroner promptly shall be guilty of a Class A misdemeanor, unless such person has reasonable cause to believe that the coroner had already been notified.

2. Deaths that are subject to coroner investigation include:
   - Accidental deaths of any type or cause
   - Homicidal deaths
   - Suicidal deaths
   - Abortions – criminal or self-induced maternal or fetal deaths
   - Sudden deaths – when in apparent good health or in any suspicious or unusual manner including sudden death on the street, at home, in a public place, at a place of employment, or any deaths under unknown circumstances may ultimately be the subject of investigation.

3. The coroner (or his/her designee) should be provided the following information:
   - Your name
   - Your EMS service
   - Location of the body or death
   - Phone number and/or radio frequency you are available on
   - Brief explanation of the situation

4. Once this information has been provided, wait for the coroner (or his/her designee) to arrive for further instructions. EMS crews may clear the scene if law enforcement is on the scene and no other emergency exists.

5. Law enforcement personnel are responsible for death scenes once the determination of death is established with Medical Control and the coroner has been notified.

6. If a patient is determined to be dead during transport, note the time & location and record this information on the patient care report. Immediately contact the coroner to discuss death jurisdiction. **Do not cross county lines with a patient that has been determined to be dead.**
EMS providers should be aware of law enforcement’s concern for preserving, collecting and using evidence. Anything at the scene may provide clues and evidence for the police.

1. Immediately notify law enforcement of any suspected crime scene (this does not necessarily include petty crimes or traffic violations).

2. If the victim is obviously dead, then he or she should remain undisturbed if at all possible.

3. Do not touch, move or relocate any item at the scene unless absolutely necessary to provide treatment to an injured, viable victim. Mark the location of any item that must be moved so the police can determine its original position.

4. Restrict access to the scene of onlookers or other unauthorized personnel on the premises of the crime.

5. Observe and note anything unusual (e.g. smoke, odors, or weapons), especially if the evidence may not be present when law enforcement arrives.

6. Give immediate care to the patient. The fact that the patient is a probable crime victim should not delay prompt care to the patient. Remember that your role is to provide emergency care, not law enforcement.

7. Keep detailed records of the incident, including your observations of the victim and the scene of the crime. Lack of records about the case can be professionally embarrassing if called to testify.
### FRS Medication List

<table>
<thead>
<tr>
<th>Unit Stock</th>
<th>Medication</th>
<th>Supplied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aspirin (ASA)</td>
<td>1 bottle – 81mg chewable tablets</td>
</tr>
<tr>
<td>2</td>
<td>Oral Glucose</td>
<td>15g tube</td>
</tr>
<tr>
<td>1</td>
<td>Narcan</td>
<td>2mg/2mL</td>
</tr>
</tbody>
</table>

### BLS Medication List

#### BLS Medications – Minimum Requirements

<table>
<thead>
<tr>
<th>Unit Stock</th>
<th>Medication</th>
<th>Supplied</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Albuterol (Proventil)</td>
<td>2.5mg/3mL unit dose</td>
</tr>
<tr>
<td>1</td>
<td>Aspirin (ASA)</td>
<td>1 bottle – 81mg chewable tablets</td>
</tr>
<tr>
<td>1</td>
<td>Epi-Pen Auto-injector</td>
<td>0.3mg pre-filled injector</td>
</tr>
<tr>
<td>1</td>
<td>Epi-Pen Jr Auto-Injector</td>
<td>0.15mg pre-filled injector</td>
</tr>
<tr>
<td>2</td>
<td>Glucagon</td>
<td>1mg &amp; diluent unit dose</td>
</tr>
<tr>
<td>1</td>
<td>Nitroglycerin (NTG) Tablets</td>
<td>1 bottle – 0.4mg per tablet</td>
</tr>
<tr>
<td>3</td>
<td>Oral Glucose</td>
<td>15g tube</td>
</tr>
<tr>
<td>1</td>
<td>Narcan</td>
<td>2mg/2mL</td>
</tr>
</tbody>
</table>
## ILS Medications – Minimum Requirements

