Blue Ridge Emergency Medical Services Council, Inc.

And

www.wvems.org

Western Virginia Emergency Medical Services Council, Inc.

REGIONAL STANDARD PATIENT TREATMENT GUIDELINES

Revised 2009

1900 Tate Springs Road, Suite 14
Lynchburg, Virginia 24501
(434) 947-5934
www.blueridge.vaems.org

1944 Peters Creek Road
Roanoke, VA 24017
(540) 562-3482
www.wvems.org

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The revision of these Regional Standard Patient Treatment Guidelines has been an immense task requiring many hours of work on the part of various agencies and providers at many levels from all of the localities in the BREMS & WVEMS regions.

Every attempt has been made to update these guidelines to the current American Heart Association guidelines, the Office of EMS Procedures & Medications Schedules and the OEMS Training Curriculums.

The end result is a document that is evidence of the current methodology for the delivery of pre-hospital EMS care and establishes a new standard of care within the BREMS & WVEMS regions. These guidelines enable our EMS providers to deliver the highest possible quality of care to their patients.

The development process would not have been possible without the contributions of Dr. Marilyn McLeod, Emergency Department Physician and BREMS Regional Medical Director, Dr. Edward Fenton, Emergency Department Physician, BREMS OMD and Dr. Charles Lane, WVEMS Regional Medical Director. Their vision of what the highest standard of pre-hospital care should be and the means of its delivery are reflected throughout these Guidelines.

Questions regarding the contents of this manual should be directed in writing to:

Blue Ridge EMS Council
Attn: Regional Medical Director
1900 Tate Springs Road
Suite 14
Lynchburg, Virginia 24501

Western Virginia EMS Council
Attn: Regional Medical Director
1944 Peters Creek Road
Roanoke, Virginia 24017

Blue Ridge EMS Council & Western Virginia EMS Council
Standard Patient Treatment Guidelines Introduction

The Need for Standardized Guidelines

Protocols are the policies and procedures of an EMS system. They provide a standard approach to common patient problems, a consistent level of medical care and a standard approach for accountability. The regional pre-hospital protocols in this document have been approved by both Medical Directors, in consultation with the agency OMD's, and the Board of Directors of the Blue Ridge EMS Council and Western Virginia EMS Council to serve as the standard guideline for pre-hospital emergency care in the BREMS & WVEMS region.

These protocols will require constant reevaluation to ensure that they reflect advances in EMS training, medical knowledge, science, and technology. Medical directors will continually evaluate providers' skills to ensure competency and compliance with applicable EMS standards. Implementing these new protocols and changes in these protocols may necessitate that educational and training programs be updated in both initial and continuing pre-hospital education to ensure that providers have the necessary skills and training to carry out their responsibilities.

Introduction

Two basic types of orders are contained within these guidelines for EMS personnel:

- **"S" indicates a standing order.**
- **"O" indicates that the procedure must be under the on-line order of a physician.**

Medical Control

Physicians rendering treatment orders to field personnel should utilize this manual as a basis for such orders. It is understood that variations from these guidelines will, from time to time be necessary and that direct orders from an E.D. Physician will override those indicated herein.

On-line medical control should be established as soon as possible without delaying critical patient care. **Medical Control** should be established at some point on a call requiring any treatment outlined in these guidelines. Providers are not required to wait until they have completed all standing orders to contact on-line **Medical Control**; providers should contact **Medical Control** whenever advice, confirmation, consultation or direction is needed.

The protocols within this document represent the proper approach to patient assessment and management, but they do not supersede the on-line **Medical Control** physician's prerogative to order treatment. The on-line **Medical Control** physician has ultimate control of patient care. All sections labeled **Medical Control** are to be avoided until the on-line **Medical Control** physician is consulted.

This manual serves to provide a degree of standardization and therefore defines the level of care that is expected to be provided by emergency medical service providers. Failure to abide by the guidelines herein may result in disciplinary action. A provider's authorization to practice may be administratively suspended by their Operational Medical Director (OMD) pending an investigation and/or hearing.

Limiting On-Scene Time

Time is a very important consideration in the survival of seriously injured or ill patients. Research has demonstrated that patient survival rates increase dramatically as time from the trauma incident to the beginning of surgery decreases. The current goal for the incident-to-surgery time is 1 hour, also known as 'the Golden Hour'. Ideally, EMS providers should provide the initial and rapid assessments, patient stabilization, patient packaging and initiation of transport in less than 10 minutes. Transport of the patient should not be delayed for non-life saving interventions.

When distance or traffic conditions present prolonged ground transport times for trauma, cardiac and/or stroke patients, reduce transport time by using an air medical service, if possible.

Early Receiving Facility Notification
In order for the receiving facility to adequately prepare for the arrival of patients, EMS providers should provide notification as early as possible, specifically in cases of multi-system trauma patients, cardiac emergencies, strokes and multiple patients. In these cases additional health care personnel beyond the emergency department staff will need to be notified to respond. Providing early notification can lessen and even eliminate the time between the arrival of the patient and the arrival of the appropriate health care staff needed to offer the best hospital care thereby increasing the patient's chance of survival.

Special Procedures
These special procedures and therapeutic interventions detailed in this manual my be performed only by appropriately trained EMS providers who hold current Virginia Certification for their provider level and who are operating under the direction of an OMD for a licensed EMS agency in the BREMS & WVEMS regions. No provider may give medications or perform procedures for which he or she has not had optional skills training and approval.

***For the BREMS' Region, See the [BREMS Procedure & Medication Schedule- BOS- 1 & BOS-2] included in this document for more information. No providers under the age of 18 may perform optional skills**.

***For the WVEMS' Region, See the [WVEMS Procedure & Medication Schedule-] included in this document for more information.**

Transporting with Lights and Siren
Ambulance crashes are one of many hazards faced by Emergency Medical Services (EMS) personnel. There are a number of risk factors that increase the likelihood of ambulance crashes, including the use of lights and sirens in transports. Additionally, the emergent transport of patients can cause increased agitation of the patient and increased possibility of mistakes by pre-hospital EMS providers.

The use of emergent transports of patients is permitted if the patient being transported to the receiving facility will require the immediate attention of a physician for assessment and treatment. Examples include, but are not limited to:

- Airway obstruction or severe respiratory distress
- Cardiac-related chest pain
- Multi-trauma victims

If in doubt, contact **Medical Control** for further consideration.

AG-1: **General Patient Management- All Levels**

1. **SCENE SIZE-UP**
   - Evaluate the scene for safety. If the scene cannot be made safe, **DO NOT ENTER**.
   - Wear appropriate personal protective equipment.
   - Determine the number of patients and summon additional help if necessary.
   - If a potentially life-threatening situation exists, Request Advanced Life Support at the Intermediate and/or Paramedic level.

2. **AIRWAY [A]**
   Open the airway in all patients with compromised air flow:

   Suspect neck injury in:
   - All deceleration injuries (vehicle accidents, falls).
   - Any injury above the clavicle.
   - All trauma victims who complain of neck pain.
   - All trauma victims with neck tenderness or deformity.
   - All non-alert patients with possible trauma.
   - Diving and near drowning victims.

   The C-spine clearing **[Spinal Precautions- BOS- 16 and WOS -]** procedure may be initiated.

   If a neck injury is suspected, perform a jaw thrust with the neck held in a neutral position. Maintain neck stability at all times. If the jaw thrust without head extension does not open the airway, healthcare providers should use the head tilt-chin lift maneuver.

   If no neck injury is suspected, perform a head tilt-chin lift.
   CAUTION: Do not overextend the neck in small children.

   Suction the airway clear (rigid-tip catheter).

   Remove any foreign bodies. Do not perform blind finger sweeps in children.

   For complete airway obstruction lasting > 3 min., follow the **[Cricothyrotomy-BOS-6/WOS-]** procedure **[Paramedic]**.

3. **BREATHING [B] refer to [Adult Asthma AM-6] OR [Adult Respiratory Distress to CHF- AM-28]** protocol for additional information.

   If respirations are absent:
   - Insert an oropharyngeal airway [suction, if indicated].
   - Apply a pocket mask or bag-valve-mask [BVM].
   - Give two 1 second breaths, then check the pulse.
   - Give oxygen at 15 LPM.
   - Support respirations at 10-12/min. for adult, 12-20/min. for infants and children.

   If respirations are present, but inadequate:
   - Maintain airway as needed.
   - Apply a pocket mask or BVM.

- Give oxygen at 15 LPM.

Support respirations at 10-12/min. (infants and children 12-20/min)

CAUTION: In small children, do not over-inflate the chest, ventilate enough to make chest rise.

Insert a **King Airway or perform Endotracheal intubation** when indicated**,** refer to **[ET & King Airway procedure- BOS-11 & BOS-12]. King Airway is an Optional Skill for the EMT-Basic and above].**

- **EMT-Enhanced** may use laryngoscope and Magill forceps to remove foreign body airway obstructions only.
- The King Airway is a back up airway to the Oropharyngeal and Nasopharyngeal Airways for the EMT-Basic & Enhanced.
- The King Airway is a back up airway to Endotracheal Intubation for the Intermediates & Paramedics.
- To verify intubation use **EITHER** an end-tidal CO_2 Monitor- Colorimetric or an end- tidal CO_2 Monitor- Quantitative (capnography)**.**

Expose the anterior chest:

- Assure midline trachea.
- Assure bilateral breath sounds.
- Seal sucking wounds with gloved hand, then an occlusive dressing.
- Splint flail segments with gloved hand, then a heavy bulky dressing.
- For tension pneumothorax, follow Needle Chest Decompression protocol. **[EMT-I/P]**

4. **CIRCULATION [C]**

Check the carotid and radial pulse (5 sec):

If the pulse is absent, or heart rate < 60 for pediatrics:

- Follow the **[CARDIOPULMONARY ARREST AC-3]** or the indicated arrhythmia protocol.
- Perform CPR immediately, unless a defibrillator is available.
- Perform chest compressions HARD, FAST & allow chest to completely recoil.

Age	Compressions/min.	Ratio	Depth
Infant up to 1 year	100 plus	15:2 (single rescuer) 15:2 (2 rescuer)	1/3 to ½ depth of chest
Child 1 – 8 years	100	15:2 (2 rescuer) 30:2 (single rescuer)	1/3 to ½ depth of chest
Adult ≥ 8 years	100	30:2	1.5 – 2 inches

If the pulse is present:

- Note approximate rate, quality, and regularity.
- Note skin color, temperature, moisture.
- Check capillary refill.
- Identify and control major external bleeding.
- Look for signs of shock, follow the SHOCK protocol.

5. **DISABILITY [D] & Assess Mental Status**

- Alert, verbal response, pain response, or unresponsive [AVPU]
- Glasgow Coma Scale [GCS]

6. **FOCUSED HISTORY AND PHYSICAL EXAM**
   - Obtain Vital signs.
   - Perform a rapid head-to-toe exam.
   - If neck injury is suspected, apply a rigid collar and backboard.
   - Immobilize the head with head blocks, forehead and chin straps AFTER immobilizing the rest of the body.
   - Provide any indicated emergency medical treatment.
   - **Note:** Attempt to conduct the secondary/detailed exam en-route to the hospital.

BRIEF HISTORY (SAMPLE):
- Symptoms
- Allergies
- Medications (bring medication bottles to hospital)
- Pertinent Medical History/ Past illnesses
- Last Oral Intake
- Events preceding incident

Key Points/Considerations
➢ The patient exam should focus on rapid assessment and interventions with limitation of stabilizing only procedures on scene. Other procedures should always be performed while en-route to the hospital or LZ.
➢ The goal is a scene time of ten minutes or less for all patients.
➢ The receiving hospital should be notified **as soon as possible** for preparation of your patient(s).
➢ At any point the technician is uncertain of the protocol or patient treatment direct on line **Medical Control** must be contacted for instruction.

7. **IF IV FLUID THERAPY IS INDICATED [EMT-Enhanced/Intermediate/Paramedic]:**
   - Preparations for vein cannulation should be coordinated with rescue efforts so patient transport is **not** delayed.
   - Pre-hospital vein cannulation efforts are to be limited to two attempts per provider unless otherwise authorized by **Medical Control**.
   - If IV therapy is critical, and no peripheral IV site can be located or secured, an intraosseous line may be placed. All IV fluids and medications in this manual may be administered by an intraosseous route **[EMT- Intermediate/Paramedic Only];** refer to **[Intraosseous Insertion: EZ-IO- BOS-10]** procedure **[For providers who have attended Optional Skills Training]**.
   - Intermediates & Paramedics may cannulate the external jugular vein if peripheral IV & IO access is not obtainable or adequate.
   - Intermediates or Paramedics may utilize a patient's existing central line in cardiac arrest situations when a peripheral IV and/or IO are not obtainable **[Optional Skill for Intermediate]**.

8. **COMPLETE ALL REPORT FORMS:**

Obtain the on-line **Medical Control** physician's signature when appropriate.

Consult Medical Control for further consideration.

AG-2: Initial Patient Contact

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Follow Body Substance Isolation procedures**.**
S	**S**	**S**	**S**	**S**	Evaluate scene for safety; if scene cannot be made safe, **DO NOT ENTER!**
S	**S**	**S**	**S**	**S**	Determine mechanism of injury or nature of illness.
S	**S**	**S**	**S**	**S**	Determine number of patients. Summon additional help in necessary.
S	**S**	**S**			If a potentially life-threatening situation exists, **request ALS.**
S	**S**	**S**	**S**	**S**	Perform initial assessment – if trauma patient obtain C-Spine control.
S	**S**	**S**	**S**	**S**	If any of the following condition exist treat immediately ad transport, with further assessment and treatment en route: • Impending or actual airway obstruction • Inadequate ventilation • Signs of Shock with altered LOC or absent bilateral radial pulses
S	**S**	**S**	**S**	**S**	Notify transporting agency of patient status.
S	**S**	**S**	**S**	**S**	If patient is high priority, including major mechanism of injury, perform rapid assessment with goal of transporting patient in **less than 10 minutes**.
	S	**S**	**S**	**S**	If patient is low priority, perform focused exam and history.
S	**S**	**S**	**S**	**S**	Treat and transport appropriately according to patient's status and condition.

Consult Medical Control for further consideration.

AG-3: Airway Management

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	**Evaluate airway on all patients.** If the patient is not breathing or the airway is comprised, continue with guideline.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched
S	**S**	**S**	**S**	**S**	Maintain cervical spine control on patients with suspected trauma.
S	**S**	**S**	**S**	**S**	Use head-tilt/chin-lift. If trauma is suspected, use the jaw-thrust maneuver.
S	**S**	**S**	**S**	**S**	If positioning does not open the airway and a foreign body is suspected, use foreign body airway maneuvers.
S	**S**	**S**	**S**	**S**	If there is blood, secretions or vomitus present, suction the airway for no longer than 15 seconds. If the airway immediately refills, alternate suctioning with 30 seconds of oxygenation and/or ventilation.
S	**S**	**S**	**S**	**S**	If the patient is not breathing, or breathing is not adequate, ventilate according to protocol.
S	**S**	**S**	**S**	**S**	Apply Oxygen
S	**S**	**S**	**S**	**S**	If the patient has an altered LOC **WITHOUT** a gag reflex, insert an oropharyngeal airway.
S	**S**	**S**	**S**	**S**	If the patient has an altered LOC **WITH** a gag reflex use a nasopharyngeal airway. DO NOT use NPA if head trauma is suspected.
	S	**S**	**S**	**S**	If the patient is unresponsive **WITHOUT a gag reflex** or in cardiac arrest and unable to secure airway via oropharyngeal or nasopharyngeal, perform **advanced airway,** procedures *if trained and authorized*.
	S	**S**	**S**	**S**	Re-evaluate airway status frequently.

Key Points/Considerations

- **Ventilation Techniques: use the most appropriate technique listed (in order of preference):**
  - Two person bag-valve-mask or pocket mask with one-way valve if BVM not available.
  - Oxygen powered flow restricted device- EXCEPT for children under the age of twelve years old.
  - One person bag-valve-mask
  - Assess patient for rise and fall of chest wall. If little or no chest wall motion, re-establish airway and try a different ventilation technique.

Consult Medical Control for further consideration.

AG-4: Oxygen Administration

FR	EMT	E	I	P	
S	S	S	S	S	**Use oxygen in the following situations:** • Shock • Respiratory emergencies • Neurologic emergencies • Cardiac emergencies • Trauma Patients
S	S	S			Provide oxygen per guidelines. If you are assisting ventilations provide at least 15 lpm to the ventilation device.
	S	S	S	S	Use appropriate sized mask or cannula for pediatric patients.
	S	S	S	S	If patient **does not tolerate** a non-rebreather mask, use a **nasal cannula** and document on the run report why a non-rebreather was not used.
	S	S	S	S	If the **patient is on home oxygen** and has respiratory, cardiac complaints or is in shock, provide high flow oxygen as described above. Be prepared to assist ventilation if necessary.
	S	S	S	S	If a patient is on home oxygen and complaint is **NOT** related to shock, respiratory or cardiac problems, continue administration of oxygen as the dose prescribed for the patient by physician.

Consult Medical Control for further consideration.

AM-1: Airway Obstruction

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	**Open the airway in all patients with compromised airflow:** • Suspect neck injury in all trauma patients who are unresponsive, complain of neck pain, have neck tenderness or deformity. If neck injury is suspected, perform a chin-lift or jaw-thrust with the neck in neutral position. Maintain neck stability at all times. • If no neck injury or trauma, perform a head tilt. Do not overextend the neck in small children.
S	**S**	**S**	**S**	**S**	Attempt to ventilate with Bag-valve –mask or face shield.
S	**S**	**S**	**S**	**S**	If the patient is **CONSCIOUS and the airway is obstructed**: • Perform up to 5 abdominal thrusts (use chest thrusts in advanced pregnancy). • Check airway. • Continue to perform sets of abdominal thrusts until the obstruction in relieved or the patient becomes unresponsive.
S	**S**	**S**	**S**	**S**	If the patient becomes **UNRESPONSIVE** or is **FOUND UNRESPONSIVE**: • Open the airway. • Visually inspect the airway for foreign body and remove if visible and accessible. • **DO NOT** perform a blind finger sweep. • Begin CPR.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
		S	**S**	**S**	Use Magill forceps if foreign body is visualized.
				O	For complete airway obstruction lasting ≥ 3 minutes, **perform surgical cricothyrotomy,** *if trained* and insert Shiley tracheostomy tube or equivalent endotracheal tube.

Consult Medical Control for further consideration.

AM-2: Abdominal Pain

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed.
S	**S**	**S**	**S**	**S**	Place patient in position of comfort.
	S	**S**	**S**	**S**	**Obtain 12-lead** ECG, *if trained* and transmit to ER, if capable.
		S	**S**	**S**	Establish IV access.
		S	**S**	**S**	Fluid therapy of 200 ml Normal Saline bolus for hypotension. Maintain a systolic BP > 100mmHg.

Key Points/Considerations
• Always rule-out trauma as a cause for undiagnosed abdominal pain. • Evidence of peritonitis (rigid abdomen, absent bowel sounds, rebound tenderness) usually indicates a surgical abdomen. • In women of childbearing age, consider the presence of an ectopic pregnancy as a cause of abdominal pain.

AM-3: Altered Level of Consciousness/Coma of Unknown Etiology

Background: Common causes include: diabetic complications, alcohol or drug intoxication, seizures, hypoxia, poisoning, stroke, sepsis, and head trauma.

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety. Perform initial assessment and treat priority conditions. **Administer oxygen and maintain airway per guideline.**
S	**S**	**S**	**S**	**S**	If patient is responsive only to painful stimuli **OR** unresponsive, maintain airway and ventilation and transport in lateral recumbent position.
S	**S**	**S**	**S**	**S**	Request Advanced Life Support, if not already dispatched.
S	**S**	**S**	**S**	**S**	Perform Cincinnati Stroke Scale [**refer to Stroke Guideline AM-30].**
S	**S**	**S**	**S**	**S**	In trauma, immobilize the neck/spine and place patient in a supine position.
S	**S**	**S**	**S**	**S**	Obtain medical history and history of present event: • Recent trauma • Alcohol/drug ingestion • Track marks • Medic Alert tag
		S	**S**	**S**	Monitor ECG, Pulse oximetry, end tidal CO2, **Obtain 12 lead** ECG, draw blood *if trained*.
S	**S**	**S**	**S**	**S**	Perform **rapid glucose determination,** *if trained***.**
	S	**S**	**S**	**S**	If the rapid glucose determination is < 60 mg/dl, or unable to determine glucose (suspicions of hypoglycemia) • Instant **GLUCOSE 15 grams** (1 tube) by mouth for the patient who is able to swallow on their own and is capable of protecting their airway. If no response, repeat dose in 15 minutes.
		S	**S**	**S**	Establish IV access of Normal Saline at KVO.
		S	**S**	**S**	If the rapid glucose determination is < 60 mg/dl or if glucose determination is not available and clinical assessment suggests hypoglycemia: **Administer DEXTROSE 50% 25gm [D_{50}]** IV/IO *if trained*.
	S	**S**	**S**	**S**	If **IV/IO** access attempted and **not successful** and hypoglycemia is suspected administer **GLUCAGON 1.0mg** IM.
	S	**S**	**S**	**S**	Should a patient **refuse transport** following administration of D50 or Glucagon, refer to **[A-13 - Statement of Medical Release Guidelines]**.
		S	**S**	**S**	If blood sugar is greater than 300mg/dl, run fluids at 1000ml/hr for the first liter, then 150ml/hr. Observe for signs of fluid overload.
		S	**S**	**S**	If no improvement and **narcotic overdose** suspected, **Administer NARCAN 2mg IV/IO/IM** over 2 minutes, titrate to respirations. Dosing may be repeated to a maximum of 4mg.
			S	**S**	**NOTE**: if sedation is required secondary to agitation following intubation: **VERSED 5mg** slow IVP titrated to effect. • If unable to readily establish IV, may give **Nasal VERSED 5mg.** If unable to readily establish IV or give medication nasally, give **VERSED 5mg IM.** Repeat dose in 5 minutes, if sedation is inadequate.

Consult Medical Control for further consideration.

AM-4: Allergic Reaction

DEFINITIONS:
MILD- local swelling and itching at the site.
MODERATE- hives and mild wheezing.

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen with NRB mask or BVM.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
	S	**S**	**S**	**S**	Monitor ECG, pulse oximetry, end tidal CO2, obtain 12 lead ECG, draw blood *if trained.*
S	**S**	**S**	**S**	**S**	If possible, place patient in supine position (upright if wheezing and not hypotensive).
		S	**S**	**S**	Establish IV access.
	S	**S**	**S**	**S**	If patient has wheezing Administer **ALBUTEROL 2.5mg**, *if trained,* via nebulizer. Back to back Albuterol treatments may be given if symptoms persist.
		S	**S**	**S**	Administer **DIPHENHYDRAMINE (Benadryl) 50 mg IM OR 25 mg IVP/IO** (over 1 minute).
			S	**S**	Administer **METHYLPREDNISOLONE (Solu-Medrol) 125 mg IV/IO**, *if trained*.
			S	**S**	Obtain ECG.
	S	**S**	**S**	**S**	Assess vital signs 5 minutes after administration. Contact **Medical Control** for further directions.

Key Points/Considerations
• **Symptoms can be immediate from time of exposure or may be delayed up to 60 minutes after exposure.**

Consult Medical Control for further consideration.

AM-5: Anaphylaxis – Severe Allergic Reaction

True Anaphylaxis is a generalized allergic reaction involving more than one body system that is potentially life threatening. AM-5: Anaphylaxis guideline should be followed in conjunction with AM-4: Allergic Reaction.

DEFINITIONS:
SEVERE- diffuse wheezing, pharyngeal swelling, dyspnea, HYPOPERFUSION, abnormal skill color, severe bronchospasm, laryngeal edema, stridor, and/or loss of peripheral pulses, impending death.

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety. Treat priority conditions.
S	**S**	**S**	**S**	**S**	If patient is hypotensive **Administer EPINEPHRINE 1:1,000 0.5 mg IM**. EMT's should use **EPI-PEN.**
		O	**O**	**O**	If patient does not respond to previous procedures or if patient is on Beta Blockers, Administer **GLUCAGON 1 mg** slow IV push over 2 minutes (patient is likely to vomit, particularly if **Glucagon** is pushed too fast).
		S	**S**	**S**	Repeat **EPINEPHRINE** once after 10 minutes if the response is inadequate and no contraindications develop.
	S	**S**	**S**	**S**	If patient is unresponsive and is not responding to the medication therapy, consider **advanced airway procedures** *per certification and training.*
			S	**S**	**Note:** If sedation is required secondary to agitation following endotracheal intubation: • **Adult: VERSED 5 mg** slow IVP titrated to effect. ➢ If unable to readily establish IV, may give **Nasal VERSED 5mg.** If unable to readily establish IV or give medication nasally, give **VERSED 5mg IM.** Repeat dose in 5 minutes, if sedation is inadequate.
			S	**S**	**EPINEPHRINE 1:10,000 0.5 – 1.0 mg** IV/IO over 5 minutes if **impending arrest.**

Key Points/Considerations
• Side effects of epinephrine may include myocardial ischemia, ventricular arrhythmias, and hypertension. Caution should be used in older patients, and patients with a history of CAD, DM, HTN.

Consult Medical Control for further consideration.

AM-6: Asthma
(Unable to speak, absent or greatly diminished breath sounds, tachypnea)

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions. Administer oxygen as needed.
	S	**S**			If equipped, apply and monitor **Pulse Oximetry** trends.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
			S	**S**	Monitor ECG, pulse oximetry, end tidal CO2, obtain 12 lead ECG, draw blood *if trained*.
	S	**S**	**S**	**S**	Assist patient with <u>prescribed</u> metered dose inhaler (MDI).
	S	**S**	**S**	**S**	Administer **ALBUTEROL 2.5mg** (1 unit dose), *if trained*, via hand held nebulizer. If in doubt call **Medical Control**. May <u>repeat</u> Albuterol in <u>5 minutes</u> if no or minimal patient improvement. • **INDICATIONS FOR ADMINISTERING NEBULIZER TREATMENT**: ➢ Asthma (Wheezes): REMEMBER when wheezes and lung sounds decrease this may NOT be from patient getting better. ➢ Emphysema ➢ Rhonchi Lung Sounds ➢ Anaphylactic Respiratory Distress • **CONTRAINDICATIONS**: Avoid in the following unless symptoms are severe, then call **Medical Control**: ➢ Chest Pain ➢ Pulse > 140/min. adults or > 180/min. children ➢ Systolic BP > 180 ➢ Rales/Crackles Lung Sounds ➢ Pitting Edema
		S	**S**	**S**	Establish IV access, NS at KVO or a saline lock.
			S	**S**	Administer **METHYLPREDNISOLONE (Solu-Medrol) 125 mg** IV/IO, *if trained*, for continued wheezing after <u>second</u> nebulizer treatment.
			O	**S**	For continued wheezing and difficulty breathing, Administer **MAGNESIUM SULFATE 45mg/kg**. Do not **exceed 2.5 grams**. <u>No repeat dosages.</u>
			S	**S**	If patient is at risk of **<u>IMMEDIATE RESPIRATORY FAILURE</u>** and condition deteriorates, administer **EPINEPHRINE 1:1,000 0.5mg IM** injection.
	S	**S**	**S**	**S**	Transport and notify hospital as soon as possible with goal to limit on scene time to 10 minutes or less.

Consult Medical Control for further consideration.