<table>
<thead>
<tr>
<th>Unit Stock</th>
<th>Medication</th>
<th>Supplied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Adenocard (Adenosine)</td>
<td>6mg/2mL vial</td>
</tr>
<tr>
<td>2</td>
<td>Adenocard (Adenosine)</td>
<td>12mg/4mL vial</td>
</tr>
<tr>
<td>5</td>
<td>Albuterol (Proventil)</td>
<td>2.5mg/3mL unit dose</td>
</tr>
<tr>
<td>5</td>
<td>Ipratropium Bromide and Albuterol Sulfate</td>
<td>0.5mg/3mg/3mL unit dose</td>
</tr>
<tr>
<td>3</td>
<td>Amiodarone</td>
<td>150mg/3mL vial</td>
</tr>
<tr>
<td>1</td>
<td>Aspirin (ASA)</td>
<td>1 bottle – 81mg chewable tablets</td>
</tr>
<tr>
<td>3</td>
<td>Atropine</td>
<td>1mg/10mL pre-filled syringe</td>
</tr>
<tr>
<td>2</td>
<td>Benadryl (Diphenhydramine)</td>
<td>50mg/1mL pre-filled syringe</td>
</tr>
<tr>
<td>2</td>
<td>Dextrose 50% (D50)</td>
<td>25g/50mL pre-filled syringe</td>
</tr>
<tr>
<td>6</td>
<td>Epinephrine 1:10,000</td>
<td>1mg/10mL pre-filled syringe</td>
</tr>
<tr>
<td>1</td>
<td>Epi-Pen Auto-Injector</td>
<td>0.3mg pre-filled injector</td>
</tr>
<tr>
<td>1</td>
<td>Epi-Pen Jr Auto-Injector</td>
<td>0.15mg pre-filled injector</td>
</tr>
<tr>
<td>1</td>
<td>Glucagon</td>
<td>1mg &amp; diluent unit dose</td>
</tr>
<tr>
<td>3</td>
<td>Oral Glucose</td>
<td>15g Tube</td>
</tr>
<tr>
<td>4</td>
<td>Lidocaine</td>
<td>100mg/5mL pre-filled syringe</td>
</tr>
<tr>
<td>1</td>
<td>Methylprednisolone</td>
<td>125mg vial</td>
</tr>
<tr>
<td>2</td>
<td>Narcan (Naloxone)</td>
<td>2mg/2mL ampule</td>
</tr>
<tr>
<td>1</td>
<td>Nitroglycerin (NTG) tablets</td>
<td>1 bottle – 0.4mg per tablet</td>
</tr>
</tbody>
</table>

### Controlled Substance Container

| 2          | Fentanyl | 100mcg/2mL vial |
| 2          | Versed (Midazolam) | 5mg/5mL vial |
| 3          | Morphine Sulfate | 10mg/1mL |
# ALS Medication List