AM-7: Diabetic Emergencies

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen – BVM or NRB mask.
S	**S**	**S**	**S**	**S**	**Obtain blood glucose level*,** *if trained*. Check blood glucose reading before and after administration of any medication.
S	**S**				Request Advanced Life Support, if not already dispatched.
	S	**S**	**S**	**S**	Administer **Instant GLUCOSE 15 grams** (1 tube) orally via mucous membranes (between cheek and gums). If indicated, for hypoglycemic patient who **is able to swallow on their own and is capable of protecting their airway.** • May be repeated once, at same dose, if no response in 15 minutes.
		S	**S**	**S**	Establish IV.
		S	**S**	**S**	Monitor ECG, pulse oximetry, end tidal CO2, obtain 12 lead ECG, draw blood *if trained*.
		S	**S**	**S**	Administer **DEXTROSE 50% 25 gm** slow IV push for suspected hypoglycemia (derived from glucose value of < 60mg/dl or presentation with any degree of altered mentation or neurological abnormalities).
	S	**S**	**S**	**S**	Administer **GLUCAGON 1.0mg** IM, *if trained,* if indicated, for hypoglycemic patient who is not able to swallow on their own and/or is not capable of protecting their airway.
		S	**S**	**S**	**Fluid therapy for Hyperglycemia** (blood glucose > 300mg/dl) with associated signs and symptoms of hypoperfusion. • Infuse **1 liter of NS** over 30 to 60 minutes, followed by NS at 150mL/hr. Carefully and closely monitor patient for signs/symptoms of fluid overload.

Consult Medical Control for further consideration.

Key Points/Considerations
• Signs and symptoms of hypoperfusion include hypotension, delayed capillary refill and tachycardia. • Fluid therapy should be used with extreme caution in patients who cannot tolerate sudden, extreme fluid increases (renal failure, dialysis, CHF, elderly, etc.)

AM-8: Emotionally Disturbed/Agitated/Violent Patient

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Assure scene safety. Do not engage patient unless risk of harm is minimized by law enforcement or number of personnel present.
S	**S**	**S**	**S**	**S**	Perform initial assessment, treat priority conditions. Initiate O2 therapy per protocol. Obtain **blood glucose** reading *if trained and possible*.
S	**S**	**S**	**S**	**S**	Control environmental factors; attempt to move patient to a private area free of family and bystanders. **MAINTAIN ESCAPE ROUTE.**
S	**S**	**S**	**S**	**S**	Attempt de-escalation, utilize an empathetic approach. Ensure patient safety and comfort. **AVOID CONFRONTATION.**
S	**S**	**S**	**S**	**S**	**Ensure patient competency, if patient is competent consent is required. If patient is incompetent consent is not required.**
	S	**S**	**S**	**S**	**Physical Restraint:** • One person per limb plus head (5 minimum) • Restrain in the supine or left lateral recumbent position. **DO NOT** "hobble", "hog-tie" or "sandwich" between backboards. • Ensure Method of restraint does not affect breathing or circulation.
			O	**O**	If **chemical agitation** or **alcohol withdrawal** is suspected administer **VERSED 5 mg** slow IVP titrated to effect. • If unable to readily establish IV, may give **Nasal VERSED 5mg**.

Consult Medical Control for further consideration.

FR	EMT	E	I	P	
HYPERTHERMIA					
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen – BVM or NRB Mask.
S	**S**	**S**	**S**	**S**	Obtain accurate body temperature, if possible.
S	**S**	**S**	**S**	**S**	Move to cooler environment and remove excess clothing, protect from further heat exposure.
S	**S**	**S**	**S**	**S**	Request Advanced Life Support, if not already dispatched.
		S	**S**	**S**	Establish IV access.
S	**S**	**S**	**S**	**S**	**Heat Emergencies:** **Heat Exhaustion**: • If patient is fully awake, able to protect airway, and able to tolerate liquids begin re-hydration with water. Do not give large amounts of fluid rapidly. • Begin rapid cooling. If temperature is >103 degrees F, cool patient with wet towels applied to areas where major vessels come close to the skin surface, (i.e., carotid, femoral, brachial). • Remove cooling agent when temperature reaches 100 degrees F to avoid too rapid of a temperature drop which may initiate the shivering process (which will increase temperature). • Transport immediately. **Heat Stroke**: • Optimal treatment with aggressive evaporation cooling is indicated (using fine mist water spray and forced air stream with fans); • Otherwise apply ice packs to groin and axillae. • Continue cooling until core temperature reaches, or is less than 102.2 degrees F (to avoid too rapid of a temperature drop), or shivering begins (which will increase temperature).
		S	**S**	**S**	**Heat Cramps/Heat Exhaustion: Fluid therapy 10ml/kg IV NS** with evidence of hypovolemia or hemodynamic compromise, or severe heat cramps with painful involuntary muscle spasms.
		S	**S**	**S**	**Heat Stroke:** Cautious fluid therapy initially at **250 mL/hr** of NS. If evidence of hypovolemia or hemodynamic compromise exists, then initiate fluid therapy at 20 mL/kg IV bolus. • *Maintain peripheral pulses. Monitor for signs or symptoms of volume overload.*

HYPOTHERMIA					
S	**S**	**S**	**S**	**S**	Initial therapy for all patients includes: • Remove wet garments. • Maintain horizontal position. • Avoid rough movement. • Monitor core temperature, if possible. • **DO NOT** administer anything by mouth. • If patient is alert, responsive and shivering, use active external re-warming by placing heat packs in areas where major vessels come close to the skin surface, (i.e., carotid, femoral, brachial). • If patient has an altered LOC **OR** patient is not shivering use passive re-warming measures ONLY (blankets, warm environment, etc.)
S	**S**	**S**	**S**	**S**	**Hypothermic Cardiac Arrest**: • Palpate carotid pulse for 30 seconds, • Intermediates & Paramedics should run an ECG strip. • Begin CPR. • Use caution when administering defibrillation or medication until the patient is rewarmed. • Resume CPR immediately. • Ventilate with warm, humid oxygen.
	S	**S**	**S**	**S**	Transport as soon as possible.
			S	**S**	For unresponsive apneic patients, perform endotracheal intubation and secure tube. Confirm tube placement every time the patient is moved. AVOID AGGESSIVE OR ROUGH HANDLING WHICH MAY CAUSE VF/VT, SUCH AS SUDDEN MOVEMENTS AND AIRWAY MANEUVERS.
			S	**S**	Monitor ECG and pulse oximetry. If cardiac dysrhythmias are present, refer to the specific guidelines.
			O	**O**	**DO NOT** use more than a single dose of cardiac drugs or external pacing unless ordered by **Medical Control**.

Consult Medical Control for further consideration.

Key Points/Considerations
• Consider consulting online medical control for potential Medivac transfer of patient to a center capable of heart/lung bypass for the severely hypothermic patients.

AM-10: Hypertensive Emergency

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen – BVM or NRB Mask.
S	**S**	**S**	**S**	**S**	Obtain history (SAMPLE and OPQRST).
	S	**S**	**S**	**S**	Transport in a quiet environment.
	S	**S**	**S**	**S**	Establish IV access.
		S	**S**	**S**	Aggressive attempts to lower BP **should not** be made without correcting underlying medical problem.

Consult Medical Control for further consideration.

AM-11: Hypotension (Shock)

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen- BVM or NRB mask.
S	**S**	**S**	**S**	**S**	If anaphylaxis, refer to ***[AM-5: Anaphylaxis]*** guideline.
S	**S**	**S**	**S**	**S**	Repeat vital signs every 5 minutes.
		S	**S**	**S**	**Establish IV/IO** NS as appropriate *per certification and training* and Administer **fluid therapy of 20ml/kg** IV bolus for hypotension.
		S	**S**	**S**	Repeat until maintaining peripheral pulses, unless signs of CHF are present.
			O	**O**	**Medical Control Required**: If refractory to fluid therapy or if CHF is present, consider **DOPAMINE 2 to 20 µg /kg/min**. IV/IO infusion to maintain peripheral pulses.

Consult Medical Control for further consideration.

Key Points/Considerations
• Dopamine should not be given to a patient who is significantly volume depleted. • Hypovolemia must be corrected prior to Dopamine infusion to maximize potential for improved perfusion. • Most non-traumatic hypotension is a result of one of the shock syndromes or Hypovolemia. It is important to manage the cause of the problem if it can be identified. • Is there a history of GI bleeding, cardiac problems or CVA? • Is the patient elderly? • Orthostatic changes are defined as a lowering of the patient's blood diastolic pressure by 10 points and elevation of their pulse rate by 20 points as a result of positional change (i.e. lying to sitting, sitting to standing.

AM-12: Kidney Stones

FR	EMT	E	I	P	
S	S	S	S	S	Perform initial assessment and treat priority conditions.
S	S	S	S	S	Allow patient to be transported in position of most comfort.
S	S	S	S	S	Be prepared for vomiting due to the severe pain, refer to ***[AM-13: Nausea/Vomiting]*** guideline.
S	S	S			Request Advanced Life Support, if not already dispatched.
		S	S	S	Establish IV access.
		S	S	S	Administer **Normal Saline wide open to a maximum of 1 liter** if the patient is < 50 years of age and has no cardiac history. Monitor the patient for signs of fluid overload.
For severe pain only:					
			S	S	Administer **FENTANYL 50mcg** via IV over 3-5 minutes. Fentanyl should be titrated to patient response with careful attention to the patient's blood pressure and perfusion. May repeat **FENTANYL 50mcg** in 5 minutes for continued severe pain; refer to ***[AM-19: Pain Management]*** guideline.
			O	O	**Medical Control Required** for further consideration of Fentanyl.
			S	S	Continuous ECG, pulse oximetry and blood pressure monitoring (every 5 minutes) are mandatory during and after the administration of Fentanyl.

Consult Medical Control for further consideration.

AM-13: Nausea/Vomiting

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions. Initiate oxygen therapy per guideline.
S	**S**	**S**	**S**	**S**	Allow patient to be transported in position of most comfort.
		S	**S**	**S**	Establish IV access.
			S	**S**	For patients who have had prolonged vomiting, who are actively vomiting, or complaining of nausea from any cause, Administer **ONDANSETRON* (Zofran) 4mg** IV/IM, *if trained.* May be repeated **once** in 5 minutes. Consult **Medical Control** for further drug administration.

Consult Medical Control for further consideration.

AM-14: Obstetrics – Normal Delivery

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
	S	**S**	**S**	**S**	If delivery is not imminent: Transport the patient in position of comfort.
S	**S**	**S**	**S**	**S**	If delivery is imminent: Place supine position, knees to chest. Coach breathing until the head is clearly visible. **Provide early notification to the receiving facility.**
S	**S**	**S**	**S**	**S**	When crowning is clearly visible: • Drape vaginal area with sterile towels. • Stop the rescue vehicle. • Coach pushing while supporting the head with a gloved hand. **NOTE**: Apply gentle pressure to avoid an explosive delivery. • After the head delivers, gently use the rubber bulb syringe to suction the infant's mouth, then nostrils for 3-5 seconds. • Check the neck: Un-wrap any umbilical cord loops over the infant's head one-by-one. • If unable to unwrap the cord: ➢ Clamp the cord loop in two places a few inches apart. ➢ Cut the cord between the clamps. • Allow the head to rotate to one side. • Hold the head between your hands: ➢ Gently guide the head downward to deliver the upper shoulder, then ➢ Gently guide the head upward to deliver the lower shoulder. • Once the baby is delivered, keep the infant level with the vagina until the umbilical cord stops pulsating. • Lay the baby on his side with his head slightly lower than his body. (This is done to allow blood, fluid, and mucus to drain from the mouth and nose). **Keep the infant warm**. • Suction the infant again; mouth first followed by the nose. • Clamp the cord in two places 7 to 10 inches away from baby. • Cut the cord between the clamps. Monitor cord ends for continued bleeding. Apply sterile dressings to cord ends.
S	**S**	**S**	**S**	**S**	Externally massage the uterus to decrease bleeding.
S	**S**	**S**	**S**	**S**	Follow ***[AM-15: Obstetrics- Care of the Newborn]*** and ***[AM-16: Obstetrics- Delivery of the Placenta]*** guidelines.
S	**S**	**S**	**S**	**S**	Upon arrival to the receiving facility, the EMS provider must properly identify the infant. This is especially important with multiple births.

Consult Medical Control for further consideration.

AM-15: Obstetrics – Care of the Newborn

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen – BVM or NRB Mask.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
S	**S**	**S**	**S**	**S**	If the infant does not cry, rub its back vigorously as you begin drying.
S	**S**	**S**	**S**	**S**	If poor response, follow ***[AM-17: Obstetrics – Newborn Resuscitation***] guideline.
S	**S**	**S**	**S**	**S**	If good response, dry the infant and wrap it in a dry towel. Keep newborn warm.
S	**S**	**S**	**S**	**S**	Determine the **APGAR Score** at 1 and 5 minutes post-delivery. Refer to ***[R-6: Pediatric Reference Chart].***
S	**S**	**S**	**S**	**S**	If the APGAR Score is < 7, give oxygen at 8-12 L/min. blow-by.
S	**S**	**S**	**S**	**S**	Check the cord for bleeding. If necessary place a second umbilical clamp.
S	**S**	**S**	**S**	**S**	Breast-feeding may begin. Keep the infant warm and dry.
S	**S**	**S**	**S**	**S**	Resume transport as soon as feasible.
S	**S**	**S**	**S**	**S**	Follow ***[AM-16: Obstetrics – Delivery of Placenta]*** guideline.

Consult Medical Control for further consideration.

AM-26: Obstetrics – Delivery of Placenta

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Externally massage the uterus to decrease bleeding.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
	S	**S**	**S**	**S**	Transport immediately. Repeat vital signs every 5 minutes.
S	**S**	**S**	**S**	**S**	Allow the placenta to deliver spontaneously. **DO NOT** pull on the cord. • Save the entire placenta and cord after the delivery and transport with mother.
S	**S**	**S**	**S**	**S**	Apply local pressure to bleeding lacerations.
S	**S**	**S**	**S**	**S**	If vaginal bleeding occurs, massage the fundus. **DO NOT** pack the vagina.
S	**S**	**S**	**S**	**S**	If signs of shock occur: • Administer high flow oxygen. • Place patient in the Trendelenburg position, if indicated.
	S	**S**	**S**	**S**	**Notify Medical Control** or receiving facility of the patient's condition.
		S	**S**	**S**	If patients presents with signs of shock, Establish large bore peripheral IV access and administer **Normal Saline 20ml/kg** until peripheral pulses are obtained and maintained.

Consult Medical Control for further consideration.

Key Points/Considerations
• Placental delivery begins with a brief return of the labor pains that stopped when the baby was born. There will be a noticeable lengthening of the umbilical cord, which indicates the placenta has separated from the uterus. In most cases, the placenta will be expelled within a few minutes after the baby is born.

AM-17: Obstetrics – Newborn Resuscitation

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Gently bulb suction the infant's mouth, then nostrils for 3-5 seconds.
S	**S**	**S**	**S**	**S**	Rub infants back vigorously. Simultaneously dry and begin warming.
S	**S**	**S**	**S**	**S**	Keep the infant warm and dry during transport to medical facility. Upon arrival to the receiving facility, the EMS provider must properly identify the infant per hospital protocol. This is especially important with multiple births.
S	**S**	**S**	**S**	**S**	If thick meconium present, **DO NOT** stimulate prior to suctioning.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
If respirations are inadequate:					
S	**S**	**S**	**S**	**S**	Open the airway using chin lift, carefully maintaining the head and neck in neutral position. • **CAUTION**: Do not overextend the neck. Placing padding under shoulders is helpful.
S	**S**	**S**	**S**	**S**	Deliver 40 breaths per min. via mouth-to-nose/mouth-to-mask or with a neonate BVM. • **CAUTION**: Use just enough air to make the infant's chest rise.
S	**S**	**S**	**S**	**S**	Check the brachial pulse: • Perform chest compressions if hear rate < 60/min. using two fingers to depress the sternum ¾ inch just below the nipple line ad a rare of 120/min. (3 compression per breath).
	S	**S**	**S**	**S**	Transport as soon as feasible. Repeat vital signs every 5 minutes.
S	**S**	**S**	**S**	**S**	Continue CPR until the pulse is ≥ 100/min.
S	**S**	**S**	**S**	**S**	When normal breathing starts, administer oxygen via blow-by technique. • **CAUTION**: Cool oxygen can cause bradycardia.

Consult Medical Control for further consideration.

FR	EMT	E	I	P	
Prolapsed Cord / Limb Presentation:					
S	**S**	**S**	**S**	**S**	Perform initial assessment, treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen – BVM or NRB Mask.
S	**S**	**S**	**S**	**S**	**Do not** attempt to push the cord or limb back in.
S	**S**	**S**	**S**	**S**	Insert two fingers of gloved hand into vagina to raise the presenting part of the fetus off the cord. Simultaneously, check cord for pulsations in vagina, and push baby's head away to keep pressure off of cord (maintain throughout transport).
S	**S**	**S**	**S**	**S**	Place mother in a knee-chest position (if possible). If mother is unable to comply, place in the Trendelenburg position instead.
S	**S**	**S**	**S**	**S**	Continue to hold pressure off of cord. Keep cord moist with sterile saline.
	S	**S**	**S**	**S**	Transport immediately to Labor and Delivery with early notification to **Medical Control.**
Breech Birth:					
S	**S**	**S**	**S**	**S**	Perform initial assessment, treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen – BVM or NRB Mask.
S	**S**	**S**	**S**	**S**	Support the baby's extremities or buttocks until the upper back appears.
S	**S**	**S**	**S**	**S**	Grasp the iliac wings and apply gentle downward traction. Do not apply traction to the baby's legs or back (this may cause adrenal hemorrhage).
S	**S**	**S**	**S**	**S**	Rotate the infant's body in the direction of least resistance – either right or to the left. By alternate rotation, both shoulders should deliver posteriorly.
S	**S**	**S**	**S**	**S**	By splinting the humerus and applying gentle traction with the two fingers, the two arms can be delivered.
S	**S**	**S**	**S**	**S**	Gentle abdominal compression of the uterus will engage the baby's head. Apply downward traction until the baby's hair is visible. Swing the legs upward until his body is in a vertical position. This maneuver permits the delivery of the head.
S	**S**	**S**	**S**	**S**	Suction the mouth and nostrils using a bulb syringe.
S	**S**	**S**	**S**	**S**	Cut the cord utilizing standard procedures.
S	**S**	**S**	**S**	**S**	Keep the infant warm, including the head.
S	**S**	**S**	**S**	**S**	Record the time of birth.
S	**S**	**S**	**S**	**S**	Assess and record the **APGAR Score** at 1 and 5 minutes, refer **to *[R-6: Pediatric Reference Chart]*** for the APGAR Score.
		S	**S**	**S**	A pregnant patient in cardiac arrest should be managed according to ACLS Guidelines with rapid transport to the hospital and early notification to the emergency department.

		S	**S**	**S**	When the patient is expecting active, sustained, tonic-clonic seizure activity this is likely third trimester eclampsia.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched
S	**S**	**S**	**S**	**S**	Perform **rapid glucose determination,** *if trained*.
		S	**S**	**S**	Establish IV access.
		S	**S**	**S**	If glucose determination is < 60 mg/dl, administer **DEXTROSE 50% 25gm** IV/IO.
Consult Medical Control for further consideration.					
			O	**O**	Administer **MAGNESIUM SULFATE 10% 4 grams** IV/IO push at no greater than 1 gram per minute until seizure stops or a **maximum dose of 4 grams** has been given.
			O	**O**	If the seizure persists and the rapid glucose determination is > 60 mg/dl, administer **VERSED 5mg** slow IV/IO push titrated to effect. Repeat dose in 5 minutes if seizure persists. • If unable to readily establish IV, may give **Nasal VERSED 5mg.** If unable to readily establish IV or give medication nasally, give **VERSED 5mg IM.**

Consult Medical Control for further consideration.

Key Points/Considerations

- Manual vaginal examinations are never to be done in the pre-hospital setting
- A premature birth is considered anything less than 38 weeks gestation or 5.5 lbs of body weight
- If birth is imminent, stay and deliver the baby. If high risk or complicated, attempt delivery en route to the hospital
- Document presentation, date and time of birth (baby and placenta), appearance of amniotic fluid, APGAR's, appearance of placenta and any resuscitation procedures required.
- Upon arrival to the receiving facility, the EMS provider must properly identify the infant per hospital protocol. This is especially important with multiple births. Application of birthing bands for mother and baby should be considered.
- FOR THIRD TRIMESTER ECLAMPSIA:
- How many seizures has the patient had? Is there a history of seizures? Does the patient take medications for seizures?
- Was the seizure preceded by trauma? Does the patient have a history of diabetes?
- If present during initial onset of seizure activity, thoroughly document onset of seizure including initial site(s) seizure began first, time of seizure onset and duration.

AM-19: Pain Management

Background: Pain medication should be given in an amount sufficient to ***manage the pain***, not necessarily eliminate it.

I	P	
S	**S**	Perform initial patient assessment and obtain pertinent medical history. Initiate oxygen therapy per protocol.
S	**S**	Treat for shock if needed.
S	**S**	Place patient on cardiac monitor and pulse oximetry.
S	**S**	Establish IV access. Initiate fluid bolus as necessary.
S	**S**	Administer **FENTANYL 50mcg** via IV/IO over 3-5 minutes. May repeat **FENTANYL 50mcg** in 5 minutes for continued severe pain. ***Monitor respirations and BP closely.***
O	**O**	Contact **Medical Control** to administer additional medication and/or carry out additional procedures.

Pain Management Criteria: Any patient presenting with a complaint of significant pain, including:

- Significant extremity injury(ies)
- Burn patients
- Crush injury patients
- Prolonged extrication
- Severe non-traumatic back and spinal pain
- Patient presenting with signs & symptoms associated with kidney stones with a previous history of same

Do not administer pain management, except as directed by MEDICAL CONTROL, with the following:

- Multi-system trauma
- Abdominal pain
- Hypoperfusion
- Neck pain
- Head Trauma
- Altered Level of Consciousness

Consult Medical Control for further consideration.

Key Points/Considerations
• **Note:** Continuous ECG, pulse oximetry and blood pressure monitoring (every 5 minutes) are mandatory during and after the administration of nitrates and/or Fentanyl. • Response to analgesics may vary dramatically from patient to patient. • The IV route is preferred for narcotic analgesic administration. Analgesics should generally be administered by the IV route slowly and in small increments until desired pain relief is attained. • The IM or IO route may be used in cases where IV access cannot be obtained. **Contact Medical Control for IM dosing.**

AM-20: Poisoning – Absorbed

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety. **Do not enter** unless properly trained and equipped.
S	**S**	**S**	**S**	**S**	Remove patient from atmosphere and assure decontamination by trained providers, if applicable.
S	**S**	**S**	**S**	**S**	Perform initial assessment, treat priority conditions. Initiate oxygen therapy per guideline.
S	**S**	**S**	**S**	**S**	Obtain history of incident (events leading to the patient's condition). • Identify substance and determine time of exposure. • Determine amount of toxic substance present. • Obtain Material Safety Data Sheets (MSDS).
S	**S**	**S**	**S**	**S**	Remove clothing and brush off any dry remaining substance.
S	**S**	**S**	**S**	**S**	Flush skin and mucous membranes with copious amounts of water, unless contraindicated by product. Consult MSDS, online medical direction, Poison Control or CHEM-TREC.
S	**S**	**S**	**S**	**S**	Transport immediately. Advise receiving facility of contaminated patient to allow preparation of the Emergency Department.
S	**S**	**S**	**S**	**S**	If patient has an altered LOC place patient in left lateral recumbent position and prepare to suction the airway as necessary.
S	**S**	**S**	**S**	**S**	Perform **rapid glucose determination***, if trained***.**
	S	**S**	**S**	**S**	**Obtain 12 Lead,** *if trained***.**
		S	**S**	**S**	If the patient is short of breath and assessment reveals wheezing, Administer **ALBUTEROL 2.5 mg** via nebulizer. May be repeated if necessary.
		S	**S**	**S**	Establish IV access.
			S	**S**	Monitor ECG and pulse oximetry.
			O	**O**	**VERSED 5 mg slow IVP titrated to effect**. if needed for extreme agitation or hallucinations. • If unable to readily establish IV, may give **Nasal VERSED 5mg.** If unable to readily establish IV or give medication nasally, give **VERSED 5mg IM.**

Consult Medical Control for further consideration.

Key Points/Considerations
• **Note:** Be cautious of placing a patient in an enclosed environment when noxious fumes from the exposure could pose a risk to the provider.

AM-21: Poisoning – Alcohol-Related Emergencies

Background: Acute intoxication can cause behavioral changes and respiratory depression, especially if other drugs are involved.

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen – BVM or NRB mask.
S	**S**	**S**	**S**	**S**	Obtain history of events leading to the patient's condition. • Breath odor • Track marks • Medication Bottles (bring with patient to Emergency Department) • Trauma • Medic Alert Tag
S	**S**	**S**			Request Advanced Life Support; if not already dispatched.
	S	**S**	**S**	**S**	Transport immediately.
S	**S**	**S**	**S**	**S**	**Perform glucose determination,** *if trained*.
		S	**S**	**S**	Establish IV access.
		S	**S**	**S**	Administer **DEXTROSE 50% 25 gr [D50]** through a free flowing IV.
			S	**S**	Monitor ECG.
			O	**O**	**VERSED 5 mg slow IVP titrated to effect** if needed for extreme agitation or hallucinations. • If unable to readily establish IV, may give **Nasal VERSED 5mg.**

Consult Medical Control for further consideration.

Key Points/Considerations
• Rule out injuries that may have been sustained while under the influence of alcohol and/or other drugs.

AM-22: Poisoning – Calcium Channel Blocker

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed.
S	**S**	**S**	**S**	**S**	Obtain history of events leading to the patient's condition. • Breath odor • Track marks • Medication Bottles (bring with patient to Emergency Department) • Trauma • Medic Alert Tag
	S	**S**	**S**	**S**	Transport immediately.
S	**S**	**S**			Request Advanced Life Support; if not already dispatched.
S	**S**	**S**	**S**	**S**	**Perform glucose determination***, if trained***.**
		S	**S**	**S**	Establish IV access of Normal Saline and titrate rate to maintain peripheral pulses.
			S	**S**	If patient's level of consciousness continues to deteriorate, consider endotracheal intubation.
			S	**S**	Monitor ECG and pulse oximetry: If cardiac dysrhythmias are present, refer to specific protocols.
			O	**O**	If patient does not respond to above treatment or patient is on Beta Blockers, Administer **GLUCAGON 1mg** via slow IV/IO push (patient is likely to vomit, particularly if Glucagon is pushed too fast).
			S	**S**	If QRS is > .12, Administer **SODIUM BICARBONATE 50mEq** IV/IO until QRS narrows. **Medical Control Required** for repeat dose of Sodium Bicarbonate.
			S	**S**	If patient is bradycardic, Administer **ATROPINE 1mg** IV/IO. **Medical Control Required** for repeat dose of Atropine.

Consult Medical Control for further consideration.

Key Points/Considerations
• Common Calcium Channel Blockers include Verapamil and Diltiazem/Cardiazem. • Be prepared for seizures.