## ALS Medications – Minimum Requirements

<table>
<thead>
<tr>
<th>Unit Stock</th>
<th>Medication</th>
<th>Supplied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Adenocard (Adenosine)</td>
<td>6mg/2mL vial</td>
</tr>
<tr>
<td>2</td>
<td>Adenocard (Adenosine)</td>
<td>12mg/4mL vial</td>
</tr>
<tr>
<td>5</td>
<td>Albuterol (Proventil)</td>
<td>2.5mg/3mL unit dose</td>
</tr>
<tr>
<td>3</td>
<td>Amiodarone</td>
<td>150mg/3mL vial</td>
</tr>
<tr>
<td>1</td>
<td>Aspirin (ASA)</td>
<td>1 bottle – 81mg chewable tab</td>
</tr>
<tr>
<td>3</td>
<td>Atropine</td>
<td>1mg/10mL pre-filled syringe</td>
</tr>
<tr>
<td>5</td>
<td>Ipratropium Bromide and Albuterol Sulfate</td>
<td>0.5mg/3 mg/3mL unit dose</td>
</tr>
<tr>
<td>2</td>
<td>Benadryl (Diphenhydramine)</td>
<td>50mg/1mL pre-filled syringe</td>
</tr>
<tr>
<td>1</td>
<td>Calcium Chloride</td>
<td>1.36mEq/mL pre-filled syringe</td>
</tr>
<tr>
<td>2</td>
<td>Dextrose 50% (D50)</td>
<td>25g/50mL pre-filled syringe</td>
</tr>
<tr>
<td>1</td>
<td>Dopamine</td>
<td>400mg/250mL in D5W</td>
</tr>
<tr>
<td>2</td>
<td>Epinephrine 1:1000</td>
<td>1mg/1mL ampule</td>
</tr>
<tr>
<td>6</td>
<td>Epinephrine 1:10,000</td>
<td>1mg/10mL pre-filled syringe</td>
</tr>
<tr>
<td>1</td>
<td>Glucagon</td>
<td>1mg &amp; diluent unit dose</td>
</tr>
<tr>
<td>3</td>
<td>Oral Glucose</td>
<td>15g Tube</td>
</tr>
<tr>
<td>4</td>
<td>Lidocaine</td>
<td>100mg/5mL pre-filled syringe</td>
</tr>
<tr>
<td>1</td>
<td>Magnesium Sulfate</td>
<td>1g/2mL vial</td>
</tr>
<tr>
<td>1</td>
<td>Methylprednisolone (Solu-medrol)</td>
<td>125mg/2mL act-o-vial</td>
</tr>
<tr>
<td>2</td>
<td>Narcan (Naloxone)</td>
<td>2mg/2mL ampule</td>
</tr>
<tr>
<td>1</td>
<td>Nitroglycerin (NTG) Tablets</td>
<td>1 bottle – 0.4mg per tablet</td>
</tr>
<tr>
<td>5</td>
<td>Nitropaste (Nitro-Bid)</td>
<td>1 inch pre-measured foil packet</td>
</tr>
<tr>
<td>1</td>
<td>Nitroglycerin drip</td>
<td>50mg/250ml in D5W (250mcg/mL)</td>
</tr>
<tr>
<td>2</td>
<td>Ondansetron (Zofran)</td>
<td>4mg/2mL vial</td>
</tr>
<tr>
<td>2</td>
<td>Ondansetron (Zofran)</td>
<td>4mg Orally Disintegrating Tablet</td>
</tr>
<tr>
<td>2</td>
<td>Sodium Bicarbonate</td>
<td>50 mEq/50mL pre-filled syringe</td>
</tr>
<tr>
<td>1</td>
<td>Ketorolac (Toradol)</td>
<td>30mg/mL vial</td>
</tr>
<tr>
<td>2</td>
<td>Fentanyl</td>
<td>100mcg/2mL vial</td>
</tr>
<tr>
<td>2</td>
<td>Versed (Midazolam)</td>
<td>2mg/2mL vial</td>
</tr>
<tr>
<td>1</td>
<td>Morphine Sulfate</td>
<td>10mg/1mL</td>
</tr>
</tbody>
</table>

*Controlled Substance Container*
<table>
<thead>
<tr>
<th></th>
<th>Item Description</th>
<th>Quantity</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Etomidate (Optional)</td>
<td></td>
<td>20mg/10mL (2mg/mL) vial</td>
</tr>
<tr>
<td>1</td>
<td>Benzocaine Spray (Optional)</td>
<td></td>
<td>20% Spray 2 oz can</td>
</tr>
</tbody>
</table>
### Intranasal Fentanyl Dosing Chart

<table>
<thead>
<tr>
<th>Patient Weight</th>
<th>Dosage (2mcg/kg)</th>
<th>Dead Space Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-5kg (6-11 Lbs)</td>
<td>10 mcg (0.2 ml)</td>
<td>(+ 0.1 ml)</td>
</tr>
<tr>
<td>6-10kg (13-22 Lbs)</td>
<td>20 mcg (0.4 ml)</td>
<td>(+ 0.1 ml)</td>
</tr>
<tr>
<td>11-15kg (24-33 Lbs)</td>
<td>30 mcg (0.6 ml)</td>
<td>(+ 0.1 ml)</td>
</tr>
<tr>
<td>16-20kg (35-44 Lbs)</td>
<td>40 mcg (0.8 ml)</td>
<td>(+ 0.1 ml)</td>
</tr>
<tr>
<td>21-25kg (46-55 Lbs)</td>
<td>50 mcg (1.0 ml)</td>
<td>(+ 0.1 ml)</td>
</tr>
<tr>
<td>26-30kg (57-66 Lbs)</td>
<td>60 mcg (1.2 ml)</td>
<td>(+ 0.1 ml)</td>
</tr>
<tr>
<td>31-35kg (68-77 Lbs)</td>
<td>70 mcg (1.4 ml)</td>
<td>(+ 0.1 ml)</td>
</tr>
<tr>
<td>36-40kg (79-88 Lbs)</td>
<td>80 mcg (1.6 ml)</td>
<td>(+ 0.1 ml)</td>
</tr>
<tr>
<td>41-45kg (90-99 Lbs)</td>
<td>90 mcg (1.8 ml)</td>
<td>(+ 0.1 ml)</td>
</tr>
<tr>
<td>46-50kg (101-110 Lbs)</td>
<td>100 mcg (2.0 ml)</td>
<td>No Extra</td>
</tr>
<tr>
<td>51-55kg (112-121 Lbs)</td>
<td>110 mcg (2.2 ml)</td>
<td><strong>(+ 0.1 ml)</strong></td>
</tr>
<tr>
<td>56-60kg (123-132 Lbs)</td>
<td>120 mcg (2.4 ml)</td>
<td><strong>(+ 0.1 ml)</strong></td>
</tr>
<tr>
<td>61-70kg (134-154 Lbs)</td>
<td>140 mcg (2.8 ml)</td>
<td><strong>(+ 0.1 ml)</strong></td>
</tr>
<tr>
<td>71-80kg (156-176 Lbs)</td>
<td>160 mcg (3.2 ml)</td>
<td><strong>(+ 0.1 ml)</strong></td>
</tr>
<tr>
<td>81-90kg (178-198 Lbs)</td>
<td>180 mcg (3.6 ml)</td>
<td><strong>(+ 0.1 ml)</strong></td>
</tr>
<tr>
<td>91-100kg (200-220 Lbs)</td>
<td>200 mcg (4.0 ml)</td>
<td>No Extra</td>
</tr>
</tbody>
</table>