AM-23: Poisoning – Ingested

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety. Do not enter until authorized to do so by law enforcement.
S	**S**	**S**	**S**	**S**	Remove patient from atmosphere and assure decontamination by trained providers, if applicable.
	S	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen – BVM or NRB mask.
S	**S**	**S**	**S**	**S**	Obtain history of events leading to the patient's condition. • Identify substance and determine time of exposure. • Determine amount of toxic substance present. • Determine if concurrent injuries are present. • Obtain Material Safety Data Sheets (MSDS). • Consult Chemtrec, Poison Control or Medical Direction.
	S	**S**	**S**	**S**	Transport immediately.
S	**S**	**S**	**S**	**S**	If patient has an altered LOC place patient in left lateral recumbent position and prepare to suction the airway as necessary. Be prepared for vomiting.
S	**S**	**S**	**S**	**S**	**Perform glucose determination,** *if trained***.**
		S	**S**	**S**	Establish IV access.
			S	**S**	Monitor ECG and pulse oximetry.
			O	**O**	If QRS > .12, Administer **SODIUM BICARBONATE 50mEq** via slow IV/IO push until QRS narrows. Repeated doses of Sodium Bicarbonate should be under strict Medical Control direction.

Consult Medical Control for further consideration.

AM-24: Poisoning – Inhaled

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Remove patient from atmosphere and assure decontamination by trained providers, if applicable.
	S	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Place patient on NRB mask.
S	**S**	**S**	**S**	**S**	Obtain history of events leading to the patient's condition. • Identify substance and determine time of exposure. • Determine amount of toxic substance present. • Determine if concurrent injuries are present. • Obtain Material Safety Data Sheets (MSDS). • Consult Chemtrec, Poison Control, or Medical Direction.
	S	**S**	**S**	**S**	Transport immediately. Advise receiving facility of contaminated patient to allow preparation of the Emergency Department.
S	**S**	**S**	**S**	**S**	If patient has an altered LOC place patient in left lateral recumbent position and prepare to suction the airway as necessary.
S	**S**	**S**	**S**	**S**	**Perform glucose determination,** *if trained***.**
		S	**S**	**S**	If the patient is short of breath and assessment reveals wheezing or decreased breath sounds, Administer **ALBUTEROL 2.5mg** via hand held nebulizer. May be repeated if necessary.
		S	**S**	**S**	Establish IV access.
			S	**S**	Monitor ECG and pulse oximetry
			O	**O**	**Consider CPAP** *per certification and training*.
			O	**O**	**Medical Control Required**: **VERSED 5 mg slow IVP titrated to effect**, if needed for extreme agitation or hallucinations. • If unable to readily establish IV, may give **Nasal VERSED 5mg.** If unable to readily establish IV or give medication nasally, give **VERSED 5mg IM.**

Consult Medical Control for further consideration.

AM-25: Poisoning – Narcotic Overdose

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen – BVM or NRB mask.
S	**S**	**S**	**S**	**S**	Obtain history of events leading to the patient's condition. • Breath Odor • Track Marks • Medication Bottles (bring with patient to the Emergency Dept.) • Trauma? • Medic Alert Tag
S	**S**	**S**	**S**	**S**	Transport immediately.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
S	**S**	**S**	**S**	**S**	**Perform glucose determination,** ***if trained*****.**
		S	**S**	**S**	Establish IV of Normal Saline and titrate rate to maintain blood pressure.
		S	**S**	**S**	If blood sugar reading is < 60mg/dl, Administer **Dextrose 50% 25gm [D50]**.
		S	**S**	**S**	If patient has respiratory depression, Administer **NARCAN 0.8 to 2.0mg** slow IVP titrated to respirations. If unable to establish IV, Administer **NARCAN 1.6 mg** IM in 2 injections (0.8mg per injection). Dosing may be repeated to a **maximum of 4mg.**
			S	**S**	If patient's level of consciousness continues to deteriorate, consider endotracheal intubation. If patient is intubated, **Do Not** administer Narcan.
			S	**S**	Monitor ECG and pulse oximetry; treat life-threatening dysrhythmias as appropriate.

Consult Medical Control for further consideration.

AM-26: Poisoning – Organophosphate Poisoning

Background: Organophosphate insecticides are the insecticides of choice in the agricultural world and are the most common cause of organophosphate poisoning.

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Remove patient from atmosphere and assure decontamination by trained providers, if applicable.
S	**S**	**S**	**S**	**S**	Obtain history of exposure. • Identify the substance. • Determine time of exposure. • Determine amount of toxic substance present. • Determine if concurrent injuries are present. • Obtain Material Safety Data Sheets (MSDS). • Contact Chemtrec, Poison Control or Medical Direction.
S	**S**	**S**	**S**	**S**	Flush skin and mucous membranes, if applicable.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen – BVM or NRB mask.
S	**S**	**S**	**S**	**S**	If patient's LOC is decreased, place patient in left lateral recumbent position and prepare to suction airway as necessary.
	S	**S**	**S**	**S**	Transport immediately. Provide early notification to receiving facility of contaminated patient to allow preparation of the Emergency Department.
S	**S**	**S**	**S**	**S**	**Perform rapid glucose determinatio**n*, if trained*.**
		S	**S**	**S**	Establish IV of Normal Saline.
			S	**S**	Administer **ATROPINE 1mg** IV/IO every minute. Titrate to drying of respiratory secretions.
			O	**O**	**Apply CPAP** *if trained,* as a treatment for pulmonary edema/crackles resulting from exposure to chocking agents.
			O	**O**	If patient seizing, administer **VERSED 5mg** slow IV push titrated to effect. May repeat dose in 5 minutes if seizures persist. • If unable to readily establish IV, may give **Nasal VERSED 5mg.** If unable to readily establish IV or give medication nasally, give **VERSED 5mg IM.**

Consult Medical Control for further consideration.

Key Points/Considerations
• Signs and symptoms of Organophosphate poisoning: **SLUDGE** ➢ **S**: Salivation; **L**: Lacrimation; **U**: Urination; **D**: Defecation; **G**: Gastrointestinal distress; **E**: Emesis • Common sources of organophosphate poisoning include pesticides and possible bioterrorist activity.

AM-27: Poisoning – Tricyclic Antidepressant Overdose

FR	EMT	E	I	P	
S	S	S	S	S	Perform scene safety.
S	S	S	S	S	Perform initial assessment and treat priority conditions.
S	S	S	S	S	Administer oxygen as needed.
S	S	S	S	S	If patient's LOC is decreased, place in left lateral recumbent position and have suction ready.
S	S	S	S	S	Obtain history of exposure. • Breath Odor • Track Marks • Medication Bottles (bring with patient to the Emergency Dept.)
	S	S	S	S	Transport immediately.
S	S	S	S	S	**Perform rapid glucose determination,** *if trained*.
		S	S	S	Establish IV of Normal Saline and titrate rate to blood pressure.
		S	S	S	If blood sugar reading is < 60mg/dl, refer to administer **Dextrose 50% 25 gm [D50]**.
			S	S	If patient's LOC continues to deteriorate, consider endotracheal intubation.
			S	S	Monitor ECG and pulse oximetry: If cardiac dysrhythmias are present, refer to specific protocols.
			S	S	If patient has a QRS > .12 seconds: Administer **SODIUM BICARBONATE 50mEq IV/IO** (until QRS narrows). (Effects of Sodium Bicarbonate may only last 10-15 minutes, therefore Medical Control Required to repeat dose): • Ventricular dysrhythmias • Seizures • Hypotension

Consult Medical Control for further consideration.

Key Points/Considerations
• Common agents include amitriptyline (Elavil), amoxapine, climipramine, doxepin, imipramine, and nortriptyline. Be prepared for seizures and for patients to become combative.

AM-28: Respiratory Distress to CHF (Cardiac CHF, Pulmonary Edema)

(CHF, pulmonary edema): (Crackles, edema, JVD)

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions. Administer oxygen as needed.
	S	**S**	**S**	**S**	Monitor ECG, pulse oximetry, end tidal CO2, obtain 12 lead ECG as appropriate per certification and training.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
		S	**S**	**S**	Establish IV access via saline lock.
		S	**S**	**S**	**Listen to Lung Sounds: Crackles, edema, JVD:** **NITROGLYCERIN 0.4mg** SL every 5 minutes with a SBP > 100mmHg. Maximum 3 tablets (should still be administered even if patient has taken their own NTG).
		S	**S**	**S**	Apply **1 inch of 2% NITROPASTE (15mg)** topically keeping SBP > 100mmHg. IF SBP fall < 100mmHg, wipe off NITROPASTE with a cloth and gloved hands.
			O	**O**	**Consider CPAP** *per training and certification.*
			O	**O**	Administer **FUROSEMIDE (Lasix) 40mg** IV or 2.5 times normal prescription dose, not to exceed 100mg.
			O	**O**	Administer **DOPAMINE Infusion (Intropin) 5mcg/kg/min** and increase by 5 mcg/kg/min every 10 minutes **until SBP > 100mmHg**. *(if trained*). DO NOT exceed infusion rate of 20mcg/kg/min unless ordered from Medical Control.
			O	**O**	Anxiety-detrimental to patient's condition, administer **VERSED 2.5mg** slow IVP titrated to effect. • If unable to readily establish IV, may give **Nasal VERSED 2.5mg.** If unable to readily establish IV or give medication nasally, give **VERSED 2.5 mg IM.**

Key Points/Considerations
• Hypotension in pulmonary edema may indicate poor cardiac function. Aggressive use of diuretics and nitroglycerin could result in significant hypotension and further reduction of cardiac output. Contact Medical Control to discuss treatment options in these patients. • All patients (male or female) who would receive Nitroglycerin according to the protocol must be questioned about taking Viagra, Levitra, or Cialis. Any patient that has taken these medicines within the previous 24 hours should NOT receive any form of nitrates as irreversible hypotension may occur. Contact **Medical Control** for further guidance in correctly treating these patients. • Note: Continuous EKG, pulse oximetry and blood pressure monitoring (every 5 minutes) are mandatory during and after the administration of nitrates and/or Fentanyl.

AM-29: Seizures

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Protect the actively seizing patient. Do not attempt to restrain the patient. Do not attempt to place a tongue blade or bite block. Protect the patient's dignity by removing bystanders.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen- BVM or NRB mask.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
S	**S**	**S**	**S**	**S**	Obtain pertinent medical history. Often the only information that is available to the ED staff is what EMS provides.
S	**S**	**S**	**S**	**S**	Perform **rapid glucose determination,** *if trained*.
S	**S**	**S**	**S**	**S**	Place patient in left lateral recumbent position and have suction ready.
	S	**S**	**S**	**S**	Transport in a quiet, non-stimulating environment. Avoid the use of lights and sirens, if possible to avoid precipitating more seizure activity.
		S	**S**	**S**	Establish IV of Normal Saline KVO.
		S	**S**	**S**	If blood sugar reading is < 60mg/dl, administer **Dextrose 50% 25gm [D50].**
			S	**S**	Monitor ECG: If cardiac dysrhythmias are present, refer to specific protocols.
		S	**S**	**S**	Administer **VERSED 5mg slow IV/IO** push titrated to effect. May repeat dose in 5 minutes if seizure persist. • If unable to readily establish IV, may give **Nasal VERSED 5mg.** If unable to readily establish IV or give medication nasally, give **VERSED 5mg IM.**
			S	**S**	If eclamptic seizure is suspected, Administer **MAGNESIUM SULFATE 4g** slowly via IV/IO and check reflexes.

Key Points/Considerations
• There are several vital pieces of information needed by the physician for all seizure patients: ➢ How long did the seizure last? How many were there? ➢ Was the patient incontinent? ➢ How long was the patient postictal? ➢ A list of prescribed anti-seizure medications and doses.

AM-30: Stroke (Cerebrovascular Accident)

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen- BVM or NRB mask.
S	**S**	**S**	**S**	**S**	Perform a focused neurological exam for motor (extremities and face), speech and level of consciousness, and the **Cincinnati Stroke Scale**.
S	**S**	**S**	**S**	**S**	Complete vital signs should be repeated every 5 to 10 minutes during patient contact.
S	**S**	**S**	**S**	**S**	Determine the last time patient was seen "normal".
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
S	**S**	**S**	**S**	**S**	Perform **rapid glucose determination** *if trained*.
		S	**S**	**S**	Establish IV access without delaying transport.
		S	**S**	**S**	If blood sugar reading is <60mg/dl, administer **Dextrose 50% 25gm [D50].**
	S	**S**	**S**	**S**	**Obtain 12-Lead** ECG *per training and certification* and transmit to ER, if capable.
S	**S**	**S**	**S**	**S**	**Notify Medical Control** or receiving facility of a possible STROKE.
	S	**S**	**S**	**S**	If at all possible, transport family member or witness with patient.
			S	**S**	Monitor ECG.

Consult Medical Control for further consideration.

Key Points/Considerations

- Is there a history of hypertension, coronary vascular disease, recent trauma, or previous CVA?
- Is the patient taking Warfarin (Coumadin) or other anticoagulant medications?
- Does the patient have a headache, dizziness, and numbness in any part of the body or evidence of syncopal episodes?
- The assessment of blood glucose may indicate hypoglycemia, which *may* sometimes present similar to a CVA.
- **Refer to the Cincinnati Pre-Hospital Stroke Scale**

Questions for EMS Transporting Patients to the ED with Stroke Symptoms:

- What time did symptoms begin?
- What is the Current Glucose level?
- Have you performed the Cincinnati Stroke Scale?
- What are findings of the Cincinnati Stroke Scale?

AC-1: Asystole

I	P	
S	**S**	Perform initial assessment and **consider and address possible causes**
S	**S**	Establish unresponsiveness and pulselessness: If no pulse begin CPR.
S	**S**	Check ECG rhythm in two leads.
S	**S**	**Establish IV/IO** NS wide open rate; as appropriate *per certification and training.*
S	**S**	If patient remains pulseless **Administer EPI 1:10,000 1 mg** IV. Second and subsequent doses should be **EPI 1:1,000 1 mg** followed by IV flush and should be administered every 5 minutes. **(BREMS ONLY- use EPI 1:10,000 1 mg pre-filled for ALL doses).**
S	**S**	Administer **ATROPINE 1mg** via IV/IO. Dose may be repeated in 3-5 minutes to a maximum of 3mg.
S	**S**	If patient does not respond to therapy, consider termination of resuscitation; **[A-4: Determination of Death & Termination of ACLS].**

Consult Medical Control for further consideration.

Key Points/Considerations
• Consider your possible causes ➢ Hypoglycemia ➢ Hypoxia ➢ Hypothermia

AC-2: Bradycardia

I	P	
S	**S**	Perform initial assessment, treat priority conditions. Initiate oxygen therapy per protocol.
S	**S**	Monitor ECG and pulse oximetry.
S	**S**	**Obtain 12 lead** ECG*, per training and certification,* and transmit to receiving facility, if capable.
S	**S**	**Establish IV/IO** NS, *per training and certification*.
S	**S**	If patient has adequate perfusion, observe and monitor during transport.
S	**S**	Administer **ATROPINE 1 mg** via IV/IO access, as appropriate.
S	**S**	If symptoms continue, repeat dose of Atropine every 5 minutes to a maximum dose of 3mg.
S	**S**	If the patient exhibits poor perfusion and continues to be symptomatic (chest pain, SOB and altered LOC): **Consider External Pacing**, *if trained*. • Consider administration of **VERSED 2-4 mg** over 2 minutes IV/IO prior to pacing based on LOC. Monitor respirations closely. • May administer **Nasal VERSED 2-4 mg/kg**- if unable to readily establish IV access.
O	**O**	Administer **DOPAMINE Infusion 5mcg/kg/min,** *if trained.* If unresponsive to therapy, may slowly increase until a systolic blood pressure of 90 is achieved. Do not exceed 10 mcg/kg/min.
S	**S**	Transport and notify hospital as soon as possible with goal to limit on-scene time to 10 minutes or less.

Consult Medical Control for further consideration.

AC-3: Cardiac Arrest

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform initial assessment and establish if patient is unresponsive, apneic and pulseless.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
S	**S**	**S**	**S**	**S**	Perform assessment/interventions according to **[AG-1- Adult General Patient Management]** guideline.
S	**S**	**S**	**S**	**S**	If no pulse (10 sec check recommended), and an unwitnessed arrest by EMS start CPR. After 2 minutes apply AED and follow manufacturer instructions. Press Analyze on the AED.
S	**S**	**S**	**S**	**S**	If a witnessed arrest by EMS apply AED and follow manufacturer instructions.
S	**S**	**S**	**S**	**S**	**USE CAUTION** when defibrillating if the patient is wet or in the contact with metal. If Nitroglycerin patches or cream are present on chest, use gloves to remove before defibrillation.
S	**S**	**S**	**S**	**S**	Press Analyze on the AED: • **If shock is advised**: ➢ Follow AED manufacturer instructions! • **If no shock advised**: ➢ Check for a pulse ▪ If pulse is present, support A B C, transport patient and check the patient's pulse frequently. If the pulse is lost during transport, halt the transport and reanalyze. ▪ If no pulse is present, perform CPR.
S	**S**	**S**			If ALS has not arrived transport the patient when: • After 3 shocks with 2 minutes of CPR between each shock initiate transport; OR **NOTE: With agencies using AED(s) programmed to 2000 AHA guidelines transport after 6 shocks**. • 3 Consecutive "No Shock Advised" messages are received; OR • A pulse is regained.
	S	**S**	**S**	**S**	Perform **advanced airway procedures** as certified. DO NOT DELAY CHEST COMPRESSIONS.
		S	**S**	**S**	**Establish IV/IO** *per training and certification* NS wide open rate; as appropriate *per certification and training*.
			S	**S**	Attach ECG monitor. Refer to appropriate protocol based on assessment findings and monitored rhythm.

Consult Medical Control for further consideration.

Key Points/Considerations
• IV cannulation / IO access and intubation should be performed ASAP without interrupting chest compressions and AED use. • AED pads are to be placed in the upper right anterior chest and the left anterior chest or according to manufacturer's recommendations. Once pads are in place, advise "ALL Clear" and ensure no one is touching the patient and press ANALYZE or allow the AED to analyze the patient. • Providers should follow the instructions provided by the AED manufacturer for the device in use.

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions. Initiate oxygen therapy per protocol.
S	**S**	**S**	**S**	**S**	Place patient in the position of comfort. If any pulmonary edema is present then the patient may prefer to sit upright, with both legs hanging off of the stretcher.
	S	**S**	**S**	**S**	**Obtain 12-lead** ECG, *per training and certification,* and transmit to receiving facility, if capable.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
		S	**S**	**S**	**Establish IV/IO,** NS as appropriate *per training and certification*.
			S	**S**	Monitor ECG and pulse oximetry.
If patient has pulmonary edema, follow *[AM-28: Respiratory Distress to CHF]* guideline.					
		S	**S**	**S**	If lung sounds are clear, the patient's systolic blood pressure is <90mmHg and hypovolemia is suspected, Administer 250 ml of Normal Saline bolus.
		S	**S**	**S**	If the blood pressure does not respond and lung sounds are still clear, repeat bolus one time.
			O	**O**	Administer **DOPAMINE infusion of 5mcg/kg/min** *(if trained)*. if unresponsive to therapy or if fluid bolus is contraindicated (fluid overload/respiratory distress). May slowly increase until a BP of 90 systolic is achieved. Do not exceed 15 mcg/kg/min. High doses are less desirable (increased heart rate for myocardial oxygen consumption).
	S	**S**	**S**	**S**	Transport and notify hospital as soon as possible with a goal to limit on-scene time to 10 minutes or less.

Consult Medical Control for further consideration.

AC-5: Chest Pain of Cardiac Origin

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen via non-rebreather mask (10-15 L/min.)Support respirations as necessary.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
S	**S**	**S**	**S**	**S**	Perform a focused history and physical exam. Determine number of Nitroglycerin taken prior to arrival.
	S	**S**	**S**	**S**	Administer **Four (4) Baby Aspirins**, *if trained*, chew and swallow. Give aspirin even if the patient has already taken their daily dose. Do not administer if patient has history of severe allergy to the medication (i.e., anaphylaxis) not simply an "upset stomach."
	S	**S**	**S**	**S**	**Obtain 12-lead** ECG, *if trained* and transmit to receiving facility, if capable. (*Do not withhold treatment of patient to perform 12 Lead.*) **PRINT OUT 12 LEAD & GIVE TO ED Physician.**
	O	**S**	**S**	**S**	Administer **NITROGLYCERIN 0.4mg tablet**. May be repeated up to a total of three (3) doses, regardless of the number of doses admininstered prior to EMS arrival. Each administration of Nitroglycerin being 5 minutes apart AND if the patient's systolic blood pressure remains **greater than 100mmHg.**
	O				If patient does not have relief with their own Nitroglycerin, **the EMT-Basic** may administer Nitroglycerin from the drug box, *if trained*.
S	**S**	**S**	**S**	**S**	Recheck vital signs every 5 minutes.
	S	**S**	**S**	**S**	Transport and notify the hosptial as soon as possible with a goal to limit on-scene time to 10 minutes or less.
		S	**S**	**S**	Establish IV of Normal Saline at KVO.
			S	**S**	Monitor ECG: If cardiac dysrhythmias are present, refer to specific guidelines.

Consult Medical Control for further consideration.

Key Points/Considerations

- **If an agency is unable to transmit the 12 Lead EKG or Medical Control advises they are unable to read the transmission Intermediates & Paramedics ONLY may relay to Medical Control ECG interpretation. EMT- Basic & Enhanced may read what the 12 Lead prints out ONLY.**
- Nitroglycerin is contraindicated in any patient who has taken sexual enhancement drugs in the last 24 hours (use of Levitra ®, Cialis ®, or Viagra ® , etc.).
- Note: Continuous ECG monitoring, pulse oximetry and blood pressure monitoring (every 5 minutes) are mandatory during and after drug administration.

I	P	
S	**S**	Perform initial assessment, treat priority conditions. Initiate oxygen therapy per protocol.
S	**S**	Consider underlying non-cardiovascular causes, i.e. hypovolemia, trauma, fever, sepsis.
S	**S**	Monitor ECG and pulse oximetry.
S	**S**	**Obtain 12 lead** ECG*, per certification and training,* and transmit to receiving facility, if capable.
S	**S**	Establish IV of Normal Saline at KVO rate.
ASYMPTOMATIC:		
S	**S**	Transport and Monitor. **Contact Medical Control** for further treatment.
SYMPTOMATIC: (chest pain, SOB, altered LOC or signs of hypoperfusion) **pulse greater than 150 and BP *greater than 100 systolic, attempt to identify and treat reversible causes***		
O	**O**	If patient has a history of Wolff-Parkinson-White (WPW) Syndrome, Contact Medical Control before proceeding with guideline.
S	**S**	Attempt vagal maneuver.
S	**S**	If symptoms persist and patient is unstable, draw up 20 ml saline. Then, **Administer ADENOSINE 6 mg rapid IV/IO** push over 1-3 seconds, using the med port closest to the angiocath. IMMEDIATELY followed by rapid 20 ml saline flush. Run a continuous ECG strip prior to and for at least two minutes following administration.
S	**S**	If tachycardia persists, may **repeat ADENOSINE 12 mg** in 1-2 minutes. Follow administration and recording method as noted above.
S	**S**	If patient has not converted after Adenosine, Consider **VERSED 2-4 mg via IV/IO** over 2 minutes prior to cardiovsersion based on level of consciousness. Monitor respirations closely. • May administer **Nasal VERSED 2-4 mg/kg**- if unable to readily establish IV access.
S	**S**	Synchronized Cardiovert, *if certified and trained,* according to monitor: • **Monophasic** – 50J for SVT or Atrial Flutter. ➢ If no change, repeat synchronized cardiovert at 100J. ➢ If no change, repeat synchronized cardiovert at 200J. ➢ If no change, repeat synchronized cardiovert at 300J. ➢ If no change, synchronized cardiovert at 360J. • **Biphasic-** 75J for SVT or Atrial Flutter**.** ➢ If no change, repeat synchronized cardiovert at 120J. ➢ If no change, repeat synchronized cardiovert at 150J. ➢ If no change, repeat synchronized cardiovert at 200J.
S	**S**	Transport and notify the hospital as soon as possible with goal to limit on-scene time to 10 minutes or less.

Consult Medical Control for further consideration.

AC-7: Post-Resuscitation

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Reassess ABC's, establish baseline vital signs and assess breath sounds.
S	**S**	**S**	**S**	**S**	Transport and notify hospital ASAP.
S	**S**	**S**	**S**	**S**	Administer high flow oxygen and assist ventilations as necessary.
			S	**S**	If BVM is ineffective, perform **advanced airway procedures** *as certified and trained.*
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
S	**S**	**S**	**S**	**S**	Obtain **blood glucose measurement,** *as certified and trained*.
		S	**S**	**S**	**Establish IV/IO** NS as appropriate *per certification and training* and Administer **fluid therapy of 10ml/kg** IV bolus for hypotension (systolic BP < 100mmHg).
S	**S**	**S**	**S**	**S**	If blood glucose is < 60mg/dl, Administer **DEXTROSE 50%, 25 gm** IV/IO.
			S	**S**	Repeat until systolic BP > 90mmHg, unless signs of CHF are present.
			S	**S**	If the patient **HAS NOT** received Lidocaine during the arrest: ➢ Start with a loading dose of **LIDOCAINE 1 mg/kg, then 0.5mg/kg every 5 to 10 minutes** *if needed* to a total of 3mg/kg. ➢ Follow with continuous infusion of **1 – 4 mg/min** (30 – 50 µg/kg per min) **if heart rate is greater than 60 bpm.**
			S	**S**	If the patient **HAS** received Lidocaine during the arrest: Administer **LIDOCAINE Infusion of 1 – 4 mg/min** (30 – 50 µg/kg per min) **if heart rate is greater than 60 bpm.**
			S	**S**	Consider Administration of a **DOPAMINE Infusion of 5µg/kg/min,** *per certification and training*. If unresponsive to therapy, may slowly increase until a peripheral pulse is achieved. Do not exceed 20mcg/kg/min. High doses are less desirable (increased heart rate for myocardial oxygen consumption).
			S	**S**	Administer **DOPAMINE Infusion 10-20µg/kg/min** for post-arrest hypotensive shock, *if certification and training*.

Consult Medical Control for further consideration.

Key Points/Considerations
• Dopamine should not be given to a patient who is significantly volume depleted. • Hypovolemia must be corrected prior to Dopamine infusion to maximize potential for improved perfusion. • It is important to bring to the receiving hospital all of the patients medications.

AC-8: Pulseless Electrical Activity (PEA)

I	P	
S	**S**	Establish unresponsiveness and pulselessness. If no pulse, begin CPR.
S	**S**	Consider and address possible causes.
S	**S**	Continue doing CPR while preparing for additional interventions. Resume CPR immediately following interventions, so little to no interruption in CPR is experienced.
S	**S**	**Establish IV/IO**, NS as appropriate per *certification and training*.
S	**S**	Perform **advanced airway procedures** *per certification and training*. Once airway is controlled, compressions are continuous at 100/min. with ventilations every 5-6 seconds. Ventilations should not interrupt chest compressions.
S	**S**	Consider possible causes
S	**S**	Administer **1 mg EPI 1:10,000 IV/IO.** Second and subsequent doses should be **1 mg EPI 1:1,000** followed by IV flush and should be administered every **5** minutes. **(BREMS ONLY- use EPI 1:10,000 1 mg pre-filled for ALL doses).**
S	**S**	If rate is less than 60/min administer **ATROPINE 1mg** via IV/IO. Repeat in 3-5 minutes to a maximum dose 3mg.
S	**S**	If patient is unresponsive to rescue efforts after 20 minutes, refer to **[A-4: Determination of Death and Termination of ACLS].**

Consult Medical Control for further consideration.

AC-9: Ventricular Fibrillation/Pulseless Ventricular Tachycardia (Cardiac Arrest)

I	P	
S	**S**	Establish unresponsiveness and pulselessness. If no pulse begin CPR.
S	**S**	Check ECG monitor for rhythm, if not V-Fib/Pulseless V-TACH, refer to appropriate guideline.
S	**S**	**If V-Fib/Pulseless V-Tach continue CPR for 5 cycles or 2 minutes then defibrillate at 360 joules; (if witnessed, shock immediately).**
S	**S**	Continue CPR while charging, resume immediately after defibrillating. Interventions should cause little to no interruption in CPR.
S	**S**	Consider **advanced airway** procedures as certified. Once airway is controlled compressions are continuous at 100/min. with ventilations every 5-6 seconds. Ventilations should not interrupt chest compressions.
S	**S**	**Establish IV/IO** NS as appropriate *per certification and training*.
S	**S**	ALS should consider the shock delivered by AED as part of their protocols. If patient has not responded to initial defibrillation Administer: • Administer **EPI 1:10,000 1 mg IV/IO.** If V-FIB/Pulseless V-TACH persists, second and subsequent doses should be **EPI 1:1,000 1 mg** followed by IV/IO flush and should be administered every **5** minutes. • **(BREMS ONLY- use EPI 1:10,000 1 mg pre-filled for ALL doses).**
S	**S**	If VF/VT persists after 3 shocks, CPR and Epinephrine, Administer: • **LIDOCAINE 1 mg/kg IV/IO once,** followed by **0.5 mg/kg IV/IO for second and subsequent doses.** Subsequent doses should be at least 5 minutes after previous doses; **Maximum Dose 3 mg/kg.**
S	**S**	For Torsades De Pointes: • **MAGENSIUM SULFATE 2g** over 5 minutes via IV/IO.
S	**S**	Consider Administer of **SODIUM BICARBONATE 50mEq IV/IO**.
S	**S**	Continue sequence of rhythm check, CPR while charging, Shock, 5 cycles of CPR, Rhythm check. Meds should be given soon after rhythm check, before or after next shock at appropriate time interval. If rhythm changes during treatment follow apporpriate guideline.
S	**S**	If patient is unresponsive to rescue efforts after 20 minutes, refer to **[A-4: Determination of Death and Termination of ACLS].**

Consult Medical Control for further consideration.

Key Points/Considerations
• Monophasic AED(s) & Defibrillators should be programmed to deliver defibrillation at the manufacturers recommended energy level or at 360J. • Biphasic AED(s) & Defibrillators should be programmed to deliver defibrillation at the manufacturers recommended energy level, or at 200J.

I	P	
S	**S**	Perform initial assessment, treat priority conditions. Initiate oxygen therapy per protocol.
S	**S**	If patient condition allows, **Obtain 12 Lead** ECG, *per certification and training*, and transmit to receiving facility, if capable.
S	**S**	**Establish IV/IO** NS as appropriate *per certification and training*.
If Patient is STABLE (**NO** altered mental status, **NO** ongoing chest pain, **NO** hypotension or other signs of shock):		
S	**S**	Continue to monitor patient and take vitals every 5-10 minutes until arrival at the hospital.
If Patient is **UNSTABLE OR becomes UNSTABLE** (altered mental status, ongoing chest pain, hypotension or other signs of shock).		
S	**S**	Consider **Adminstration of VERSED2-4 mg**. via IV prior to cardioversion based on LOC. Monitor respirations closely. • May administer **Nasal VERSED 2-4 mg**- if unable to readily establish IV access; based on patient's LOC.
S	**S**	Synchoronized Cardiovert* according to monitor, *if trained*: • **Monophasic** – 50J for SVT or Atrial Flutter. ➢ If no change, repeat synchronized cardiovert at 100J. ➢ If no change, repeat synchronized cardiovert at 200J. ➢ If no change, repeat synchronized cardiovert at 300J. ➢ If no change, synchronized cardiovert at 360J. • **Biphasic-** 75J for SVT or Atrial Flutter**.** ➢ If no change, repeat synchronized cardiovert at 120J. ➢ If no change, repeat synchronized cardiovert at 150J. ➢ If no change, repeat synchronized cardiovert at 200J.
S	**S**	If tachycardia is recurrent, cardiovert at the last successful energy level.
S	**S**	If cardioversion is unsuccessful at converting the rhythm and patient continues to display signs of hypoperfusion; Administer **LIDOCAINE 1mg/kg**. M**ay** repeat dose at 0.5mg/kg**.** Max dose is 3mg/kg.
S	**S**	Transport and notify the hospital as soon as possible with a goal to limit on-scene time to 10 minutes or less.

Consult Medical Control for further consideration.

Key Points/Considerations
• **Call Medical Control for any drug orders**.

AT-1: General Trauma Patient Assessment and Management

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety. Determine mechanism of injury and the number of patients.
S	**S**	**S**	**S**	**S**	Obtain manual C-spine control if spinal trauma is suspected or full spinal immobilization is initiated.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen- BVM or NRB mask.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
S	**S**	**S**	**S**	**S**	**Follow Regional Trauma Triage Plan** to determine transport criteria and appropriate receiving facility
	S	**S**	**S**	**S**	Transport without delay. Do not perform **non-lifesaving procedures** before patient is loaded into the ambulance.
	S	**S**	**S**	**S**	**Provide early hospital notification to allow time for trauma team preparations.**
		S	**S**	**S**	Establish 2 IVs of Normal Saline with large bore catheters **during transport.**
			S	**S**	If unable to get IV access then attempt IO access, *if trained*.
		S	**S**	**S**	Administer rapid fluid bolus of 20ml/kg if systolic BP is < 100mmHg.
	S	**S**	**S**	**S**	**Consider Aeromedical Transport** per **Regional Trauma Triage Plan**.

Consult Medical Control for further consideration.

Key Points/Considerations
• Consideration of non-viability should be considered for all adult patients found dead at the scene unless they are hypothermic, electrocuted, or drowned. • Notify the receiving hospital of the patient's condition as soon as possible to allow for preparation of the Emergency Department. • Be mindful of the Golden Hour. • All pregnant trauma patients are to be transported to the Emergency Department. • It is imperative to get the critically injured patient out of the field and to an appropriate hospital as quickly as possible. All attempts should be made to limit the on-scene time to 10 minutes or less.

AT-2: Amputation/Avulsion

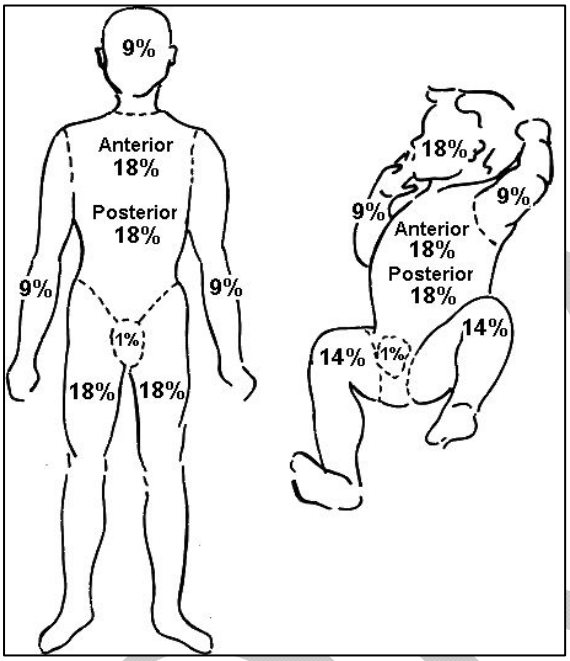
FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions. Assess patient for associated injuries that may be a higher priority.
S	**S**	**S**	**S**	**S**	Initiate oxygen therapy per guideline. DO NOT delay transport of priority patients while searching for missing part.
S	**S**	**S**	**S**	**S**	Control bleeding per ***[AT-6: External Bleeding]*** guideline.
S	**S**	**S**	**S**	**S**	Maintain spinal immobilization if indicated by mechanism of injury (MOI).
S	**S**	**S**	**S**	**S**	Control bleeding as needed: • Apply direct hand pressure to wound and apply pressure dressing. Elevate affected extremities as appropriate. • If the wound is located on the neck, apply an occlusive dressing. Avoid circumferential pressure dressings. • If the bleeding is from the ear or nose is associated with a head injury, cover lightly with sterile dressings. Do not apply direct pressure or pack the openings with gauze. • If the direct pressure does not control bleeding, re-evaluate efforts. If necessary, apply pressure over the appropriate proximal pressure points. • Check pulses and perfusion distal to pressure dressings or inflated splints following application and at 5 minute intervals. • If bleeding remains uncontrolled, initiate transport, contact advanced life support, if not already dispatched. • Tourniquets may be applied only if directed by **Medical Control**.
S	**S**	**S**	**S**	**S**	If amputation is incomplete, splint digit or limb in position of function, if possible.
S	**S**	**S**	**S**	**S**	Rinse amputated part with Normal Saline, wrap loosely with a damp gauze pad or sponge and place in a plastic bag. Then place the plastic bag on ice. DO NOT place amputated part directly on ice, necrosis can occur. DO NOT delay transport of critical patients to retrieve amputated parts.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
		S	**S**	**S**	Establish IV NS and administer IV fluids to maintain peripheral pulses.
			S	**S**	Pain Management, refer to ***[AM-19: Pain Management]*** guideline.

Consult Medical Control for further consideration.

AT-3: Burns

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen - BVM or NRB mask.
S	**S**	**S**	**S**	**S**	**Stop the burning process**: • Electrical burns: ➢ Do not touch patient until you ensure the electrical contact is broken. ➢ Look for additional traumatic injury and monitor the pulse closely. • Thermal burns: ➢ Smother the flames by covering the patient with a blanket. ➢ If unable to move the patient, extinguish the flames immediately. ➢ Cool the burned areas with Normal Saline. Do not apply ice. • Dry Chemical burns: ➢ Brush the remaining chemical off, then flush with water for 30 minutes or until arrival at the hospital.
S	**S**	**S**	**S**	**S**	Remove all non-adherent clothing and jewelry in burned area.
S	**S**	**S**	**S**	**S**	Determine the depth and percentage of BSA involved.
S	**S**	**S**	**S**	**S**	Apply dry dressings to the affected areas. May use moist dressings if BSA involved is less than 10%.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
			S	**S**	Transport as soon as feasible while repeating vital signs every 5 minutes.
		S	**S**	**S**	If in critical respiratory distress, perform **advanced airway procedures** *as certified and trained.*
			S	**S**	**Note:** If sedation is required secondary to agitation following intubation: • **Adult: VERSED 5mg** slow IV/IO titrated to effect (refer to Broselow tape for pediatric dose). ➢ If unable to readily establish IV, may give **Nasal VERSED 5mg.** If unable to readily establish IV or give medication nasally, give **VERSED 5mg IM.**
			S	**S**	If burn involves more than **20% BSA** and is partial or full thickness, establish peripheral IV access and infuse Normal Saline according to ***[R-8: Parkland Burn Formula]***. If the patient develops signs and symptoms of fluid overload such as respiratory distress, slow the IV to KVO.
			S	**S**	Monitor ECG: If cardiac dysrhythmias are present, refer to specific protocols.
			S	**S**	Administer **FENTANYL 50mcg** via IV/IO over 3-5 minutes. May repeat **FENTANYL 50mcg** in 5 minutes for continued severe pain. **Medical Control Required** for further consideration of Fentanyl; refer to ***[AM-19: Pain Management]*** guideline.

Key Points/Considerations
• Refer to Regional Trauma Triage Plan for transport of burn patient to appropriate burn center. • Continuous ECG, pulse oximetry and blood pressure monitoring (every 5 minutes) are mandatory during and after the administration of Fentanyl. . • Be sure to remove jewelry and non-adherent clothing. • Estimate the body surface area (BSA) involved by utilizing the Rule of Nines or the palm method (palm of patient's hand is 1% of burn area). • Do not use any antidote or any neutralizing agent on chemical burns. • Burn injuries can subject a patient to severe fluid loss, infection, hypothermia, and other injuries.



Rule of Palm

For any patient (adult, child or infant), the area of the patient's palm equals about 1% BSA.

Consult Medical Control for further consideration.

AT-4: Electrocution

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety. Ensure that electricity has been turned off.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions. Assess patient for associated injuries that may be a higher priority.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen- BVM or NRB mask.
S	**S**	**S**	**S**	**S**	If patient is pulseless and apneic, proceed to ***[AC-3: Cardiac Arrest]*** guideline.
S	**S**	**S**	**S**	**S**	Obtain history of event: • Type of current • Voltage • Length of shock • Entrance/exit wounds
S	**S**	**S**	**S**	**S**	Maintain full **Spinal Immobilization,** *if trained*.
S	**S**	**S**	**S**	**S**	Record Glasgow Coma Scale.
	S	**S**	**S**	**S**	Transport without delay.
S	**S**	**S**	**S**	**S**	Treat soft tissue injuries associated with the burn with a dry, sterile dressing.
		S	**S**	**S**	**Establish IV/IO** as appropriate per *certification and training*.
		S	**S**	**S**	Administer **Normal Saline** appropriate to maintain peripheral pulses.
			S	**S**	Monitor ECG.
			S	**S**	Administer **FENTANYL 50mcg** via IV/IO over 3-5 minutes. May repeat **FENTANYL 50mcg** in 5 minutes for continued severe pain, refer to *[AM-18: Pain Management]* guideline. **Medical Control required** for further consideration of Fentanyl.

Consult Medical Control for further consideration.

Key Points/Considerations

- Note: Continuous ECG, pulse oximetry and blood pressure monitoring (every 5 minutes) are
- mandatory during and after the administration of Fentanyl.
- Lightning injuries may present with many patients. After a lightning strike consider treating those
- patients appearing “dead” first.
- If patient is in contact with an electrical source or you are unsure, DO NOT touch the patient.
- Crew safety should remain a priority. Do not attempt to remove patient from the electrical source
- unless trained to do so.
- DO NOT apply ointments, lotions, salves or sprays.
- DO NOT apply ice to burns.
- All electrical burns should be evaluated by a physician.
- Electrical current may disrupt the heart’s electrical system causing asystole or ventricular fibrillation.

AT-5: Evisceration

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Obtain and maintain C-spine control if indicated.
S	**S**	**S**	**S**	**S**	Establish full **Spinal Immobilization** if appropriate and *trained*.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen - BVM or NRB mask.
S	**S**	**S**	**S**	**S**	If abdominal wounds are exposed: • **DO NOT** touch or try to replace the exposed organ(s). • Apply a sterile dressing moistened with saline over wound site. • Apply an occlusive dressing over the sterile dressing. • Cover the dressed wound to maintain warmth.
S	**S**	**S**	**S**	**S**	Treat patient for shock. refer to ***[AM-11: Hypotension (Shock]*** guideline
	S	**S**	**S**	**S**	Transport and notify the receiving hospital as soon as possible with a goal to limit on-scene time to 10 minutes or less.
		S	**S**	**S**	Establish IV access. Administer **Normal Saline** fluid bolus until peripheral pulses are obtained. **NO** more than 2 liters of Saline without contacting **Medical Control.**

Consult Medical Control for further consideration.

AT-6: External Bleeding

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Obtain and maintain C-spine control in indicated.
S	**S**	**S**	**S**	**S**	Establish full **Spinal Immobilization** if appropriate and *trained*.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen- BVM or NRB mask.
		S	**S**	**S**	Establish IV access. Treat patient for shock, refer to ***[AM-11: Hypotension (Shock)]*** guideline.
S	**S**	**S**	**S**	**S**	Control Bleeding as needed: • Apply direct hand pressure to wound and apply pressure dressing. Elevate affected extremities as appropriate. • If the wound is located on the neck, apply an occlusive dressing. Avoid circumferential pressure dressings. • If the bleeding is from the ear or nose is associated with a head injury, cover lightly with sterile dressings. Do not apply direct pressure or pack the openings with gauze. • If the direct pressure does not control bleeding, re-evaluate efforts. If necessary, apply pressure over the appropriate proximal pressure points. • Check pulses and perfusion distal to pressure dressings or inflated splints following application and at 5 minute intervals. • If bleeding remains uncontrolled, initiate transport, contact advanced life support, if not already dispatched. • Tourniquets may be applied only if directed by **Medical Control**.
	S	**S**	**S**	**S**	Transport and notify the receiving hospital as soon as possible with a goal to limit on-scene time to 10 minutes or less.

Consult Medical Control for further consideration.

AT-7: Eye Injury

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Assess for obvious globe or corneal injury. **DO NOT** flush if found.
S	**S**	**S**	**S**	**S**	<u>If a foreign body or a thermal or chemical burn is suspected</u>: • Flush eye(s) with copious amounts of water or normal saline, protecting the unaffected eye during irrigation. • Cover both eyes. • Transport without delay.
S	**S**	**S**	**S**	**S**	<u>If there is penetrating injury</u>: • Stabilize the penetrating object(s). Do not patch penetrating or open eye injuries. • Cover the non-effected eye to decrease movement. • Transport without delay.
S	**S**	**S**	**S**	**S**	If blunt injury is suspected: • Cover both eyes. • Transport without delay.
			O	**O**	**Medical Control Required** regarding pain management.

Consult Medical Control for further consideration.

Key Points/Considerations
• Do not attempt to remove contact lenses in the field. Treat by irrigation.

AT-8: Head Injury

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety. Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Obtain and maintain C-spine control. Establish and maintain airway utilizing modified jaw-thrust. **DO NOT** use head-tilt/chin-lift.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed.
S	**S**	**S**	**S**	**S**	If breathing is inadequate (SpO2 < 90% on 15LPM via NRB), ventilate at a rate of 10-12 breaths per minute. **DO NOT HYPERVENTILATE**.
S	**S**	**S**			If the patient has an altered LOC treat as a priority condition and request advanced life support, if not already dispatched.
S	**S**	**S**	**S**	**S**	Establish full **Spinal immobilization** *if appropriate and trained*.
S	**S**	**S**	**S**	**S**	If the patient is not in shock, elevate the head-end of the backboard 8 to 12 inches or 30 degrees while continuing to maintain full spinal immobilization.
S	**S**	**S**	**S**	**S**	Identify and treat open wounds with sterile dressings.
	S	**S**	**S**	**S**	Transport and notify the receiving hospital as soon as possible with a goal to limit on-scene time to 10 minutes or less.
S	**S**	**S**	**S**	**S**	Reassess and record LOC every 5 minutes.
		S	**S**	**S**	Establish IV access. Treat patient for shock, refer to ***[AM-11: Hypotension (Shock)]*** guideline.
			S	**S**	Monitor ECG: If cardiac dysrhythmias are present, refer to specific protocols.

Consult Medical Control for further consideration.

Key Points/Considerations

- Do not use the head-tilt chin-lift to open patient's airway. Use of the jaw-thrust is indicated when there is suspected head injury.
- When establishing cervical spine control, manually stabilize the head until it is secured on an appropriate device.
- Closely monitor blood pressure. A single episode of Hypotension has been shown to double mortality from head injuries.
- Trauma to the head is a leading cause of traumatic injury and/or death. This can be prevented by vigilant recognition and treatment. Rapid assessment and transport are essential for the survival of the patient.

AT-9: Impaled Objects

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen- BVM or NRB mask.
S	**S**	**S**	**S**	**S**	<u>If the impaled object is in the cheek and is causing complications with airway management</u>. • Remove the object carefully. • Place a sterile dressing on the cheek. • Transport with special attention to airway status monitoring bleeding from wound.
S	**S**	**S**	**S**	**S**	<u>If the impaled object is in the eye</u>: • Stabilize the penetrating object(s). **Do not** patch penetrating or open eye injuries. • Cover the non-effected eye to decrease movement. • Transport without delay.
S	**S**	**S**	**S**	**S**	<u>If the impaled object is not in the cheek or eye</u>: • Stabilize with bulky dressings and secure. • **DO NOT** attempt to remove object
O	**O**	**O**	**O**	**O**	<u>If the patient is impaled on a fixed object</u>: • Contact **Medical Control**. • Attempt to transport the object with the patient. • Consider specialty resources, such as, tech-rescue for extrication assistance/troubleshooting.
	S	**S**	**S**	**S**	Transport and notify the receiving facility as soon as possible with a goal to limit on-scene time to 10 minutes or less.

Consult Medical Control for further consideration.

AT-10: Musculoskeletal Injuries

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen - BVM or NRB mask.
S	**S**	**S**	**S**	**S**	If no priority condition exists proceed to the focused history and physical exam. Assess for distal circulation, movement and sensation.
S	**S**	**S**	**S**	**S**	If not in a joint and there is severe deformity or the distal extremity is cyanotic or lacks pulses, align with gentle traction before splinting.
S	**S**	**S**	**S**	**S**	<u>If in a joint</u>: • Splint extremities in the position in which they are found **UNLESS** the extremity is cyanotic or lacks pulses. • If the extremity is cyanotic or lacks pulses, align joint with gentle traction if no resistance is met **[Medical Control required prior to any manipulation].** • Immobilize bone above and below the site of injury.
S	**S**	**S**	**S**	**S**	Reassess distal extremity circulation, movement and sensation following any manipulation, including immediately after the placement of splints and every 5-10 minutes thereafter.
S	**S**	**S**	**S**	**S**	For isolated injuries place cold packs over the injury.
S	**S**	**S**	**S**	**S**	If the patient is alert with no priority conditions and minor mechanism of injury, apply splints before movement or Spinal Immobilization* of the patient.
S	**S**	**S**	**S**	**S**	If a priority condition exists OR major mechanism of injury is noted, secure the patient to a long backboard and transport with a goal limit on-scene time to 10 minutes or less. Extremities should be secured to patient's body and/or backboard.
	S	**S**	**S**	**S**	Use the traction splint for suspected **mid-thigh** femoral fractures **UNLESS**: • The apparent injury is close to the hip, knee or below the knee. • Open thigh wound with protruding bone fragments. • A nearly complete amputation exists. • There is an unstable pelvis.
	S	**S**	**S**	**S**	Transport and notify the receiving facility as soon as possible with a goal to limit on-scene time to 10 minutes or less.
			S	**S**	For pain management, refer to ***[AM-19: Pain Management]*** guideline.

Consult Medical Control for further consideration

AT-11: Sexual Assault

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	**Do not** examine the genitalia unless the patient is hemorrhaging and a dressing is required to control it.
S	**S**	**S**	**S**	**S**	Work in a calm, professional and non-judgmental manner.
S	**S**	**S**	**S**	**S**	In cases of severe emotional distress, it may be better to have same sex provider for the rape victim's injuries (if possible).
S	**S**	**S**	**S**	**S**	Save any clothing removed during your care. Place the items in a paper bag.
S	**S**	**S**	**S**	**S**	Advise the patient not to urinate, douche or wash before an emergency department Forensic Nurse Examiner (FNE) or physician has performed an examination.
		S	**S**	**S**	Establish IV access **ONLY** if indicated by the patient's condition.
		S	**S**	**S**	Provide **Normal Saline fluid therapy of 20ml/kg** IV bolus until peripheral pulses are obtained.

Consult Medical Control for further consideration.

Key Points/Considerations
• When obtaining a history, obtain only pertinent facts related to the trauma (LOC, dyspnea, weapon involved, etc.). Do not questions the patient about sexual history or attempt to obtain non-medical facts not directly related to the patient's care. • It is preferred that this patient be evaluated at a facility with Forensic Nurse Examiner (FNE) capabilities.

AT-12: Snakebites

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Calm and reassure the patient.
S	**S**	**S**	**S**	**S**	Maintain body temperature.
S	**S**	**S**			If a priority condition exists or the patient has neurological deficits, request advanced life support, if not already dispatched.
S	**S**	**S**	**S**	**S**	Locate fang marks and irrigate the site. Do not cause manipulation of site by scrubbing or rubbing. There may be one or two marks.
S	**S**	**S**	**S**	**S**	Remove rings, bracelets, or other constricting items on the injured extremity.
S	**S**	**S**	**S**	**S**	Immobilize injured extremity and keep at or below heart level: • **DO NOT** apply ice, cold packs, tourniquets or constricting bands. • Minimize activity of the patient. **NO** walking if the bite is to the leg.
S	**S**	**S**	**S**	**S**	Mark inflammation boundaries, if present.
S	**S**	**S**	**S**	**S**	Identify and dress open wounds with sterile dressings.
	S	**S**	**S**	**S**	Transport and notify the receiving facility as soon as possible.
		S	**S**	**S**	Establish 2 IVs of Normal Saline with large bore catheters enroute to hospital. **DO NOT DELAY SCENE TIME**.
		S	**S**	**S**	IVs should be run at a rate sufficient to maintain peripheral pulses. **NO** more than 2 liters of Saline without contacting **Medical Control.**
			S	**S**	Monitor ECG: if cardiac dysrhythmias are present, refer to specific protocols.
			O	**O**	If patient becomes hypotensive despite fluid therapy, contact **Medical Control** for **DOPAMINE Infusion 2-20mcg/kg/min** to maintain peripheral pulses
			S	**S**	Refer to ***[AM-19: Pain Management]*** guideline as necessary**.**

Consult Medical Control for further consideration

AT-13: Spinal Injury

FR	EMT	E	I	P	
S	S	S	S	S	Perform scene safety.
S	S	S	S	S	Suspect spinal injuries in patients with: • Suspicious mechanism of injury • Any injury above the clavicles • Trauma and altered level of consciousness • Numbness, tingling, or unable to move extremities • Neck or back pain • Advanced Age
S	S	S	S	S	Perform initial assessment and treat priority conditions.
S	S	S	S	S	Obtain and maintain C-spine control. Establish and maintain airway utilizing modified jaw-thrust. **DO NOT** use head-tilt/chin-lift.
S	S	S	S	S	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen- BVM or NRB mask.
S	S	S			If a priority condition exists or the patient has neurological deficits, request advanced life support, if not already dispatched.
S	S	S	S	S	Assess circulation, motor and sensory function in all extremities before and after immobilization and every 10-15 minutes thereafter.
S	S	S	S	S	Establish full **Spinal Immobilization**, *if trained*.
S	S	S	S	S	Identify and dress open wounds with sterile dressings.
	S	S	S	S	Transport and notify the receiving facility as soon as possible with a goal to limit on-scene time to 10 minutes or less.
		S	S	S	Establish 2 IVs of Normal Saline with large bore catheters enroute to hospital.
		S	S	S	IVs should be run at a rate sufficient to maintain peripheral pulses. **NO** more than 2 liters of Saline without contacting **Medical Control.**
			S	S	Monitor ECG: if cardiac dysrhythmias are present, refer to specific protocols.

Consult Medical Control for further consideration

Key Points/Considerations
• Be alert for priapism, decorticate posturing, warm/flushed skin despite hypotension, paralysis in extremities, and loss of sensation in extremities.

AT-14: Thoracic Trauma

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Obtain and maintain C-spine control. Establish and maintain airway utilizing modified jaw-thrust. **DO NOT** use head-tilt/chin-lift.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen- BVM or NRB mask.
S	**S**	**S**	**S**	**S**	Initiate cervical spine immobilization. Examine posterior chest and abdomen when log rolling patient onto backboard.
S	**S**	**S**	**S**	**S**	Assess chest for unequal breath sounds, open wounds, flail segments, subcutaneous emphysema, shallow chest wall excursion, and adequate ventilation.
S	**S**	**S**	**S**	**S**	Seal any open wounds with an occlusive dressing sealed on three sides to allow air to escape.
S	**S**	**S**	**S**	**S**	Stabilize flail segments with direct pressure and a bulky trauma dressing secured to chest wall.
S	**S**	**S**	**S**	**S**	Do not remove but stabilize an impaled object in place with a trauma dressing.
S	**S**	**S**	**S**	**S**	Observe patient for cyanosis, jugular vein distension, and hypotension.
S	**S**	**S**	**S**	**S**	Control any life threatening hemorrhage.
		S	**S**	**S**	**Establish 2 IVs of Normal Saline** with large bore catheters. Administer IV fluids to maintain peripheral pulses. **NO** more than 2 liters of Saline without contacting **Medical Control**.
			S	**S**	Monitor ECG: if cardiac dysrhythmias are present, refer to specific protocols.
			S	**S**	Observe for signs and symptoms of tension pneumothorax. If present perform chest decompression. Continue to observe patient after decompression for signs of redeveloping tension pneumothorax and decompress again as needed.