**Divide dose in 1/2 and administer 10 minutes apart to reduce runoff**
### Intranasal Versed (Midazolam) Dosing Chart

<table>
<thead>
<tr>
<th>Patient Age</th>
<th>Weight</th>
<th>5mg/5mL Concentration</th>
<th>10mg/2mL Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>(years)</td>
<td></td>
<td>Dose (mg)</td>
<td>Dose (mL)</td>
</tr>
<tr>
<td>Neonate</td>
<td>3kg (6) Lbs</td>
<td>0.6 mg</td>
<td>0.7 mL</td>
</tr>
<tr>
<td>&lt;1 yr</td>
<td>6kg (13) Lbs</td>
<td>1.2 mg</td>
<td>1.3 mL</td>
</tr>
<tr>
<td>1</td>
<td>10kg (22) Lbs</td>
<td>2.0 mg</td>
<td>2.1 mL</td>
</tr>
<tr>
<td>2</td>
<td>14kg (30) Lbs</td>
<td>2.8 mg</td>
<td>2.9 mL</td>
</tr>
<tr>
<td>3</td>
<td>16kg (35) Lbs</td>
<td>3.2 mg</td>
<td>3.3 mL</td>
</tr>
<tr>
<td>4</td>
<td>18kg (40) Lbs</td>
<td>3.6 mg</td>
<td>3.8 mL</td>
</tr>
<tr>
<td>5</td>
<td>20kg (44) Lbs</td>
<td>4.0 mg</td>
<td>4.1 mL</td>
</tr>
<tr>
<td>6</td>
<td>22kg (48) Lbs</td>
<td>4.4 mg</td>
<td>4.5 mL</td>
</tr>
<tr>
<td>7</td>
<td>24kg (53) Lbs</td>
<td>4.8 mg</td>
<td>4.9 mL</td>
</tr>
<tr>
<td>8</td>
<td>26kg (57) Lbs</td>
<td>5.2 mg</td>
<td>5.3 mL</td>
</tr>
<tr>
<td>9</td>
<td>28kg (62) Lbs</td>
<td>5.6 mg</td>
<td>5.7 mL</td>
</tr>
<tr>
<td>10</td>
<td>30kg (66) Lbs</td>
<td>6.0 mg</td>
<td>6.1 mL</td>
</tr>
<tr>
<td>11</td>
<td>32kg (70) Lbs</td>
<td>6.4 mg</td>
<td>6.5 mL</td>
</tr>
<tr>
<td>12</td>
<td>34kg (75) Lbs</td>
<td>6.8 mg</td>
<td>6.9 mL</td>
</tr>
<tr>
<td>Small Teenager</td>
<td>40kg (88) Lbs</td>
<td>8.0 mg</td>
<td>8.1 mL</td>
</tr>
<tr>
<td>Full Grown Teen or Adult</td>
<td>&gt;50kg (&gt;110) Lbs</td>
<td>10.0 mg</td>
<td>10.1 mL</td>
</tr>
</tbody>
</table>

For Children: Total weight (kg) X 0.2 mg = total mg dose of Midazolam, maximum dose of 10 mg

*Volume is based on the calculated dose PLUS 0.10 mL dead space in the device. The total volume is then rounded off to the next highest 0.1 mL. In some children a higher dose may be needed (0.3 mg/kg).