Consult Medical Control for further consideration

AT-15: Traumatic Cardiac Arrest

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Establish unresponsiveness and pulselessness. If no pulse, consider non-viability guidelines. PUT IN REFERENCE HERE.
S	**S**	**S**	**S**	**S**	Attach AED and follow commands.
	S	**S**	**S**	**S**	Transport and notify the receiving facility as soon as possible with a goal to limit on-scene time to 10 minutes or less.
	S	**S**	**S**	**S**	Perform **advanced airway procedures** *as certified and trained*.
		S	**S**	**S**	Establish 2 IVs of Normal Saline with large bore catheters enroute to hospital. If hypotensive **administer 1000ml of Normal Saline** and then reassess. **NO** more than 2 liters of Saline without contacting **Medical Control.**
			S	**S**	Immediately perform bilateral needle chest decompression between 2nd and 3rd rib-midclavicular.
			S	**S**	Consider and treat underlying causes.

Consult Medical Control for further consideration.

P-1: General Assessment and Management

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform initial assessment, treat priority conditions, Initiate oxygen therapy per guideline.
S	**S**	**S**	**S**	**S**	Reassure child and allow caregiver to remain with child.
S	**S**	**S**	**S**	**S**	Assess child's weight. Use appropriately sized equipment.
	S	**S**	**S**	**S**	If child is alert, able to communicate, STABLE and NO major MOI, perform focused history and examination.
	S	**S**	**S**	**S**	If major MOI, child or caregiver unable to communicate, unstable or high priority condition present, **transport immediately** with further exam during transport, if possible.
S	**S**	**S**			Request Advanced Life Support, if needed and not already dispatched.
S	**S**	**S**	**S**	**S**	Use brachial pulse in children under one year of age.
	S	**S**	**S**	**S**	**Do not** attempt blood pressure for a child **under 3 years of age**.
	S	**S**	**S**	**S**	Unless care will be compromised, allow caregiver to accompany child during transport.
	S	**S**	**S**	**S**	**Transport and notify hospital** ASAP with goal to limit on-scene time to 10 minutes or less. Child should be restrained in a manner appropriate for age during transport. If patient is a trauma patient exercise C-spine precautions and immobilization. **DO NOT** use patient car seat as a restraint when trauma is suspected.

Consult Medical Control for further consideration.

P-2: Airway Management

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Assess airway on all pediatric patients. **Establish and maintain airway in all cases where airway is compromised or ventilation is inadequate**.
S	**S**	**S**	**S**	**S**	If a trauma patient, maintain C-spine.
S	**S**	**S**	**S**	**S**	If child presents with stridor or drooling, refer to ***[P-23: Respiratory Distress- Croup/Epiglottitis]*** guideline. Differentiate between foreign body obstruction and medical causes.
S	**S**	**S**	**S**	**S**	Administer oxygen per guideline.
S*	**S**	**S**	**S**	**S**	If child is unconscious or is a trauma patient, position supine on **backboard***, *if trained*: • Use folded blanket or pad beneath torso to **maintain airway in a neutral position.** • **Do not hyperextend head.**
	S	**S**	**S**	**S**	Use oral airway to maintain position in unconscious patients. Insert with tip facing down toward tongue and utilize a tongue depressor or similar item.
S	**S**	**S**	**S**	**S**	If child is conscious, not a trauma patient, and is in respiratory distress, allow to assume a position of comfort (usually sitting).
S	**S**	**S**	**S**	**S**	If foreign body is suspected refer to ***[P-4: Airway Obstruction]*** guideline**.**
	S	**S**	**S**	**S**	Use suction to render and maintain airway fee of secretions and foreign material **unless child presents with stridor.**
S	**S**	**S**	**S**	**S**	If ventilation is not adequate refer to ***[P-3: Ventilation Management]*** guideline.
	S	**S**	**S**	**S**	**Transport and notify hospital** ASAP with goal to limit on-scene time to 10 minutes or less.

Consult Medical Control for further consideration.

P-3: Ventilation Management

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Assess airway and adequacy of ventilation on all pediatric patients. **Establish airway per guideline when airway is compromised or ventilation is inadequate.**
S	**S**	**S**	**S**	**S**	Ventilations should be supplemented with **15 lpm oxygen ASAP**
S	**S**	**S**	**S**	**S**	If ventilation inadequate, assist in the following order of preference: • Two person bag-valve-mask **without** pop-off valve • One person bag-valve-mask **without** pop-off valve • Mouth to mask with one way valve and supplemental oxygen (if available)
S	**S**	**S**	**S**	**S**	Use **appropriate** size equipment for age and size.
	S	**S**	**S**	**S**	Ventilation rate should be **1 breath every 3 seconds for children under 8 years of age.**
			S	**S**	If BVM ineffective, **perform advanced airway procedures** as certified *and trained*. BLS providers should request ALS.
	S	**S**	**S**	**S**	**Transport and notify hospital** ASAP with goal to limit on-scene time to **10 min. or less.**

Consult Medical Control for further consideration.

P-4: Airway Obstruction

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Determine if there is a strong suspicion, or witnessed event of foreign body aspiration. **DO NOT** use the foreign body maneuver if stridor is suspected to be as a result of epiglottis or croup.
S	**S**	**S**	**S**	**S**	Open the airway in all patients with comprised airflow: • Suspect neck injury in all trauma patients who are unresponsive, complain of neck pain, have neck tenderness or deformity. If neck injury is suspected, perform a chin lift or jaw thrust with the neck in the neutral position. Maintain neck stability at all times. • If no neck injury or trauma, perform a head tilt. **DO NOT** overextend the neck in small children.
S	**S**	**S**	**S**	**S**	If the patient is **CONSCIOUS** and the airway is obstructed. **Infant (less than 1 year of age):** • Perform 5 back blows followed by 5 chest thrusts. • Check airway. • Continue to perform 5 back blows and 5 chest thrusts until obstruction is relieved or the patient becomes unresponsive. **Child (1-8 years of age):** • Perform up to 5 abdominal thrusts. • Check airway. • Continue to perform abdominal thrusts until the obstruction is relieved or the patient becomes unresponsive.
S	**S**	**S**	**S**	**S**	If the patient becomes **UNRESPONSIVE/ or FOUND UNRESPONSIVE** after attempts to clear the airway: **Infant (less than 1 year of age):** • Visually inspect the airway for foreign body and remove if visible and accessible. • **DO NOT** perform a blind finger sweep. • Attempt ventilation. If unsuccessful, reposition the airway and reattempt ventilation once. • If the airway is still obstructed, perform 5 back blows followed by 5 chest thrusts. • Repeat steps until the airway obstruction is relieved. **Child (1-8 years of age):** • Open airway. • Visually inspect the airway for foreign body and remove if visible and accessible. • **DO NOT** perform a blind finger sweep. • Begin CPR.
	S	**S**	**S**	**S**	Initiate Immediate Transport and contact **Medical Control**.
S	**S**	**S**	**S**	**S**	If the airway obstruction is relieved, support ventilations and circulation as necessary and provide high flow oxygen.

			S	**S**	<u>If persistent attempts to relieve the complete obstruction are unsuccessful, attempt intubation</u>: • If the foreign body is visible and above the level of the vocal cords, remove foreign body using the Magill forceps. • If the foreign body is not visible, insert an ET tube past the level of the carina, pull back to the correct position and ventilate;

Consult Medical Control for further consideration.

P-5: Altered Level of Consciousness

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Aggressive oxygenation with high flow oxygen at 15lpm via non-rebreather mask. Support ventilations with bag-valve mask, if necessary.
S	**S**	**S**	**S**	**S**	Obtain **blood glucose determination**, *if trained.* If abnormal, refer to ***[P-15 Diabetic Emergency]*** guideline
S	**S**	**S**	**S**	**S**	Obtain full **Spinal immobilization***, *if trained* and indicated for suspected trauma.
S	**S**	**S**	**S**	**S**	If equipped, obtain body temperature in all infants with an altered mentation.
		S	**S**	**S**	Establish IV access.
			S	**S**	In serious and/or life threatening circumstances (hypovolemia with compensated shock) and unable to obtain IV access, attempt **IO access**.
		S	**S**	**S**	If suspected narcotic overdose, Administer **NARCAN 0.1mg/kg** slowly not to exceed 2mg via IV/IO/IM. **NOTE: Maximum of 2.5ml may be administered in one shot. Doses greater than 2.5ml (1.0mg) should be divided and given in two separate shots.**

Consult Medical Control for further consideration.

Key Points/Considerations
• Contact Poison Control prior to or during transport if known product/poisoning suspected: • 800-222-1222. • Sepsis with fever, hypothermia, or hypoxia may be some causes for altered mental status in children. • Is there a medical history that suggests a possible cause? • Is the patient a newborn of a narcotic mother? • Any evidence of trauma? • Is the patient under a physician's care for this condition?

P-6: Allergic Reaction

Definitions:

- **MILD** – local swelling and itching at the site
- **MODERATE** – hives and mild wheezing
- **SEVERE** – diffuse wheezing, pharyngeal swelling, dyspnea, HYPOPERFUSION, abnormal skin color, severe bronchospasm, laryngeal edema, stridor, and/or loss of peripheral pulses, impending death.

Symptoms can be immediate from time of exposure or may be delayed up to 60 minutes after exposure.

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform initial assessment, treat priority conditions. Initiate oxygen therapy per guideline.
			S	**S**	Monitor ECG and pulse oximetry.
S	**S**	**S**	**S**	**S**	Administer oxygen via NRB mask at 10-15lpm. Support ventilations as necessary and provide maximum flow oxygen- BVM or NRB mask.
S	**S**	**S**	**S**	**S**	Maintain warmth and prevent heat loss, place patient in a position of comfort.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
	S	**S**	**S**	**S**	Transport as soon as possible.
	S	**S**	**S**	**S**	For an unstable patient with wheezing, hoarseness, stridor, facial or tongue swelling and acute severe rash: Administer prescribed **EPI-PEN Jr. Auto-injector (0.15mg) (***if trained)* is for individuals weighing between 33 and 66lbs]. If weight is greater, refer to ***[AM-5: Anaphylaxis]*** guideline. Place tip of Auto-injector against the skin on a large muscle mass, (lateral side of thigh is preferred site). Press injector until a "click" is felt or heard, then hold for 10 seconds to allow for complete delivery of medication.
	S	**S**	**S**	**S**	Assess vital signs 5 minutes after administration. **Medical Control Required** for further directions.
		S	**S**	**S**	Establish IV access as appropriate. If patient is exhibiting signs of shock/hypoperfusion, infuse fluid bolus according to ***[P-25: Shock]*** guideline.
		S	**S**	**S**	Administer **DIPHENHYDRAMINE (Benadryl) 1mg/kg** IM (if in severe shock and/or and IV/IO can be readily established, Administer Benadryl IV/IO over 1 minute). **For Infant/Child Max dose is 25mg**.
			S	**S**	Administer **METHYLPREDNISOLONE 2mg/kg**, *if trained* .
	S	**S**	**S**	**S**	If patient has wheezing, Administer **ALBUTEROL 2.5mg** via nebulizer.

Consult Medical Control for further consideration.

Key Points/Considerations
• For minor allergic reactions that do not involve hypotension or respiratory symptoms, epinephrine is not needed. • Side effects of epinephrine may include myocardial ischemia, ventricular dysrrhythmias, and hypertension. • Benadryl may cause atropine-like effects with high doses: dilated pupils, dry mouth, and tachycardia. May be excitatory in children.

P-7: Anaphylaxis – Severe Allergic Reaction

Definitions:
SEVERE- diffuse wheezing, pharyngeal swelling, dyspnea, HYPOPERFUSION, abnormal skill color, severe bronchospasm, laryngeal edema, stridor, and/or loss of peripheral pulses, impending death.

True Anaphylaxis is a generalized allergic reaction involving more than one body system that is potentially life threatening. P-7: Anaphylaxis guideline should be followed in conjunction with P-6: Allergic Reaction.

FR	EMT	E	I	P	
S	S	S	S	S	**Anaphylaxis** is a generalized allergic reaction involving more than one body system that is potentially life threatening. The use of **Epinephrine** can be life saving, however, **Epinephrine** can cause serious cardiac complications, including cardiac arrest, its use should be restricted unless **clearly** indicated.
S	S	S	S	S	Perform initial assessment, treat priority conditions. Initiate oxygen therapy per guideline and treat.
S	S	S	S	S	Maintain warmth and prevent heat loss, place patient in a position of comfort.
		S	S	S	Establish IV access as appropriate. If patient is exhibiting signs of shock/hypoperfusion, infuse fluid according to ***[P-25: Shock]*** guideline.
			S	S	Administer **EPINEPHRINE 1:1,000 0.01mg/kg IM** injection up to 0.3mg. repeat if needed.
	S	S	S	S	Transport as soon as possible.

Consult Medical Control for further consideration.

I	P	
S	**S**	Perform advanced airway procedures as certified.
S	**S**	Obtain ECG. If asystole, confirm in two leads.
S	**S**	Establish IV access.
S	**S**	If IV is unsuccessful, establish **IO access**.
S	**S**	Administer **EPINEPHRINE 1:10,000 0.01mg/kg** via IV/IO, *if trained.* May be repeated every 3-5 minutes, to a maximum dose of 1.0 mg.
S	**S**	Administer bolus of **Normal Saline 20ml/kg** as rapidly as possible. May be repeated two additional times to a maximum of 60ml/kg.
S	**S**	If blood sugar is < 60mg/dl, Administer **DEXTROSE IV/IO**; refer to ***[P-15: Diabetic Emergency]*** guideline.

Consult Medical Control for further consideration.

Key Points/Considerations
• Most pediatric cardiac arrests are a result of airway compromise.

P-9: Cardiac-Bradycardia with a Pulse

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen via NRB mask at 15lpm. Support ventilations as necessary and provide maximum flow oxygen- BVM or NRB mask.
S	**S**	**S**	**S**	**S**	Obtain accurate history to differentiate causes.
S	**S**	**S**	**S**	**S**	If there are no signs of severe respiratory distress or circulatory compromise, contact **Medical Control** and transport promptly.
S	**S**	**S**	**S**	**S**	Assess respirations. If ineffective assist with BVM ventilations after disengaging the pop-off valve.
S	**S**	**S**	**S**	**S**	Begin CPR IF: • Pulse is **less than 90 beats per minute in an infant** or • Pulse **less than 60 beats per minute in a child**.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
S	**S**	**S**	**S**	**S**	Maintain warmth and prevent heat loss.
S	**S**	**S**	**S**	**S**	Continuously reassess ABCs and breath sounds.
			S	**S**	If BVM ventilations are ineffective, perform **advanced airway procedures**, *per certification and training.*
		S	**S**	**S**	If patient shows signs of inadequate perfusion, establish IV/IO access as appropriate.
		S	**S**	**S**	Administer **Normal Saline 20ml/kg** fluid bolus as rapidly as possible. May repeat two more times to a **maximum of 60ml/kg**. **MUST** reassess for fluid overload between boluses.
			S	**S**	Administer **EPINEPHRINE 1:10,000 0.01mg/kg**. IV/IO, *if trained*. May be repeated every 3-5 minutes, to a maximum dose of 1.0 mg.
			S	**S**	Administer **ATROPINE 0.02mg/kg**, with a minimum dose of 0.1mg. • Maximum single dose is 0.5mg if less than 50kg or • 1.0mg if greater than 50kg. • Maximum total dose for less than 50kg is 1.0mg. • Max total dose for greater than 50kg is 2.0mg.
			S	**S**	Repeat **ATROPINE 0.02mg/kg** with a minimum dose of 0.1mg. • Maximum single dose 0.5mg if less than 50kg or • 1.0mg if greater than 50kg.
S	**S**	**S**	**S**	**S**	If equipped, obtain **blood glucose measurement***, *if trained*.
		S	**S**	**S**	If blood glucose is < 60mg/dl, Administer **DEXTROSE** IV/IO, refer to ***[P-15: Diabetic Emergency]*** guideline.

Consult Medical Control for further consideration.

P-10: Cardiac-General Management Arrest or Pre-arrest

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Check for pulse: • In **infant** check for pulse at **brachial artery.** • In **child** check for pulse at **carotid artery**.
S	**S**	**S**	**S**	**S**	Establish **airway and ventilation** per appropriate guideline.
S	**S**	**S**	**S**	**S**	If patient is not breathing, begin **CPR at 30 compressions and two breaths for 5 cycles/2minutes** (approximate rate of 100 compressions per minute). Patients **under the age of 1 year should be 15 compressions and 2 breaths for 5 cycles/2 minutes**. Ventilations should not interrupt chest compressions.
S	**S**	**S**	**S**	**S**	If patient is pulseless and apneic, and pediatric AED available, apply AED and shock if indicated.
S	**S**	**S**	**S**	**S**	Maintain body temperature, expose only as needed to assess and treat.
S	**S**	**S**	**S**	**S**	Reassess frequently for pulse and respiratory effort.
	S	**S**			Transport rapidly with basic life support measures if advanced life support is not promptly available.
		S	**S**	**S**	Establish IV access within two attempts.
			S	**S**	If IV is unsuccessful, attempt **IO access.**
S	**S**	**S**	**S**	**S**	If equipped, obtain **blood glucose measurement**, *if trained*.
		S	**S**	**S**	If blood glucose is < 60mg/dl, Administer **DEXTROSE** IV/IO, refer to ***[P-15: Diabetic Emergency]*** guideline.
			S	**S**	If BVM ventilations are ineffective, perform **advanced airway procedures,** *per certification and training.*
			S	**S**	Evaluate cardiac rhythm and see the appropriate protocol for further management.

Consult Medical Control for further consideration.

P-11: Cardiac-Post-Resuscitation

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Reassess ABC's, establish baseline vital signs and assess breath sounds.
S	**S**	**S**	**S**	**S**	Transport and notify hospital ASAP.
S	**S**	**S**	**S**	**S**	Administer high flow oxygen and assist ventilations as necessary.
			S	**S**	If BVM is ineffective, perform **advanced airway procedures** *as certified and trained.*
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
S	**S**	**S**	**S**	**S**	Obtain **blood glucose measurement,** *as certified and trained*.
		S	**S**	**S**	Establish IV access as appropriate.
S	**S**	**S**	**S**	**S**	If blood glucose is < 60mg/dl, Administer **DEXTROSE** IV/IO, refer to ***[P- 15: Diabetic Emergency]*** guideline.
			S	**S**	If IV is unsuccessful, attempt **IO access.**
		S	**S**	**S**	**Rapid infusion (< 20 minutes) 20 ml/kg of NS**. If the first infusion does not work administer a second rapid infusion of 20 ml/kg of NS. Monitor patient for overload. **Contact Medical Control** for a third fluid bolus in post-resuscitation patient if perfusion is still inadequate.
			S	**S**	Administer **LIDOCAINE Infusion 20 to 50 µg/kg per min.**
			S	**S**	**Medical Control Required**: Administer **DOPAMINE Infusion 10-20µg/kg/min** for post-arrest hypotensive shock, *if trained*.

Consult Medical Control for further consideration.

P-12: Cardiac-Tachycardia, Narrow Complex (Paroxysmal SVT)

I	P	
S	**S**	Perform initial assessment, treat priority conditions. Initiate oxygen therapy per guideline.
S	**S**	Obtain accurate history to differentiate causes, rule out trauma.
S	**S**	Maintain warmth and prevent heat loss.
S	**S**	Should obtain IV access, Administer **Normal Saline bolus of 10cc/kg**. • If IV unsuccessful, attempt **IO access only** in life-threatening situations.
S	**S**	Obtain ECG. If QRS duration is ≤ 0.08 seconds continues; refer to ***[P-14: Cardiac-Ventricular Tachycardia (Wide-Complex)]*** guideline.
S	**S**	**Obtain 12-Lead** *per certification and training* and transmit to the hospital, if capable.
S	**S**	**If narrow complex and** heart rate greater than 220 **without signs of hypoperfusion,** draw up 10 ml saline. • Administer **ADENOSINE 0.1 MG/KG over 1-3 seconds,** using the med port closest to the angiocath. **IMMEDIATELY** followed by **rapid 10 ml saline flush.** Run a continuous ECG strip prior to and for at least two minutes after administration. Maximum dose 6 mg.
S	**S**	Reassess ABC's and breath sounds
S	**S**	If unchanged, administer **ADENOSINE 0.2 mg/kg over 1-3 seconds.** Follow administration method noted above. Maximum dose of 12 mg
S	**S**	If patient still has not converted after Adenosine, **Prepare for Cardioversion***, if trained***:** • If the heart rate is greater than 180 bpm (child) or 220 bpm (infant) • Signs of hypoperfusion, and • With no P waves visible and • A history that is **NOT** consistent with hypvolemia. **Consider** sedation with **VERSED 0.15mg/kg**, but **do not** delay cardioversion. ➢ If unable to readily establish IV, may give **Nasal VERSED 0.15 mg/kg.**
O	**O**	Synchronized **Cardiovert at 1.0J/kg**.
S	**S**	Reassess ABCs and breath sounds.
O	**O**	If heart rate and rhythm is unchanged, **Cardiovert at 2.0J/kg**.

Consult Medical Control for further consideration.

P-13: Cardiac-Ventricular Fibrillation and Pulseless Ventricular Tachycardia

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Establish unresponsiveness, apnea and pulselessness. If no pulse, begin CPR.
S	**S**	**S**	**S**	**S**	Airway/respiratory compromise frequently precedes pediatric arrest. Secure the patient's airway and ventilate with 100% oxygen.
S	**S**	**S**	**S**	**S**	Consider the causes.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
S	**S**	**S**	**S**	**S**	Continuously reassess ABCs and breath sounds.
		S	**S**	**S**	If BVM ventilations are ineffective, perform **advanced airway procedures**.
		S	**S**	**S**	Establish IV/IO access *per certification and training*.
			S	**S**	**Do not** delay defibrillation for advanced airway procedures. Once the ECG is confirmed, **defibrillate at 2J/kg**. Resume CPR immediately. Perform 5 cycles of CPR (approximately 2 minutes) giving continuous chest compressions.
			S	**S**	If still in a shockable rhythm after 5 cycles (approximately 2 minutes), **give 1 shock at 4J/kg**.
			S	**S**	Administer **EPINEPHRINE 1:10,000 0.01mg/kg** via IV/IO, *if trained.* May be repeated every 3-5 minutes, to a maximum dose of 1.0 mg.
			S	**S**	If VF/VT persists, **defibrillate at 4J/kg**, 30 to 60 seconds after each drug administration.
			S	**S**	If VF/VT persists, **LIDOCAINE 1mg/kg IV/IO once. Maximum dose is 100 mg.**
			S	**S**	For Torsades de Pointes, give **MAGNESIUM SULFATE 50 mg/kg** IV/IO over 5 minutes, max dose of 2g.

Consult Medical Control for further consideration.

Key Points/Considerations
• For **FR & BLS Providers follow AED protocol** as appropriate. DO NOT use AED if: ➢ **Under 1** year of age ➢ **Too small** to apply without pads touching.

P-14: Cardiac-Ventricular Tachycardia (Wide Complex with a Pulse)

I	P	
S	**S**	Establish IV/IO access *per certification and training*.
S	**S**	Obtain ECG. If QRS duration ≤ 0.08 seconds continues; refer to ***[P- 12: Cardiac-Narrow Complex Tachycardia]*** guideline.
S	**S**	Obtain 12-Lead,*if trained* and transmit to the hospital, if capable.
S	**S**	If there are signs of hypoperfusion, prepare for **Cardioversion**. Consider sedation with **VERSED 0.1mg/kg** with a maximum single dose of 2mg, but **DO NOT** delay cardioversion. • May administer **Nasal VERSED 0.1 mg/kg-** if unable to readily establish IV access.
O	**O**	Synchronized **Cardioversion** at 1.0J/kg, *if trained.*
S	**S**	Reassess **ABCs and breath sounds**.
O	**O**	If heart rate and rhythm is unchanged, **Cardiovert** at 2.0J/kg, *if trained*.
S	**S**	If Cardioversion unsuccessful at converting the rhythm AND patient continues to exhibit signs of hypoperfusion, Administer **LIDOCAINE 1mg/kg** (max of 100mg) via IV/IO bolus. **Contact Medical Control** for repeat dosing.

Consult Medical Control for further consideration.

P-15: Diabetic Emergency

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen via NRB mask at 15lpm.
S	**S**	**S**	**S**	**S**	Obtain an accurate history to differentiate causes.
S	**S**	**S**	**S**	**S**	Obtain glucose measurement*, *if trained,* (in neonates or infants, perform a heel stick rather than a finger stick).
	S	**S**	**S**	**S**	If blood glucose is less than 60mg/dl **AND** if the patient is conscious and can **protect their airway**, Administer **Oral GLUCOSE 7.5 to 15 grams (1/2 to 1 tube).**
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
		S	**S**	**S**	Establish IV access, no more than two attempts.
			S	**S**	If IV is unsuccessful, **attempt IO** access.
		S	**S**	**S**	If blood glucose is < 60mg/dl, Administer **DEXTROSE IV/IO**: • **Newborns (0-30 days) Use D25 (2.5g/10ml) to make D12.5 Administer 4.0ml/kg:** ➢ To make D12.5: Discard 5cc of D25 preload syringe. Draw up 5cc of Normal Saline with the reaming 5cc of D25. • **1 month – 14 yrs. Use D25 (2.5g/10ml) Administer 2ml/kg. If patient requires more than 10ml of D25 preload syringe, then dilute D50 to D25:** ➢ To dilute D50 to D25: Discard 25cc of D50 preload syringe. Draw up 25cc of Normal Saline with the remaining 25cc of D50. • **14 yrs. and Above. Use entire preload syringe of D50.** • If no IV/IO access can be obtained, Administer **Glucagon 0.1mg/kg up to 1.0mg IM.**
		S	**S**	**S**	Hyperglycemia (greater than 300mg/dl) with evidence of dehydration: • Administer Normal Saline bolus at 20ml/kg for **hypoperfusion and tachycardia**. Repeat once for persistent hypoperfusion. • Administer Normal Saline at 20ml/kg over 1 hour for stable patients with mild signs and symptoms of dehydration (mildly sunken fontanel, poor tugor, minimally tachycardia). • Administer a maximum of 40ml/kg without consultation with **Medical Control**.

Consult Medical Control for further consideration.

Key Points/Considerations
• Blood sample for testing MUST be obtained prior to administration of glucose.

P-16: Environmental-Hyperthermia

FR	EMT	E	I	P	
S	S	S	S	S	Perform scene safety.
S	S	S	S	S	Perform initial assessment and treat priority conditions.
S	S	S	S	S	Administer oxygen via NRB mask at 15lpm.
S	S	S	S	S	Move to a cooler environment and remove excess clothing. Protect from further heat exposure.
	S	S	S	S	Transport the patient rapidly to the receiving facility.
S	S	S	S	S	**Heat Exhaustion**: Carefully begin rehydration with water, if patient can tolerate liquids. Do not give large amounts of fluid rapidly or administer fluids by mouth to any patient who has an altered mental status. If temperature > 103 degrees F, cool patient with wet towels applied to areas where major vessels come close to the skin surface, (i.e., carotids, femorals, brachials). Remove cooling agent when temperature reaches 100 degrees F to avoid too rapid of a temperature drop which may initiate the shivering process (which will increase temperature).
S	S	S	S	S	**Heat Stroke**: Aggressive evaporation cooling is indicated (using fine mist water spray and forced air stream with fans), apply ice packs to groin and axillae. Continue cooling until core temperature reaches, or is less than 102.2 degrees F (to avoid too rapid of a temperature drop), or shivering begins (which will increase temperature).
		S	S	S	**Heat Exhaustion**: Fluid bolus therapy 20 mL/kg IV NS with evidence of hypovolemia or hemodynamic compromise, or severe heat cramps with painful, involuntary muscle spasms. If evidence of hypovolemia or hemodynamic compromise exists, then repeat fluid therapy at 20mL/kg IV bolus.
		S	S	S	**Heat Stroke**: Fluid bolus therapy initially at 20 mL/kg of NS. If evidence of hypovolemia or hemodynamic compromise exists, then repeat fluid therapy at 20mL/kg IV bolus.

Consult Medical Control for further consideration.

Key Points/Considerations
• The major difference between heat exhaustion and heat stroke is generally CNS impairment. • The treatment of heat exhaustion is rest with fluid volume and electrolyte replacement. • Dehydration and volume depletion **may not occur** in classic heat stroke. Vigorous fluid administration may produce pulmonary edema, especially in the very young. • Maximum fluid volume is 40mL/kg in both cases (monitor for signs and symptoms of fluid overload).

P-17: Environmental-Hypothermia (Cold Emergencies)

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Establish **airway and ventilation** per appropriate guideline.
S	**S**	**S**	**S**	**S**	Initial therapy for all patients includes: • Remove wet garments • Protect against heat loss & wind chill (use blankets) • Maintain horizontal position • Avoid rough movement • Monitor core temperature, if possible
S	**S**	**S**	**S**	**S**	If patient is in cardiac arrest, confirm pulselessness for 30-45 seconds: • Start CPR. • Give 1 shock. • Resume CPR immediately. • Ventilate with warm, humid oxygen.
S	**S**	**S**	**S**	**S**	If patient has a pulse: • Move to warm environment. • Active external re-warming (apply warm heat packs to neck, armpits and groin only).
	S	**S**	**S**	**S**	Transport immediately.
			S	**S**	If BVM ventilations are ineffective, perform **advanced airway procedures,** *per certification and training.*
		S	**S**	**S**	Establish IV access.
			S	**S**	Monitor ECG: If cardiac dysrhythmias are present, refer to specific protocols.
			O	**O**	Do not use more than a single dose of cardiac drugs or external pacing unless ordered by **Medical Control**.
S	**S**	**S**	**S**	**S**	Continue CPR.

Consult Medical Control for further consideration.

Key Points/Considerations
• Avoid aggressive or rough handling which may cause VF/VT, such as sudden movements and airway maneuvers such as an endotracheal tube placement. • Consider Medivac to center capable of heart/lung bypass for severely hypothermic patients.

P-18: Fever

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform initial assessment, treat priority conditions. Initiate O2 therapy per protocol.
S	**S**	**S**	**S**	**S**	Obtain history and temperature if possible.
S	**S**	**S**	**S**	**S**	Remove heavy cover, BUT avoid overexposure.
	O	**O**	**O**	**O**	Active cooling MAY be attempted **ONLY** if ordered by **Medical Control**.
	S	**S**	**S**	**S**	Transport and notify hospital ASAP with goal to limit on-scene time to 10 min. or less.
		S	**S**	**S**	If child has signs of hypoperfusion, Establish IV/IO NS, as appropriate *per certification and training*, during transport and **Administer 20 ml/kg fluid bolus as rapidly as possible**.
S	**S**	**S**	**S**	**S**	Reassess ABC's and breath sounds.
			S	**S**	Monitor ECG.
		O	**S**	**S**	**Repeat 20 ml/kg fluid bolus if perfusion still inadequate**.
S	**S**	**S**	**S**	**S**	Frequently reassess ABC's and breath sounds

Consult Medical Control for further consideration.

P-19: Nausea/Vomiting

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
	S	**S**	**S**	**S**	Allow patient to be transported in position of most comfort.
		S	**S**	**S**	Establish IV access.
			S	**S**	For patients who are actively vomiting or complaining of nausea from any cause, Administer **ONDANSETRON (Zofran) 0.1mg/kg (< 40 kg)** IV/IM, *per certification and training*. May be repeated **once** in 5 minutes; maximum total dose is 4mg. (For patients who weigh > 40 kg administer adult dose). **Contraindicated for patient < 1 year of age.**

Consult Medical Control for further consideration.

P-20: Near Drowning

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Remove from water.
S	**S**	**S**	**S**	**S**	Protect C-spine and maintain spinal immobilization if mechanism suggests trauma *(per certification and training)*.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
	S	**S**	**S**	**S**	Administer oxygen via NRB or BVM with supplemental O2.
S	**S**	**S**	**S**	**S**	If patient in cardiac arrest, refer to appropriate cardiac arrest guideline, ***[P-10: Cardiac-General Management Arrest or Pre-Arrest].***
S	**S**	**S**	**S**	**S**	Remove wet clothing, maintain body temperature.
S	**S**	**S**	**S**	**S**	If patient is hypothermic, refer to ***[P-17: Environmental Hypothermia]*** guideline.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
		S	**S**	**S**	Establish IV/IO access, *per certification and training*.
S	**S**	**S**	**S**	**S**	Refer to specific guideline for cardiac arrhythmias as needed.

Consult Medical Control for further consideration.

Key Points/Considerations
• Type of incident (surface impact, submerged object strike, propeller trauma). If submerged, how long under water and how deep? • Weather conditions, water temperature, temperature at depth discovered (if SCUBA recovery). • Hypothermic patients have slowed uptake and circulatory functions. No one is dead until they are warm and dead. Follow [*P-17: Hypothermia Protocol*] if immersion is in water. • **Remember**: All bodies of water in Virginia are considered “cold water immersion.” Pediatric patients may exhibit the mammalian diving reflex. If cold water immersion and may survive without neurological deficits, even with prolonged cardiac arrest

P-21: Pain Management

Background: Pain medication should be given in an amount sufficient to ***manage the pain***, not necessarily eliminate it.

I	P	
S	S	Perform initial patient assessment and obtain pertinent medical history.
S	S	Treat for shock, if needed.
S	S	Place patient on cardiac monitor and pulse oximetry.
S	S	Establish IV access. Initiate fluid bolus as necessary.
S	S	Administer **FENTANYL 1mcg/kg** via IM/IV/IO over 3-5 minutes. ***Maximum single dose is 50mcg*.** May repeat once in 5 minutes for continued severe pain.
S	S	Administer additional medication and/or carry out additional procedures as directed.

Pain Management Criteria: Any with a complaint of significant pain, including:

- Significant extremity injury(ies)
- Burn patients
- Crush injury patients
- Prolonged extrication
- Severe non-traumatic back and spinal pain

Do not administer pain management, except as directed by MEDICAL CONTROL, with the following:

- Multi-system trauma
- Abdominal pain
- Hypoperfusion
- Neck pain

Key Points/Considerations
• **Note:** Continuous ECG, pulse oximetry and blood pressure monitoring (every 5 minutes) are mandatory during and after the administration of Fentanyl. • Response to analgesics may vary dramatically from patient to patient. • The IV route is preferred for narcotic analgesic administration. Analgesics should generally be administered by the IV route slowly and in small increments until desired pain relief is attained. • The IM or IO route may be used in cases where IV access cannot be obtained. **Contact Medical Control for IM dosing.**

P-22: Poisoning

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	**Assure rescuer safety.** Remove child from toxic environment as necessary
S	**S**	**S**	**S**	**S**	Perform initial assessment, treat priority conditions. Initiate O2 therapy per guideline.
S	**S**	**S**	**S**	**S**	Obtain history to determine nature of poisoning. Assess for trauma
S	**S**	**S**	**S**	**S**	Maintain warmth and prevent heat loss
		S	**S**	**S**	If child presents with altered mental status establish **IV/IO NS,** KVO **as appropriate** *per certification and training*.
S	**S**	**S**	**S**	**S**	**Obtain blood glucose determination,** *per certification and training.*
		S	**S**	**S**	if blood glucose less than 60, administer **DEXTROSE 2ml/kg IV/IO;** refer to ***[P-15: Diabetic Emergencies]*** guideline.
		S	**S**	**S**	If patient is unconscious and/or has a depressed respiratory rate administer **NARCAN 0.1 mg/kg IV/IO over two minutes.** May administer 2 mg IM if no IV/IO access available. Maximum dose is 2mg.
			S	**S**	Monitor ECG**.**
S	**S**	**S**	**S**	**S**	Reassess **ABC's and breath sounds**
S	**S**	**S**	**S**	**S**	Place patient in **left lateral recumbent position,** unless trauma is suspected
	S	**S**	**S**	**S**	**Transport and notify hospital** ASAP with goal to limit on-scene time to **10 min. or less.**

Contact Medical Control for further Consideration

P-23: Respiratory Distress – Asthma/Croup/Epiglottitis

Background:
Asthma: generally presents with wheezing but may have no breath sounds due to the lack of air flow.
Croup: is identified by the sound of a "barking seal." Patient may present with distress and stridor.
Epiglottitis: patient may have drooling, retractions, hoarse voice, stridor, fever, tripoding or be in a leaning forward position.

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Differentiate between foreign body obstruction and medical causes.
S	**S**	**S**	**S**	**S**	Allow child to assume position of comfort.
S	**S**	**S**	**S**	**S**	Perform initial assessment, treat priority conditions. Initiate oxygen therapy per guideline.
S	**S**	**S**	**S**	**S**	Assess symptoms, respirations and breath sounds. If respirations are ineffective assist with BVM.
			S	**S**	If BVM is ineffective, assess technique. Perform **advanced airway procedures** *as certified and trained*.
S	**S**	**S**	**S**	**S**	Place patient in position of comfort. Allow child to remain with caregiver if necessary to keep patient calm. Crying aggravates the condition.
S	**S**	**S**	**S**	**S**	Continuous assessment of **ABC's and breath sounds** should be done.
S	**S**	**S**	**S**	**S**	Treat patients with respiratory distress as a priority patients. Transport promptly.
S	**S**	**S**	**S**	**S**	If patient is not responding and level of consciousness is deteriorating, Establish IV access.
	S	**S**	**S**	**S**	Patients presenting with asthma symptoms, Administer **ALBUTEROL 2.5mg** via nebulizer. Contact **Medical Control** for subsequent doses.
			S	**S**	If wheezing continues after 2 nebulizer treatments Administer **METHYLPREDNISOLONE (Solu-medrol) 2mg/kg IV/IO,** *(If trained)***.**
			O	**O**	Patients suspected of having **Croup/Epiglottitis** and presenting with moderate to severe distress may be considered candidates for an Epinephrine hand-held nebulizer treatment. • Place **EPINEPHRINE 1:1,000 2.5mg** and **3cc's of Normal Saline** in the hand held nebulizer. Connect to no less than 8 liters of oxygen. Have patient breath through nebulizer or administer via blow-by technique until treatment is complete.
			S	**S**	Monitor ECG.

Contact Medical Control for further Consideration

Key Points/Considerations
• All patients who receive nebulized epinephrine MUST be transported by an Advanced Life Support unit to the receiving medical facility. • **Intubate ONLY in Respiratory failure that does not respond to BVM ventilation.**

P-24: Seizures

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Protect the actively seizing patient. **DO NOT** attempt to restrain.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen – BVM or NRB mask.
S	**S**	**S**	**S**	**S**	Obtain accurate history to differentiate causes. Assess for trauma.
S	**S**	**S**	**S**	**S**	Remove heavy cover, **BUT** avoid overexposure.
S	**S**	**S**	**S**	**S**	Initiate cooling measures for temperatures greater than 102 degrees F.
S	**S**	**S**	**S**	**S**	Request Advanced Life Support, if not already dispatched.
		S	**S**	**S**	Establish IV/IO access *per certification and training*.
	S	**S**	**S**	**S**	If blood glucose is < 60mg/dl, refer to ***[P-15: Diabetic Emergency]*** guideline.
			S	**S**	Administer **VERSED 0.15 mg/kg** IV/IO at 1mg/min., to a **max dose of 5mg** (0-2 yrs) or **10mg** (>2 yrs). • **Medical Control Required**: May repeat in 5 minutes. ➢ May administer **Nasal VERSED 0.15 mg/kg** if unable to readily establish IV access. ➢ May also administer **VERSED 0.15 mg/kg IM** if unable to readily establish IV access OR if unable to give medication nasally.
			O	**O**	Contact **Medical Control** in seizure patients less than 6 months of age.
			S	**S**	Monitor ECG.
			S	**S**	Be prepared for decreasing respiratory drive.

Consult Medical Control for further consideration.

Key Points/Considerations
• Appropriate cooling measures including unwrapping the patient if covered with clothing or blankets and gently sponging with tepid bath water (too cold or warm can cause vascular collapse). • A physician should evaluate all seizures.

P-25: Shock (Non-Traumatic)

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform scene safety.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen- BVM or NRB mask.
S	**S**	**S**	**S**	**S**	If anaphylaxis, refer to ***[P- 7: Anaphylaxis]*** guideline.
S	**S**	**S**	**S**	**S**	Repeat vital signs every 5 minutes.
		S	**S**	**S**	Establish IV/IO and Administer **Normal Saline of 20ml/kg** IV bolus for hypotension. May repeat one time for continued hypotension. Refer to ***[R- 6: Pediatric Reference Chart]*** for definition of hypotension.

Consult Medical Control for further consideration.

P-26: Burns

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform initial assessment, treat priority conditions. Initiate oxygen therapy per guideline. If **inhalation injury suspected 15 lpm oxygen via NRB.**
S	**S**	**S**	**S**	**S**	Maintain warmth and prevent heat loss. Determine extent of burns, assess for trauma.
S	**S**	**S**	**S**	**S**	Stop the burning process. Apply *dry* sterile dressings for large burns. Moist dressings may be used for smaller burns but be careful not to induce hypothermia. Elevate extremities.
		S	**S**	**S**	If burn **less than 10% BSA**, use sterile saline at room temperature to saturate dressings. **NO ICE OR ICED Saline.**
		S	**S**	**S**	Establish IV/IO access *per certification and training*.
S	**S**	**S**	**S**	**S**	If burn **greater than 15% BSA**, administer **10 ml/kg/hr fluid bolus** en route. If in hypoperfusion, refer to ***[P-25: Shock]*** guideline.
Contact Medical Control for further consultation regarding cooling procedures.					
S	**S**	**S**	**S**	**S**	**Spinal immobilization** as indicated *per certification and training.*
S	**S**	**S**	**S**	**S**	Brush off excess powdered chemical and irrigate chemical burn site copiously with water if appropriate to chemical (if powdered chemical, brush off).
S	**S**	**S**	**S**	**S**	Splint fractures, but do not delay transport.
S	**S**	**S**			Request Advanced Life Support, if not already dispatched.
			S	**S**	Consider **early intubation if airway compromise develops from inhalation of superheated gases or smoke AND** if BVM ventilations are inefficient. Have a high index of suspicion in cases of facial burns, sooty sputum, singed facial hair, etc
			S	**S**	If unable to establish IV, attempt IO access, *(if trained).*
			O	**O**	**Medical Control Required**: For isolated extremity burns without additional trauma, Administer **FENTANYL 1mcg/kg** via IV/IO for moderate to severe pain from burns. Repeat as directed by **Medical Control** to a **maximum dose of 50mcg**.

Consult Medical Control for further consideration.

Key Points/Considerations
• In electrical burns, search for additional traumatic injury. • Remove jewelry and non-adherent clothing. • Estimate the extent of burns using rule of nines or palm formula (palm of patient's hand = 1%). • Note: Continuous ECG monitoring, pulse oximetry and blood pressure monitoring (every 5 minutes) are mandatory, during, and after administration of Fentanyl.

P-27: Central Nervous System Injuries

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Perform **full Spinal immobilization (***if trained)* if mechanism is suggestive of potential injury.
S	**S**	**S**	**S**	**S**	Maintain patient warmth.
S	**S**	**S**	**S**	**S**	Administer oxygen via NRB at 15lpm.
S	**S**	**S**	**S**	**S**	Record Glasgow Coma Scale.
		S	**S**	**S**	Establish IV access of Normal Saline.
		S	**S**	**S**	Administer **Normal Saline 20ml/kg** bolus for hypotension to a maximum of 40ml/kg. Be suspicious of other trauma if patient is hypotensive.

Consult Medical Control for further consideration.

A-1: Oxygen Therapy

The amount of oxygen administered should be based on clinical evaluation of the patient, (i.e. respiratory rate and depth, skin color and temperature, capillary refill, level of consciousness, lung sounds and history of present illness or mechanism of injury).

Oxygen should be delivered in a manner that maintains **oxygen saturation (SaO2) levels of at least 95%.** Always remember however to treat the patient not a monitoring device. If pulse oximetry is not available, oxygen should be delivered using a non-rebreather mask at 15 lpm.

There are no absolute contraindications to oxygen administration. However it should be used with **CAUTION** with patients who are likely to have a hypoxic drive, (i.e. emphysema and chronic bronchitis patient on continual home oxygen). In such cases, oxygen should be delivered in a manner that maintains **oxygen saturation (SaO2) levels of at least 92%**

For patients on home oxygen, continue their home oxygen delivery level **EXCEPT** in patients with signs of shock, cardiovascular or respiratory complaints. **If pulse oximetry is not available,** oxygen should be delivered to the potential **hypoxic drive patient at 1 to 4 lpm via nasal cannula.** Increased oxygen delivery may result in respiratory depression; be prepared to assist ventilation with a bag-valve-mask device. The decision to increase oxygen flow above the previous listed recommendations must be based on careful overall patient evaluation and assessment.

The following devices are commonly used in the pre-hospital setting:

Nasal Cannula:

1 lpm	24%	4 lpm	36%
2 lpm	28%	5 lpm	40%
3 lpm	32%	6 lpm	44%

Non-rebreather mask:

10 – 15 lpm	80% - 100%

A-2: Intravenous Therapy

Intravenous & Intraosseous Access and Fluid Administration

Throughout these protocols, the term "establish peripheral IV access" and "establish intraosseous access (IO)" is repeated. Unless specifically stated otherwise, the IV access can be limited to the establishment of a saline lock. Saline locks are effective by providing an access port for medication and fluid administration. IO access is secondary to an IV, and IO access is to be attempted prior to access of a central line.

Normal Saline is the fluid of choice in the pre-hospital setting. IV/IO fluid administration should follow the recommendations for specific injuries/illnesses presented within these protocols. As a rule of thumb, when administering fluids to a trauma patient who is hypoperfusing and/or doesn't have a radial pulse, fluids should be run "wide open" until there is an increase in the patient's blood pressure to at least the return of peripheral pulses.

In patients over the age of 50 years, fluids should be given with caution and the EMS provider should watch for signs and symptoms of fluid overload.

1. **Indications for pre-hospital IV placement include**:

    a. Site of entry for IV drugs that are indicated or anticipated.
    b. Fluid Replacement in:
        - Dehydration
        - Hemorrhage
        - Burns

2. **Catheter size**:

    a. Small-bore catheters (18 gauge or smaller) should be used for:
        - "Drug-only" infusion ports
        - "KVO" access in patients with fluid restrictions

    b. Large-bore catheters (14 or 16 gauge) should be used for:
        - Fluid replacement, (i.e. trauma, GI bleed, etc.)
        - Cardiac arrest resuscitation

3. **Administrative sets**:

    a. Saline locks should be used for:
        - "Drug-only" infusion ports
        - "KVO" access in patients with fluid restrictions

    b. 10 & 15 drop/ml sets (macro-drip should be used for:
        - Fluid replacement
        - When a potential need for fluid replacement exists, as in trauma
        - Cardiac arrest resuscitation
        - Hypoglycemic patients

A-3: Body Substance Isolation and Infection Control – All Levels

Universal Blood and Body Fluid Precautions:

1. The use of universal precautions is not listed in the specific guidelines. Universal precautions should be utilized for ALL procedures at risk of exposure to pathogens. Infection control procedures including donning gloves, masks, eye protection, gowns, hand washing and thoroughly cleaning equipment and the transport vehicle should ALWAYS be practiced as appropriate for the situation.

2. Body fluids include: saliva, blood, sputum, gastric secretions, urine, feces, cerebrospinal fluids, breast milk, serosanguinous fluid, semen, and/or bodily drainage.

3. Universal precautions should be observed with every patient if contact with their blood and/or body fluid is in any way possible, no matter what the diagnosis. This includes, but is not limited to, starting IV's, intubation, suctioning, caring for the trauma patient, OB/GYN emergencies, and bed-to-stretcher transfers.

All Levels Universal Precautions

1. Wear gloves if contact with blood or body fluids may occur.

2. Wear gowns if soiling of clothing with blood or body fluids may occur. Gowns must be impervious to fluids, particularly in the chest and arm areas.

3. Wear masks if aerosolization of blood or body fluids may occur, i.e. during suctioning, insertion of endotracheal tubes and other invasive procedures, or when a patient is displaying signs and symptoms suggestive of an infection with an airborne or respiratory route of transmission, or the provider has been notified that the patient has an infection with a respiratory component.

4. Wear goggles when spattering of blood or body fluids may occur.

5. Use airway adjuncts whenever mouth-to-mask resuscitation is indicated. Adjuncts include pocket masks, face shields, and bag-valve-mask.

6. Always wash hands after contact.
    - Contaminated equipment:
        - Place disposable equipment in a Red biohazard waterproof bag and dispose of it in a location approved for biohazard waste or by a service licensed to haul biohazard waste.
        - Non-disposable equipment must be rendered safe for handling before being put back into service. Refer to manufacturers' recommendations for proper cleaning and disinfecting.
        - Sterilize the following items, if non-disposable, before reusing: Laryngoscope blade, respiratory therapy equipment and the respiratory component of any automated CPR device.

    - Place linens soiled with blood or body fluids in red bags that are fluid resistant. Wear gloves when handling soiled linens.

- Dispose of needles and syringes in a rigid, puncture-resistant container. Recapping of needles is NOT recommended.

- Do not place needles or other contaminated items in any drug box.

- Avoid contaminating the outside of the container when collecting blood or other specimens. Wipe off any visible soiled containers prior to labeling the container. Place specimens in a puncture-resistant, leak-proof container marked with a biohazard label. Do not place specimens in the pockets of uniforms.

- Wipe blood and body fluid spills promptly, then decontaminate with a solution of 5.25 percent household bleach diluted 1:100 with water or other CDC-approved detergent disinfectant. Wear gloves when cleaning up spills.

- Clean interior of ambulance and on-board equipment routinely. Follow agency procedures for cleaning and disinfecting solutions in accordance with manufacturers' guidelines and CDC recommendations.

A-4: **Determination of Death and Termination of ACLS – All Levels**
(For Patients WITHOUT DNR Orders)

TERMINATION OF RESUSCITATION EFFORTS IS AN ON-LINE MEDICAL CONTROL DECISION ONLY! STRONGLY CONSIDER TERMININATION OF RESUSCITATION PRIOR TO LEAVING RESIDENCE OR RESCUE SHOULD CONTINUE RESUSCIATION EFFORTS UNTIL ARRIVAL AT HOSPITAL.

Medical Cardiac Arrest pronouncement algorithm

Prehospital patient, upon call in, presents with Medical cardiac arrest and receives "YES" answers to all questions should be pronounced in the field without transport to a hospital.

a. Consider the emotional needs of those present when considering termination efforts. Termination of resuscitation may not be appropriate in all circumstances.

b. Provide a complete report of patient's history, condition and treatment.

c. Follow any additional courses of treatment as directed by on-line Medical Control

Y	N	NOT a Witnessed arrest?
Y	N	Airway secured via supra glottic device or ET tube with confirmation?
Y	N	IV/IO access in place
Y	N	ACLS performed by prehospital personnel for 15 min or greater?
Y	N	Current cardiac rhythm is Asystole, Idioventricular, or VF/pulselessVT

Trauma related Cardiac Arrest pronouncement algorithm

Prehospital patient, upon call in, present with trauma related cardiac arrest and receives "YES" answers to all questions should be pronounced in the field without transport to a hospital.

Y	N	NOT a Witnessed arrest?
Y	N	Trauma related cardiac arrest?
Y	N	Revised Trauma Score = 0 (see below)
Y	N	Airway secured via supra glottic device or ET tube with confirmation?
Y	N	IV/IO access in place
Y	N	ACLS performed by prehospital personnel for 10 min or greater?

RTS Value	GCS	Systolic BP	Resp Rate
4	13-15	>89	10-29
3	9-12	76-89	>29
2	6-8	50-75	6-9
1	4-5	1-49	1-5
0	3	0	0

If on-line Medical Control directs the termination of resuscitation efforts:

a. If resuscitation efforts are terminated on the scene, the pre-hospital provider should documents the time and on-line physician name on the PPCR or patient reporting software.

b. Follow local guidelines concerning the notification of law enforcement and/or Medical Examiner. Remain on the scene until the proper authorities arrive.

c. Document patient's history, condition and treatment on the PPCR or patient reporting software.

d. Proceed to the on-line Medical Control hospital and exchange the drug box.

e. The PPCR and/or patient reporting printout should be signed by the on-line Medical Control physician at the earliest opportunity.

A-5: Determination of Non-Viability Guidelines – All Levels

Background: Under existing laws of the Commonwealth of Virginia EMS practice standards, pre-hospital providers should initiate cardiopulmonary resuscitation on all patients without vital signs UNLESS the patient presents with a condition that is non-compatible with life.

All Levels

Advanced cardiac life support must be initiated on all patients who are found apneic and pulseless, **UNLESS**:

1. The emergency care providers are presented with a valid **original Do Not Resuscitate order** as defined by the Virginia Department of Health, **OR**

2. To determine the non-viability of a patient, the following action steps are to be performed by 2 EMS certified providers.

    a) There is an injury that is obviously incompatible with life and visual/physical inspection of the body (mortal injury and obvious death):

    - Decapitation
    - Transection of chest and/or abdomen
    - Rigor mortis (not applicable in the hypothermic patient)
    - Decomposition of the body
    - Lividity (not applicable in the hypothermic patient)
    - Charring of the body
    - Extensive head trauma with exposed brain tissue
    - Chest injury/trauma indicative or mortal injury
    - Other bodily disfigurement indicative or mortal injury
    - No vital signs, no signs of life such as breathing activity or movement and asystole on the cardiac monitor.

    AND

    - Physical assessment of patient to include evaluation of the airway, breathing, and circulatory status (absent) and auscultation of breath and heart sounds (absent).

3. Patient(s) on crime scene incidents are to be evaluated as indicated above the EMS providers being sensitive to evidence on or around the patient. **Providing complete and thorough documentation is essential if any area or item within the crime scene is disturbed during this process.**

4. Online medical direction is received. This may include online medical direction from the patient's physician.

5. Rigor Mortis and lividity are not to be used as a guideline for determining non-viability in hypothermic patients.

6. If the cardiac arrest occurs after the arrival of EMS personnel, the patient **MUST** be transported immediately to the nearest appropriate hospital.

7. If none of the above conditions can be determined, resuscitative measures are to be initiated and carried out in accordance with the appropriate guideline.

EMT-Intermediate/Paramedic

Once initiated, resuscitation efforts must be continued until a physician terminates the resuscitation **(once initiated, it is better if resuscitation efforts are continued until arrival at the receiving facility).** When all of the following circumstances, advanced cardiac life support may be stopped prior to hospital arrival:

1. There must be good contact between the EMS provider and the medical command physician.

2. There must be at least two EMS providers on the scene during the resuscitation effort.

3. There has NOT been any restoration of spontaneous circulation with a spontaneous palpable pulse for at least one five-minute period at any time during the resuscitation.

4. The patient does NOT have spontaneous respirations, eye opening, motor response, or other continued neurological activity at the time stopping resuscitation is contemplated.

5. The cardiac rhythm is NOT persistent or recurrent ventricular fibrillation or ventricular tachycardia. If ventricular fibrillation or ventricular tachycardia is present, then resuscitative efforts should be continued until hospital arrival.

6. All EMS Providers present and the medical command physician must be in agreement concerning the termination of ACLS.

The cause of the cardiac arrest must be something other than drowning, hypothermia, acute airway obstruction, overdose, electrocution, or lightning strike.

Consult Medical Control for further consideration.

A-6: Documentation and Confidentiality – All Levels

All Levels

All patient information will be kept confidential. Patients may have access to their medical records by submitting a written request to the Program Director and must submit proof of identification prior to the information being released. Patient information will not be divulged to any other individual or organization, with the exception of when subpoenaed by the court for a proceeding.

Documentation of patient care should, at a minimum, include the following:

1. A patient care report will be written for each patient who is seen, treated or transported by EMS agency. The report should be completed on the pre-hospital patient care report form used by the agency.

2. In addition to information required by the Commonwealth of Virginia, documentation also should include:
    - The patient's chief complaint.
    - Vital signs and times.
    - Treatment provided and times.
    - ECG strip(s), if monitored.
    - Changes in the patient's condition.
    - Contact with Medical Control, the Referring and Receiving Physician.
    - Any deviation from protocols.

3. If the patient refuses treatment or transport, he/she must be deemed medically competent and must not be intoxicated by alcohol or drugs and must not be considered harmful to himself/herself or others. The documentation of such refusal should include:
    - The patient's full name.
    - The reason for response.
    - Reason for the patient's refusal.
    - Vital signs and times if patient allows.
    - Any other physical signs or symptoms.
    - Perceived level of consciousness.
    - Names and signatures of witnesses.
    - Signature of the patient.
    - Any additional refusal forms.

When a patient is transported, a copy of the report MUST be left at the receiving facility.

A-7: Exposure Procedure – All Levels

This guideline is written as a reference on how to manage exposure to infectious/communicable diseases. If your agency has a plan in place, please follow your agency recommendations and requirements.

1. As soon as possible, wash exposed area with soap and water. First Aid treatment as necessary.

2. If wound is not life threatening to injured individual, do not delay care of your patient.

3. As soon as possible after exposure, and upon arrival at the hospital, notify your agency Infection Control Officer.

4. Inform the hospital emergency department "Charge Nurse" of the exposure to insure that the "Source Patient" blood is drawn and sent for laboratory testing.

5. **Do not** seek medical treatment in the hospital unless the injury requires such treatment or the Infection Control Officer and Emergency Department Physician feels that treatment necessary.

6. The exposed individual should be sent to an agency approved physician for baseline examination and/or baseline blood samples within 24 hours of the exposure.

7. The laboratory results of the "Source Patient" shall be communicated to the Agency Infection Control Officer and the exposed individual within 24 hours to determine if any additional treatments are required.

My agency Infection Control Officer is:

_____ **(Name)**

_____ **(Contact Number)**

A-8: Mass Casualty Incident Management – All Levels

Background: A mass casualty incident (MCI) is any incident that injures enough people to overwhelm the resources usually available in a particular system or area.

Goals of MCIM:

- Do the greatest good for the greatest number.
- Manage scarce resources.
- Do not relocate the disaster.

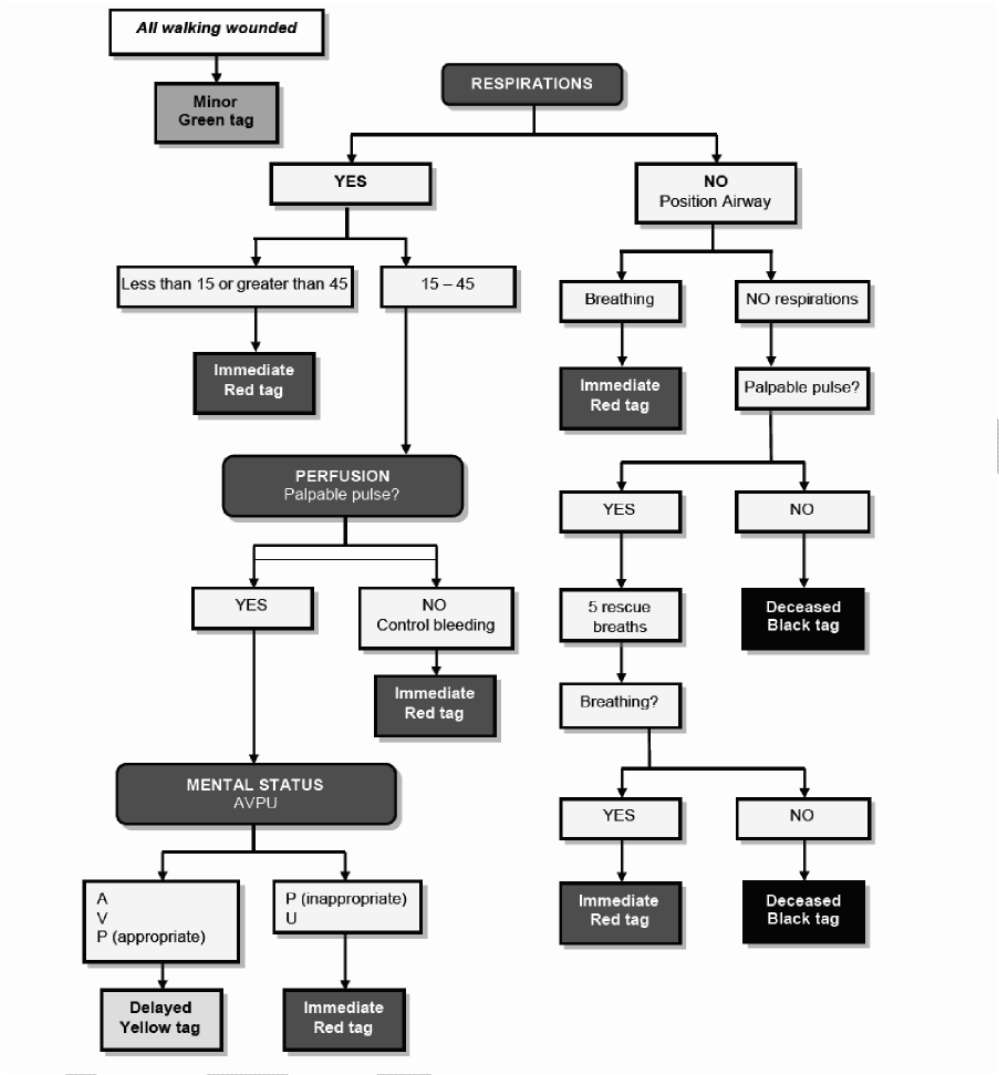
All Levels

The first emergency unit to arrive at a mass casualty incident is by default "In Charge" (the Incident Commander) until relieved. As a result, the individuals on the first emergency response unit must take immediate actions to begin to manage the entire incident. These actions may be the most important steps taken in the entire incident. The initial unit must resist the "temptation" to begin one-on-one patient care.

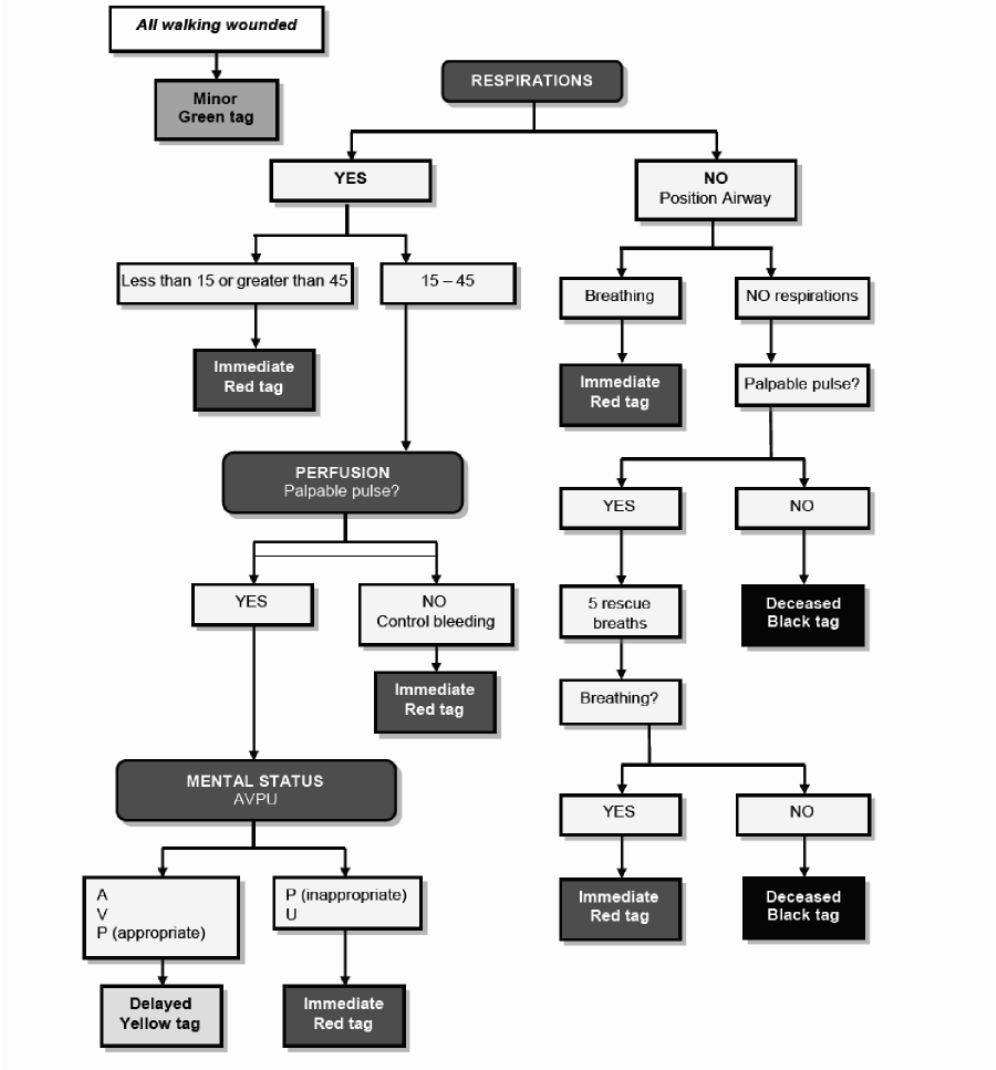
1. **Assess the Scene for Safety:** Look for the following which may pose a hazard: fire, electrical hazards, spilled or contained flammable liquids, hazardous materials, other life threats, and debris that pose a threat to rescuers or their vehicles.
2. **Scene Size-up:**
    - type of incident?
    - Approximate number of patients.
    - Severity of injuries.
    - Area involved, including problems with scene access.
3. **Send Information:**
    - Report the scene size-up information to the dispatcher.
    - Request additional resources.
    - Insure rapid hospital notification.
4. **Set-up:** Set-up the scene for the best management of mass casualties by on-scene and responding units:
    - Staging
    - Secure access and egress
    - Secure adequate space for work areas (triage, treatment, transportation)
5. **START Triage:** This triage method assures rapid initial assessment of all patients as the basis for assignment to treatment and as the first medical assessment of the incident.
    - Begin where you are.
    - Relocate Green patients.
    - Move in an orderly pattern.
    - Maintain count.
    - Minimal treatment.

Key Points/Considerations
During START triage, the person performing the triage should provide only minimal treatment. The only two patient interventions to be used are: • Opening the airway • Stopping gross bleeding and elevating lower extremities. • Use the approved Virginia Triage Tags when treating and transporting mass casualties.

A-9: START Triage Algorhythm



A-10: JUMP START Triage Algorhythm



A-11: Medical Communication – All Levels

EMS personnel are to provide pre-arrival notification to their inbound hospital under any of the following circumstances to the best of their ability:

1. **Advise inbound hospital of name of EMS agency and level of care provided on ambulance**.

2. Moderate to critically ill or injured patients in need of advanced life support (ALS) care or treatment advice.

3. Moderate to critically ill/injured patients that may require immediate medical attention upon arrival at medical facility (AIC judgment).

4. An incident requiring transport of multiple patients to a single medical facility. Example: vehicle accidents, fires, etc.

5. When the inbound facility has made a prior request to be notified of all or specific types of patients being transported to their facility.

6. On-line medical control should be established as soon as possible without delaying **critical** patient care. Medical control should be established at some point on a call requiring any **treatment** outlined in these protocols. Providers **are not required** to wait until they have completed standing orders to contact on-line Medical Control. Providers should contact Medical Control whenever advice, confirmation, or direction is needed.

7. Online medical control should be established with the receiving facility physician only. Request that the physician be brought to the radio prior to requesting treatment and medication orders as the information relayed

A-12: Quality Management– All Levels

Per **12 VAC 5-31-600** each agency in the Commonwealth of Virginia shall have a quality management system in place. In that regulation it is noted that an agency shall maintain a QM report that documents quarterly PPCR or Patient Care report reviews that are supervised by the Operational Medical Director.

In an effort to maintain QM throughout the region, each agency has a seat on the Regional Performance Improvement and Trauma Performance Improvement Committees. These two regional PI committees were formed to help agencies remain compliant with the State code.

The EMS Council in an effort to continue to keep the guidelines up to date and to bring the latest in pre-hospital medicine to the providers of the region will from time to time request certain information from each agency. The EMS Council intends to compile this information to determine the effectiveness of field interventions and look for areas in which we may improve, lessen restrictions, or re-evaluate specific protocols to ensure appropriate care for those who request the services of EMS.

Periodically agencies or specific providers may be asked to participate in trial uses of potential guidelines for evaluation purposes. In such a case the PPCR or Patient Care report must be submitted to the EMS Council and a mandatory survey or questionnaire may accompany the privilege of participation.

A-13: Statement of Medical Release/Refusal Guidelines – All Levels

Background: A person with decision making capacity is oriented to person, place, time and situation. Suicidal patients should never be considered as mentally competent.

All Levels

Any competent adult may refuse medical care and/or transportation for any reason as long as he/she is in fact mentally competent and has been fully informed of the circumstances surrounding their illness or injury. A mentally competent patient is considered to be alert and oriented to person, place, time and event or situation. Suicidal patients should not be considered as being mentally competent.

When an adult refuses treatment, perform the following procedures:

1. Perform as thorough assessment as possible and allowed by the patient. Completely inform the patient of their medical condition. Indicate what treatment is necessary and what possible complications may occur from refusing care within the scope of your training. Document assessment findings and indications that the patient understands and is competent to refuse care.

2. Encourage the patient to grant consent for treatment and transportation to the hospital.

3. Do not force assistance on a patient/person with decision making capacity.

4. Always have at least one witness present. Obtain written release. It is preferable to have a neutral party to witness the signing of the release.

5. Any pregnant patient regardless of age is considered to be an adult.

6. Any patient displaying documents from a recognized courts system that indicates the patient is an emancipated minor is considered to be an adult; should be accompanied by photo identification.

7. Any patient who is age 14 or older is considered to be an adult unless they are in the care and company of a parent or legal guardian who are competent (i.e., school official, law enforcement, etc.)

8. If there is doubt to a patient's mental capacity or the patient is a minor, perform the following:
    - If an emergency medical condition exists, initiate treatment under implied consent when informed consent cannot be quickly obtained from another appropriate party.
    - A reasonable form of restraint may be used ONLY if necessary and when there is implied consent. Restraint should only be used when the patient is a threat to themselves or others. Restraint should not exceed that which is reasonably necessary. If the patient is combative, reasonable care should be used. Whenever possible, law enforcement personnel should be utilized to assist. Document what indications lead to your determination of incompetence.
    - If a parent refuses medical care for a child, follow the same steps outlined above for competent adults. If you believe that the child has a life threatening condition, local law enforcement or social services officials should be contacted immediately. Consultation between the EMS provider, medical command and the appropriate authorities may allow authorities to take the child into protective custody.

Documentation:

Document verbatim what you told the patient relative to specific risks and potential complications that could result from refusing care and transportation. Include measurement indicators used to assess the patient's decision making capacity and ability to understand.

In certain situations where the provider is in doubt or concerned regarding the patients condition or assistance is needed in making a rational medical decision the provider should always err on the side of the patient. The provider should contact online medical direction for guidance. While the physician is not there they may be able to assist in the decision making process by your assessment findings and description of the current conditions and/or situation.

A-14: Sudden Infant Death Syndrome (SIDS) and Death of a Child – All Levels

Background: Rescuers should not make any assumptions or judgments. Observe, assess, and document accurately and objectively.

All Levels

1. Ensure scene safety.
2. Perform a scene survey to assess environmental conditions and mechanism of illness or injury.
3. Form a general impression of the patient's condition.
4. Observe standard precautions.
5. Establish patient responsiveness.
6. Assess airway and breathing. Confirm apnea.
7. Assess circulation and perfusion.
8. Initiate cardiac monitoring. Confirm absent pulse.
9. Determine whether to perform further resuscitation measures:
   - If patient does not exhibit rigor mortis, proceed with cardiopulmonary resuscitation as permitted by medical direction, following the protocol for non-traumatic cardiac arrest. During resuscitation, perform steps 11 and 12 below. Initiate transport.
   - If patient exhibits rigor mortis, do not resuscitate as permitted by medical direction. Proceed with step 10. Note: **Do not make any assumptions or judgments.**
10. Provide supportive measures for parents and siblings:
    - Explain the resuscitation process, transport decision, and further actions to be taken by hospital personnel or the medical examiner.
    - Reassure parents that there was nothing they could have done to prevent death.
    - Allow the parents to see the child and say goodbye.
    - Maintain a supportive, professional attitude no matter how the parents react.
    - Whenever possible, be responsive to parental requests. Be sensitive to ethnic and religious needs or responses and make allowances for them.
11. Obtain patient history using a nonjudgmental approach. Ask open-ended questions as follows:
    - Has the child been sick?
    - Can you describe what happened?
    - Who found the child? Where?
    - What actions were taken after the child was discovered?
    - Has the child been moved?
    - When was the child last seen before this occurred, and by whom?
    - How did the child seem when last seen?
    - When was the last feeding provided?
12. Reassess the environment. Document findings, noting the following:

- Where the child was located upon arrival
- Description of objects located near the child upon arrival
- Unusual environmental conditions, such as a high temperature in the room, abnormal odors, or other significant findings

13. If the parents interfere with treatment or attempt to alter the scene, initiate the following actions:
    - Remain supportive, sympathetic, and professional
    - Avoid arguing with the parents or exhibiting anger
    - Do not restrain the parents or request that they be restrained unless scene safety is clearly threatened

14. Document the call, including the following information:
    - Time of arrival
    - Initial assessment findings and basis for resuscitation decision
    - Time of resuscitation decision
    - Time of arrival at hospital if resuscitation and transport were initiated
    - Parental support measures provided if resuscitation was not initiated
    - History obtained (note who provided the information)
    - Environmental conditions
    - Time law enforcement personnel arrived on scene
    - Time that scene responsibility was turned over to law enforcement personnel

Consult Medical Control for further consideration.

A-15: Treatment of Minors – All Levels

Background: Under Virginia law, any consent/refusal of treatment and/or transportation by or for a pediatric patient (14 years of age and below) must have Medical Control consultation.

All Levels

1. Patients 12 years of age and younger are to be considered pediatric patients for the purpose of the Pediatric guidelines. Providers should establish on-line Medical Control if there is any question on whether to treat a patient following adult or pediatric protocols. The use of a **Broselow tape** for drug dosages and appropriate equipment sizing is strongly encouraged.

2. The pre-hospital provider may treat and/or transport, under the doctrine of implied consent, any minor who requires immediate care to save a life or prevent serious injury.

3. If a minor refuses needed care or if a minor is injured or ill and no parental contact is possible, the provider should contact on-line **Medical Control** for additional instructions.

4. The provider should always act on the side of appropriate patient care. Careful and complete documentation is always important.

5. If the ill or injured patient is a young child and the parent is present, the pre-hospital provider should refer to the appropriate Pediatric Guideline and consider the following in regard to transport:
    - Transport conscious children with a parent unless it interferes with proper patient care.
    - Allow the parent to hold or touch the child whenever possible.
    - Both the parent and child will respond best to open and honest dialogue.

A-16: Verification of On-Scene Personnel – All Levels

All Levels

1. EMS personnel will accept an order only from a physician with a license to practice medicine in the Commonwealth of Virginia. Other health care professionals, i.e. nurses, medical technicians, physician assistants, have no role in providing **Medical Control**.

2. EMS personnel may accept written orders from a physician transferring a patient from one medical facility to another if the orders are appropriate and within the scope of these protocols.

3. When not in a medical facility, and not known by the providers, the individual must provide identification verifying that he/she is a physician and willing to provide **Medical Control** to the providers.

4. The EMS providers will ask the physician to sign the PPCR. At the EMS providers' discretion, he/she will ask the physician to accompany the patient to the hospital. If the physician agrees and the orders are within the scope of these protocols, the EMS providers should follow them.

5. If the on-scene physician refuses the procedures outlined in step #4 or orders supplied are inappropriate, the following shall be taken:
   - Immediately contact medical control.
   - Advise the on-scene physician that you are operating under the direction of a medical command physician and ask him/her to speak with the on-line physician. If radio communications are not available, contact must be made by phone.
   - The medical command physician may ask the on-scene physician to provide an identification proving he/she is licenses to practice medicine in the Commonwealth of Virginia.
   - The on-scene physician will be granted or denied permission to treat the patient by the medical command physician.
   - The providers shall continue treating the patient with the assistance of the on-scene physician if permission is granted.

6. If permission is denied, inform the physician that the on-line medical command physician is assuming the responsibility for patient care.

MEDICATION INDEX

ADENOSINE [INTERMEDIATE/PARAMEDIC]

Actions: Decreases conduction of the electrical impulse through the AV node and interrupts AV reentry pathways in PSVT

Indications:
- PSVT

Contraindications:
- 2nd or 3rd degree heart blocks
- Sick Sinus Syndrome

Side Effects:
- Facial flushing
- Headache
- Shortness of Breath
- Dizziness
- Feeling of impending doom

Dosage: *ADULT:* 6 mg FAST IVP, repeat 12 mg as needed times 2
PEDIATRIC: First dose 0.1 mg/kg, max dose of 6 mg
Repeat dose is 0.2 mg/kg, max dose of 12 mg.

Supply: 6 mg vials

ASPIRIN [EMT-B/ENHANCED/INTERMEDIATE/PARAMEDIC]

Actions: Blocks formation of thromboxaine A_2, which causes platelets to aggregate and arteries to constrict

Indications: Acute MI, unstable angina

Contraindications:
- Hypersensitivity
- Pediatric patients

Side Effects: Indigestion, GI bleeding, acute anaphylaxis, angioedema, bronchospasm, urticaria, nausea

Dosage: 4 chewable tablets PO

Supply: 81 mg tablets

ALBUTEROL, Proventil ®, Ventolin ® [EMT-B/ENHANCED/INTERMEDIATE/PARAMEDIC]

Actions: Bronchodilation

Indications: Bronchospasm

Contraindications: Hypersensitivity

Side Effects: Tremor, nausea, tachycardia, palpitations, nervousness, arrhythmias

Dosage: < 4 yrs old: face mask preferred but may use nebulizer held under the face
≥ 4 yrs old: nebulizer with mouth piece or face mask
Set oxygen at 6-10 LPM [until nebulizer mists]
May repeat every 10 minutes, if needed.

Supply: 2.5mg of 0.083% solution

ATROPINE SULFATE [INTERMEDIATE/PARAMEDIC]

Actions: Blocks acetylcholine receptors (decreases vagal tone thus increasing heart rate)

Indications:
- Bradycardic arrhythmias
- Asystole
- Organophosphate poisoning
- Intubation in a patient < 1 year old to prevent bradycardia

Contraindications:
- Acute asthma

Side Effects: Tachycardia, cardiac arrhythmias, dry mouth, flushing, CNS disturbances (particularly in children) and hyperthermia.

Dosage: *ADULT: Bradycardia with poor perfusion:* 1.0 mg IV/IO. Repeat every 5 min. if needed. Max dose of 3mg.
Asystole & PEA: 1 mg IV/IO. Repeat in 3-5 min. if needed. Max dose 3mg
Organophosphate poisoning: 1 mg IV/IO every minute titrated to drying of respiratory secretions. Max dose of 3mg.
PEDIATRICS: 0.02 mg/kg IV/IO (Avoid age < 1 month). Repeat IV/IO dose in 5 min. if the heart rate is < 80/min.
MAXIMUM SINGLE DOSE: 0.5 mg if less than 50kg & 1.0mg if greater than 50kg.
MAXIMUM TOTAL DOSE : 1.0 mg if less than 50kg and 2.0mg if greater than 50kg.
For intubation in < 1 year old: IV/IO 0.02 mg/kg before intubation
MINIMUM: 0.1 mg
MAXIMUM: 1.0 mg

Supply: Prefilled syringe contains 1 mg (10 ml)

DEXTROSE [ENHANCED/INTERMEDIATE/PARAMEDIC]

Actions: Elevates blood glucose level.

Indications:
- Hypoglycemia (**Use Thiamine 100mg before administering Dextrose if suspected chronic alcohol abuse/use**).

Contraindications: Intracranial hemorrhage and stroke.

Side Effects:
- Tissue injury if infiltration occurs. Aspirate blood before and during the injection.
- Hyperglycemia

Dosage: *ADULT:* 25 gm IV
PEDIATRIC:
Newborns (0-30 days) Administer D12.5 4.0 ml/kg.
For children over one month old-14 years of age, Administer D25 2 ml/kg.
Repeat one dose in 2 minutes if the GCS is ≤ 12.

Supply:
- D50 Prefilled syringe contains 25 gm (50 ml).
- D25 Prefilled syringe contains 2.5gm (10ml).

DIPHENHYDRAMINE HCl, Benadryl ® [ENHANCED/INTERMEDIATE/PARAMEDIC]

Class: Antihistamine

Actions:
- Antihistamine
- Blocks histamine receptors

Indications:
- Allergic reaction

Contraindications:
- Hypersensitivity
- Asthma
- Glaucoma
- Weight < 22 lbs (10 kg)

Side Effects: Sedation, confusion, dry mouth, urinary retention

Dosage: 1 mg/kg IM/IV/IO, not to exceed 50 mg

Supply: 50mg/ml Inj, 1ml (1)

DOPAMINE HCl, Intropin ® [INTERMEDIATE/PARAMEDIC]

Actions:
- Increases cardiac contractility
- Causes peripheral vasoconstriction
- Increases chronotropic and inotropic effects

Low Dose Action (< 10 μg/kg/min.) → β effects predominate
High Dose Action (> 10 μg/kg/min.) → α effects

Indications: Hypotension

Contraindications: Hypovolemic shock (volume replacement MUST be accomplished prior to using Dopamine)

Side Effects: Tachycardia, hypertension, arrhythmias, chest pain, nausea, vomiting

Dosage: ***[Medical Control Required]***
ADULT: Infusion: 2-20 μg/kg/min. Titrate to systolic BP = 100. Place 400 mg in 250 ml D_5W [800 μg/ml]. Shake.
[Medical Control NOT Required if patient is post-resuscitation].
PEDIATRIC: Post arrest hypotension 10-20μg/kg/min.

Supply: Vial contains 200 mg (5 ml)

EPINEPHRINE 1:1,000, Adrenalin ® [ENHANCED/INTERMEDIATE/PARAMEDIC]

Actions:
- α - Vasoconstriction: improves coronary blood flow and supports BP in anaphylactic shock.
- β_1 – Inotropic and chronotropic effects.
- β_2 – Bronchodilation.
-

Indications:
- Anaphylaxis
- Pediatric cardiac arrest
- Asthma
- Pediatric Bradycardic with poor perfusion
- Croup

Contraindications: Avoid use in the following unless symptoms are severe:
- Chest pain
- Pulse > 140/min. (adults) or > 180/min. (children)
- Systolic BP > 180
- Age > 55 years

Side Effects: Tachycardia, hypertension, arrhythmias, tremor, anxiety, headache, chest pain

Dosage: *ADULT:* 0.3 mg (0.5 ml) IM
PEDIATRIC:
Asthma: 0.01 mg/kg (0.01 ml/kg) IM, may repeat in 15 minutes.
Anaphylaxis: 0.01 mg/kg (0.01 ml/kg) IM, may repeat in 15 minutes.
Croup Treatment: 2.5 mg in 3ml Normal Saline.

Supply: Ampule or tubex contains 1 mg/ml (1 ml); 30 ml multi dose vial (1)- [WVEMS will only use the 30ml vial ONLY]

EPINEPHRINE 1:10,000, Adrenalin ® [INTERMEDIATE/PARAMEDIC]

Actions:
- α - Vasoconstriction: improves coronary blood flow and supports BP in anaphylactic shock.
- β_1 – Inotropic and chronotropic effects.
- β_2 – Bronchodilation.
-

Indications:
- V-Fib and Pulseless V-Tach
- Asystole
- PEA
- Pediatric bradycardia with poor perfusion

Contraindications: None

Side Effects: Tachycardia, hypertension, arrhythmias, angina, anxiety

Dosage: *ADULT:* 1 mg (10 ml) IV/IO – BREMS uses 1:10,000 pre-filled for ALL doses). Repeat every 3-5 minutes until pulse returns.
PEDIATRIC: 0.01 mg/kg (0.1 ml/kg) IV/IO. Repeat every 3-5 minutes until pulse returns or bradycardia resolves.

Supply: 1mg pre-loaded syringe

Comments: Sodium Bicarbonate precipitates when mixed with Epinephrine. Make sure IV line is flushed if administering both medications.

FENTANYL, Sublimaze ® [INTERMEDIATE/PARAMEDIC]

Actions: Acts on the opiate receptors in the brain to block the sensation of pain:

Indications:
- Acute pain

Contraindications:
- Head Trauma
- Multiple trauma
- Decreased LOC
- Systolic BP < 110 (children: systolic BP < 80)
- Hypersensitivity

Side Effects: Respiratory depression, sedation, vomiting, bradycardia, decreased LOC. Rigid chest syndrome with rapid push.

Dosage: *ADULT:* 50mcg IM/IV/IO, May repeat once in five minutes for continued severe pain
PEDIATRIC: 1 mcg/kg IM/IV/IO, max single dose 50mcg. May repeat once in five minutes for continued severe pain

Supply: 2ml vial contains 50mcg/ml. (2 vials in the drug box).

Comments: Halt the IV injection if:
- Pain is relieved
- Systolic BP < 110
- Respiratory depression
- If rigid chest syndrome should occur, consider use of Naloxone (2mg)

When given IV/IO **Fentanyl** should be administered over 3-5 minutes. It should also be titrated to patient response with careful attention to the patient's blood pressure and perfusion.

FUROSEMIDE, Lasix ® [INTERMEDIATE/PARAMEDIC]

Actions:
- Inhibits reabsorption of Na & Cl in kidney

Indications:
- Pulmonary edema
- CHF

Contraindications: Anuria
Systolic BP < 110
Known severe hypokalemia
Hypersensitivity to sulfa compounds or furosemide

Side Effects: Hypotension, hypokalemia

Dosage: *ADULT:* 40 mg (4 ml) IV/IO at 15-20 mg/min or 2.5 times their daily dose for patients taking PO Lasix not to exceed 100mg. ***[Medical Control Required]*** *PEDIATRIC:* 1 mg/kg (0.1 ml/kg) IV/IO at 15-20 mg./min. ***[Medical Control Required]***

Supply: Vial contains 40 mg (4 ml)

GLUCAGON [EMT-B/ENHANCED/INTERMEDIATE/PARAMEDIC]

Actions:
- Causes breakdown of glycogen to glucose
- Elevates blood glucose level
- Opens ligand gated calcium channels in calcium channel blocker overdoses

Indications: Unable to administer IV /IO Dextrose in:
- GCS ≤ 12
- Rapid glucose determination < 60 mg/dl
- Calcium Channel blocker overdose **[Intermediate/Paramedic ONLY]**
- Anaphylaxis refractory to epinephrine, particularly if patient is on Beta Blockers **[Enhanced/Intermediate/Paramedic].**

Contraindications: Allergy to protein compounds.

Side Effects: Nausea, vomiting

Dosage: *ADULT:* 1 mg (1 ml) IM
PEDIATRIC: 0.1 mg/kg IM. Max dose 1.0mg.
For All: May be given IV/IO for Calcium Channel Blocker & Beta Blocker overdoses.

Supply: Vial containing 1 mg powder, vial containing 1 ml diluent.

Comments: Useful in β-blocker and Calcium Channel blocker overdoses (to open ligand gated Calcium channels). Usually requires significant quantity to be effective.

LIDOCAINE HCl, Xylocaine ® [INTERMEDIATE/PARAMEDIC]

Actions:
- Decreases myocardial excitability and conduction velocity.

Indications:
- V-Fib and pulseless V-Tach

Contraindications:
- Hypersensitivity

Side Effects: Dizziness, confusion, headache, drowsiness.

Dosage: *ADULT:* **Cardiac arrest VF/VT:** 1mg/kg IV/IO once, followed by 0.5mg/kg IV/IO for second and subsequent doses; Max dose is 3mg/kg.
Post-Resuscitation: If pt. has received Lidocaine during the arrest, Infusion of 1-4 mg/min. if heart rate is greater than 60bpm. **Wide Complex Tachycardia with Pulse**: 1mg/kg, may repeat dose at 0.5mg/kg; Max dose is 3mg/kg.
PEDIATRIC: **Cardiac arrest VF/VT: 1**.0 mg/kg IV/IO once, Max dose is 100mg. **Post-Resuscitation**: If pt. has received Lidocaine during the arrest, Infusion 20 to 50mcg/kg per min. **Wide Complex Tachycardia with Pulse:** 1mg/kg IV/IO max dose of 100mg.

Supply: Prefilled syringe contains 100 mg (5 ml)

LIDOCAINE 2% , Xylocaine ® [INTERMEDIATE/PARAMEDIC]

Actions: Local anesthesia

Indications: For alert patients, prior to IO syringe bolus to decrease pain of IO infusion.

Contraindications:
- Hypersensitivity

Side Effects: Numbness, drowsiness, confusion, dizziness, headache

Dosage: *ADULT:* Intraosseous Insertion: EZ-IO Hub; 20-40mg IO.
PEDIATRIC: Intraosseous Insertion: EZ-IO Hub; 0.5 mg/kg IO

Supply: 5 ml Vial (20mg/ml)

Comments: Intraosseous Infusion (IO) for alert patients has been noted to cause severe discomfort.. To be given prior to IO syringe bolus in alert patients.

MAGNESIUM SULFATE 50% [INTERMEDIATE/PARAMEDIC]

Actions:
- CNS depressant
- Anticonvulsant
- Smooth muscle relaxant (vasodilation, bronchodilation)

Indications:
- Refractory V-Fib and Pulseless V-Tach
- Eclampsia
- Torsades de Pointes
- Asthma

Contraindications:
- Hypersensitivity
- Complete heart block
- If reflexes disappear in the eclamptic patient, do not repeat dose.

Side Effects: Flushing, sweating, hypotension, bradycardia, complete heart block, depressed reflexes, respiratory paralysis, confusion

Dosage: *ADULT:* ***[Medical Control Required]***
Eclampsia: 4 gm (10% - 40 ml) IV over 4 minutes; Max dose is 4gm.
Torsades de Pointes: 2 gm (10% - 20 ml) IV over 5minutes.
Asthma 45 mg/kg not to exceed 2.5 grams over 5 minutes

Supply: Vial contains 1 gm/2 ml of a 50% solution.
To make 10% solution, add 8 ml of Normal Saline to each 1 gm (2 ml) of Magnesium Sulfate.

Comments:
- If the patient develops signs/symptoms of Magnesium toxicity, contact **Medical Control Required**.
- Torsades de Pointes is a form of V-Tach characterized alternating groups of positive and negative deflections on the cardiac monitor.

METHYLPREDNISOLONE, (Solumedrol) [INTERMEDIATE/PARAMEDIC]

Actions: Anti-inflammatory properties.

Indications:
- Asthma
- Anaphylaxis
- COPD

Contraindications: None

Side Effects:
- Fluid Retention
- Vertigo
- Anxiety
- Headache

Dosage: *ADULT:* 125 mg IVP
PEDIATRIC: 2 mg/kg IVP

Supply: 125mg vial

MIDAZOLAM HCl, Versed ® [INTERMEDIATE/PARAMEDIC]

Actions: Sedation by direct action on CNS

Indications:
- Seizures
- Sedation for cardioversion, TCP.
- Sedation after endotracheal intubation.
- Severe agitation, tachycardia, or hallucinations cause by alcohol intoxication/withdraw
- Seizures, tachydysrhythmias, altered vitals signs from cocaine or Methamphetamine overdose.

Contraindications:
- Hypersensitivity.
- Hypotension

Side Effects: Respiratory depression, hypotension, amnesia, apnea

Dosage: *ADULT:* 5 mg slow IVP titrated to effect. May administer same dose using nasal versed. May repeat dose in 5 minutes. ***[Medical Control Required]***
PEDIATRIC: 0.15mg/kg IV up to a maximum of 5mg. ***[Medical Control Required]***
May administer same dose using nasal versed.
May also administer same dose IM if unable to readily establish IV/IO access.

Supply: Vial contains 5 ml (1mg/ml). (2 vials in the drug box). Adaptors available for nasal administration.

Comments: Advanced airway management equipment must be readily available. Be prepared for respiratory depression.

NALOXONE, Narcan ® [ENHANCED/INTERMEDIATE/PARAMEDIC]

Actions: Reverses effects of narcotics by competing for opiate receptors.

Indications:
- Opioid intoxication with respiratory depression

Contraindications: Chronic Opiate therapy

Side Effects:
- Awakened patient may become combative
- Withdrawal reaction

Dosage: *ADULT: (> 20kg)*: 2 mg (5 ml) IV/IO at 0.4 mg/min. If unable to start the IV/IO, give Naloxone 1.6 mg IM (two injections of 0.8 mg in different locations)
PEDIATRIC: (< 20 kg): 0.1mg/kg IV/IO (IM if unable to obtain IV access).
If no response contact ***[Medical Control]***.

Supply: Vial contains 4 mg (10 ml) (0.4 mg/ml)

Comments:
- Halt the IV injection if agitation occurs.
- Avoid use in intubated patients.
- Reversal of coma, hypotension & respiratory depression is only temporary.

NITROGLYCERIN, Nitrostat ®
NITROPASTE 2% OINTMENT, Nitro-bid ®, Nitrol ® [ENHANCED/INTERMEDIATE/PARAMEDIC]

Actions:
- Systemic vasodilation decreases myocardial oxygen demand.

Indications:
- Chest discomfort (cardiac cause suspected)
- Pulmonary Edema
- CHF

Contraindications:
- Systolic BP < 100
- Acute stroke
- Nitroglycerin intolerance
- Use of Levitra ® (vardenafil), Cialis ® (tadalafil), or Viagra ® (sildenafil) in the last 24 hours.

Side Effects: Hypotension, tachycardia, syncope, headache, flushing. Bradycardia may occur in AMI.

Dosage: Tablet: 0.4 mg SL. May be repeated every 5 minutes unless the systolic BP is < 110 or pulse is < 60.
Ointment: 1 inch (1 packet) topically to the chest or upper arm. Wipe off the paste if any contraindications develop.

Supply: Bottle containing 0.4 mg tablets.
Packets containing ointment (1 inch/packet)

Comments:
- Attempt IV access prior to Nitroglycerin administration.
- Wear gloves when applying ointment.

Ondansetron, Zofran ® [INTERMEDIATE/PARAMEDIC]

Actions: Binds to 5-HT3 receptor receptors in the periphery and CNS with primary effects in the GI tract

Indications: Nausea/vomiting from any cause

Contraindications:
- Hypersensitivity
- Age less than 1 year
- Phenylketonurics (see below)

Side Effects: Rare – headache, dizziness, prolongation of PR/QRS/QT intervals, arrhythmias

Dosage: *ADULT*: 4 mg IV/IO/IM
PEDIATRIC: 0.1mg/kg IV/IO/IM, max 4 mg
May repeat once in adults and pediatrics after 5 minutes for continued nausea/vomiting

Supply: 4mg vial (4mg/2ml)

Comments: Contains phenylalanine: Do Not use if patient has history of phenylketonuria (or inability to metabolize phenylalanine)

SODIUM BICARBONATE, $NaHCO_3$ [INTERMEDIATE/PARAMEDIC]

Actions:
- Increases blood pH

Indications:
- Cardiac arrest in a dialysis patient (hyperkalemia).
- Tricyclic antidepressant overdose
- Calcium Channel Blocker overdose

Contraindications: Hypersensitivity

Side Effects: Metabolic alkalosis, increased sodium, decreased potassium

Dosage: *ADULT:* 1 mEq/kg IVP (1 ml/kg). MAX: 100 mEq
For Cardiac arrest in dialysis patients give 50mEq IV/IO
PEDIATRIC: Not recommended for pre-hospital use.

Supply: Prefilled syringe contains 50 mEq (50 ml)

Comments:
- Providing optimum chest compressions and ventilation best treats acidosis in cardiac arrest. Sodium Bicarbonate may worsen outcome in cardiac arrest.
- Sodium Bicarbonate should be an early treatment consideration in dialysis patients in cardiac arrest.
- Common tricyclic antidepressants – Elavil ® (amitriptyline), Norpramin ® (desipramine), Pamelor ® (nortriptyline), Sinequan ® (doxepin), Tofranil ® (imipramine)
- Common Calcium Channel Blockers:
  - Diltizdem ® (Cardizem, Tiazac)
  - Verapamil ® (Calan, Isoptin, Verelan)
  - Amlodipine ® (Norvasc)
  - Nicardipine ® (Cardene)
  - Nifedipine ® (Procardia, Adalat)

R-1: Dopamine Infusion Chart

Mix 400mg in 250mL of D5W (1600ug/ml) and run at:

Patient weight in kilograms

mcg/kg/min	40	50	60	70	80	90	100	110	120	130
5mcg	8	10	12	14	16	18	20	22	24	26
10mcg	16	20	24	28	32	36	40	44	48	52
15mcg	24	30	36	42	48	54	60	66	72	78
20mcg	36	40	48	56	64	72	80	88	96	104

Micro drip/Macro drip per minute (mL/hr)

CONTINUED ON NEXT PAGE

Mix 800mg in 500ml of D5W (1,600 mcg/ml) run at:

WEIGHT: To^{p} = Pounds Bottom = Kilo^{g}rams

mcg/kg/min	99 45	110 50	121 55	132 60	143 65	154 70	165 75	176 80	187 85	198 90	209 95	220 100	231 105	242 110
2	3	4	4	5	5	5	6	6	6	7	7	8	8	8
5	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**
6	10	11	12	14	15	16	17	18	19	20	21	23	24	25
7	**12**	**13**	**14**	1 6	1 7	1 8	20	2 1	2 2	2 4	2 5	**26**	2829	2 9
8	14	15	17	18	20	21	23	24	26	27	29	30	32	33
9	**15**	**17**	**19**	**20**	**22**	**24**	**25**	**27**	**29**	**30**	**32**	**34**	**35**	**37**
10	17	19	21	23	24	26	28	30	32	34	36	38	40	41
11	**19**	**21**	**23**	**25**	**27**	**29**	**31**	**33**	**35**	**37**	**39**	**41**	**43**	**45**
12	20	23	25	27	29	32	34	36	38	41	43	45	47	50
13	**22**	**24**	**27**				29323437394144 46					**49**	**5154**	
14	24	26	29	32	34	37	39	42	45	47	50	53	55	58
15	**25**	**28**	**31**	**34**	**37**	**39**	**42**	**45**	**48**	**51**	**54**	**56**	**60**	**62**

(Calculations rounded to nearest drop per minute)

R-2: IV Drip Rate Chart

IV DRIP RATES

ml's per hour

GTTS	50	100	150	175	200	250	300	350	400
10	8	17	25	29	33	42	50	58	67
15	13	25	38	44	50	63	75	88	100
20	17	33	50	58	67	83	100	117	133
60	50	100	150	175	200	250	300	350	400

(Rates rounded to nearest drop per minute)

R-3: Glasgow Coma Scale

Eye Opening		Spontaneous	**4**
		To Verbal Stimulation	**3**
		To Painful Stimulation	**2**
		No Response	**1**
Verbal	Over 5 years	Oriented/Appropriate	**5**
		Confused	**4**
		Inappropriate Words	**3**
		Incomprehensible sounds	**2**
		No Response	**1**
Motor	Over 5 years	Obeys Commands	**6**
		Localization of Pain	**5**
		Withdrawal (pain)	**4**
		Flexor Posturing (pain)	**3**
		Extensor Posturing (pain)	**2**
		None	**1**
TOTAL GLASGOW COMA SCALE			**3 – 15**

R-4: Child/Infant Modified Glasgow Coma Scale

	CHILD	INFANT	
Eye Opening	Spontaneous	Spontaneous	**4**
	To speech	To speech	**3**
	To pain only	To pain only	**2**
	No response	No response	**1**

	CHILD	INFANT	
Best Verbal Response	Oriented, appropriate	Coos and babbles	**5**
	Confused	Irritable cries	**4**
	Inappropriate words	Cries to pain	**3**
	Incomprehensible sounds	Moans to pain	**2**
	No response	No response	**1**

	CHILD	INFANT	
Best Motor Response	Obeys commands	Moves spontaneously & purposefully	**6**
	Localizes painful stimuli	Withdraws to touch	**5**
	Withdraws in response to pain	Withdraws in response to pain	**4**
	Flexion in response to pain	Abnormal extension posture to pain	**3**
	Extension in response to pain	Abnormal extension posture to pain	**2**
	No response	No response	**1**

TOTAL GLASGOW COMA SCALE	**3 – 15**

R-5: Adult Revised Trauma Chart

The Trauma Score is a numerical grading system for estimating the severity of injury. The score is comprised of the Glasgow Coma Scale (reduced to approximately one third total value) and measurements of cardiopulmonary function. Each parameter is given a number (high for normal and low for impaired function). Severity of injury is estimated by summing the numbers. The lowest score is 0 and the highest score is 12.

GCS Conversion	GCS Total	Code Value
	13-15	4
	9-12	3
	6-8	2
	4-5	1
	3	0
Systolic Blood Pressure	Greater than 89	4
	76-89	3
	50-75	2
	1-49	1
	0	0
Respiratory Rate	10-29 per minute	4
	Greater then 29 per min.	3
	6-9 per minute	2
	1-5 per minute	1
	0	0

APGAR Score

The APGAR Scale is to be completed on a newborn baby 1 minute and 5 minutes after birth.

	0 Points	1 Point	2 Points
Heart Rate (bpm)	Absent (0)	Slow (<100 beats/min.)	≥ 100 beats/min.
Respirations	Absent (0)	Slow, Irregular	Good, Crying
Muscle Tone	Limp	Some flexion	Active Motion
Reflex (Stimulation)	No Response	Grimace	Cough, Sneeze, Cy
Color	Blue or Pale	Pink Body with Blue Extremities	Completely Pink

PEDIATRIC AIRWAY EQUIPMENT

Age Weight (kg)	Laryngoscope Blade	Endotracheal Tube	Suction Catheter
Newborn 3 kg - 5kg	0-1 Miller	3.0 - 3.5 Uncuffed	6-8 French
Infant 6 kg - 9kg	1 Miller	3.5 Uncuffed	8 French
Toddler 10kg – 11 kg	1 Miller	4.0 Uncuffed	8 – 10 French
Small Child 12 kg – 14 kg	2 Miller	4.5 Uncuffed	10 French
Child 15 kg – 18 kg	2 Miller or Mac	5.0 Uncuffed	10 French
Child 19 kg – 22 kg	2 Miller or Mac	5.5 Uncuffed	10 French
Large Child 24 kg – 28 kg	2 – 3 Miller or Mac	6.0 Cuffed	10 French

Endotracheal tube size estimation (age ≥ 1 year)

- Tube size = (Age in years + 16) ÷ 4
- Tube size = the width of the tip of the child's pinky fingernail

R-7: Vital Sign Reference Chart

PEDIATRIC VITALS

Age	Heart Rate	Respiratory Rate	Minimum Systolic BP
Infant (less than 1 year)	100 – 160	30 – 60	greater than 60
Toddler (1 to 2 years)	90 – 150	24 – 40	greater than 70
Preschooler (3 to 5 years)	80 – 140	22 – 34	greater than 75
School-aged child (6 to 10 years)	70 – 120	18 – 30	greater than 80
Adolescent (11 to 18 years)	60 – 100	12 – 16	greater than 90

Weight (kg)	Laryngoscope Blade	ET Tube	ET Tube Length	Stylet	Suction Catheter
Newborn **3-5 kg**	0-1 straight	3.0-3.5 uncuffed	10-10.5	6 Fr	6-8 Fr
Infant **6-9 kg**	1 straight	3.5 uncuffed	10-10.5	6 Fr	8 Fr
Toddler **10-11 kg**	1 straight	4.0 uncuffed	11-12	6 Fr	8-10 Fr
Small Child **12-14 kg**	2 straight	4.5 uncuffed	12.5-13.5	6 Fr	10 Fr
Child **15-18 kg**	2 straight or curved	5.0 uncuffed	14-15	6 Fr	10 Fr
Child **19-22 kg**	2 straight or curved	5.5 uncuffed	15.5-16.5	14 Fr	10 Fr
Large Child **24-30 kg**	2-3 straight or curved	6.0 cuffed	17-18	14 Fr	10 Fr
"Adult" **greater than or equal to 32 kg**	3 straight or curved	6.5 cuffed	18.5-19.5	14 Fr	12 Fr

ADULT VITALS

(Averages only- use actual weight for dosing medications, also consider current state of health)

GENDER	PULSE	RESPIRATIONS	SYSTOLIC BP
Male	60-100	12-20	120-150
Female	60-100	12-20	110-140
Female *Post Menopause*	60-100	12-20	120-150

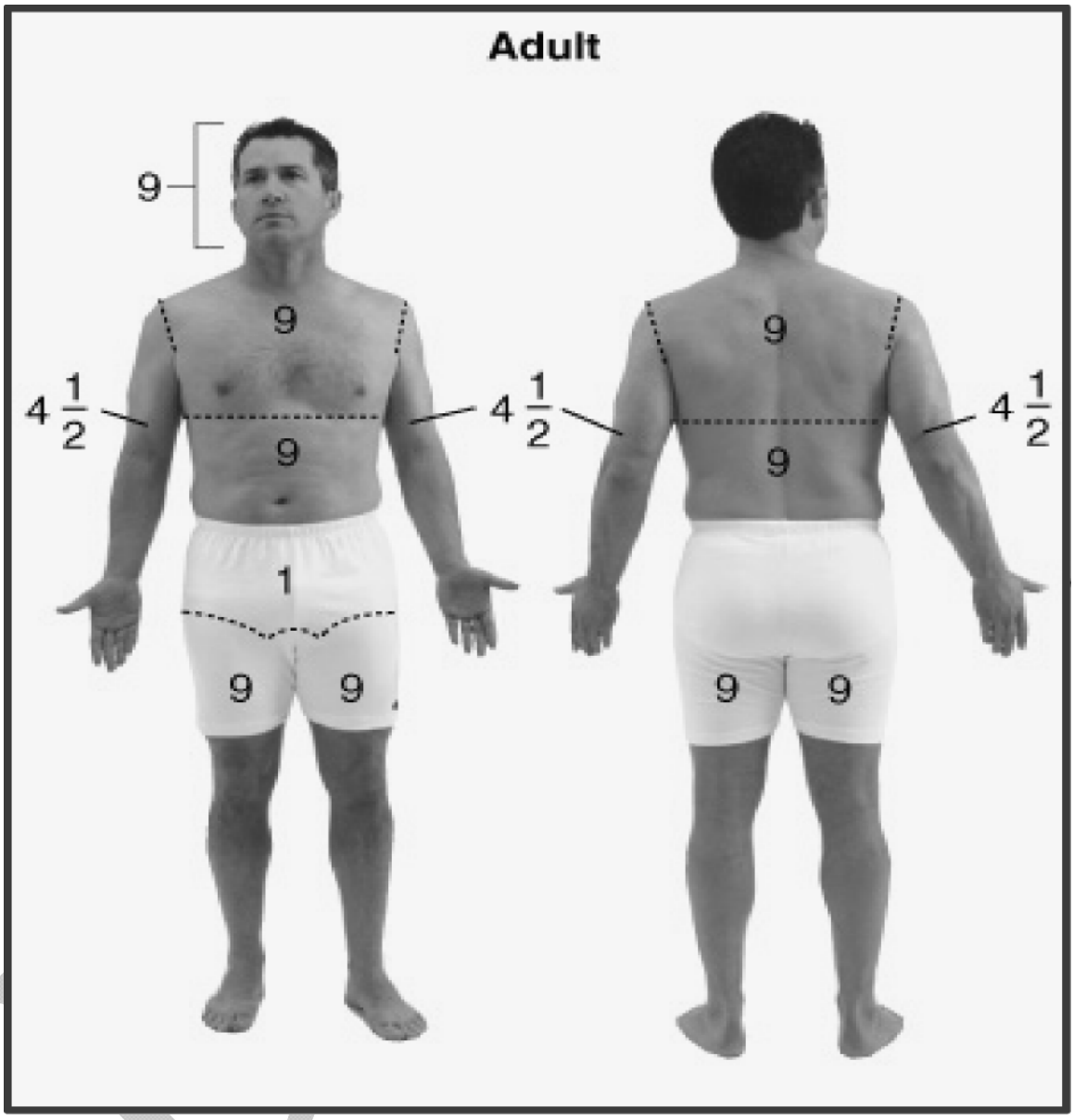
R-8: Parkland Burn Formula

Background: Burns often require extremely large hourly IV rates for fluid administration for appropriate cardiovascular support. The Parkland Burn Formula is used to determine the initial fluid resuscitation needs in a burn patient.

4cc/kg of Normal Saline X % burn area X body weight (kg) = fluid needs in first 24 hours

Half of this amount is given in the first eight (8) hours and the remainder is given over the next 16 hours

R-9: Rule of Nines



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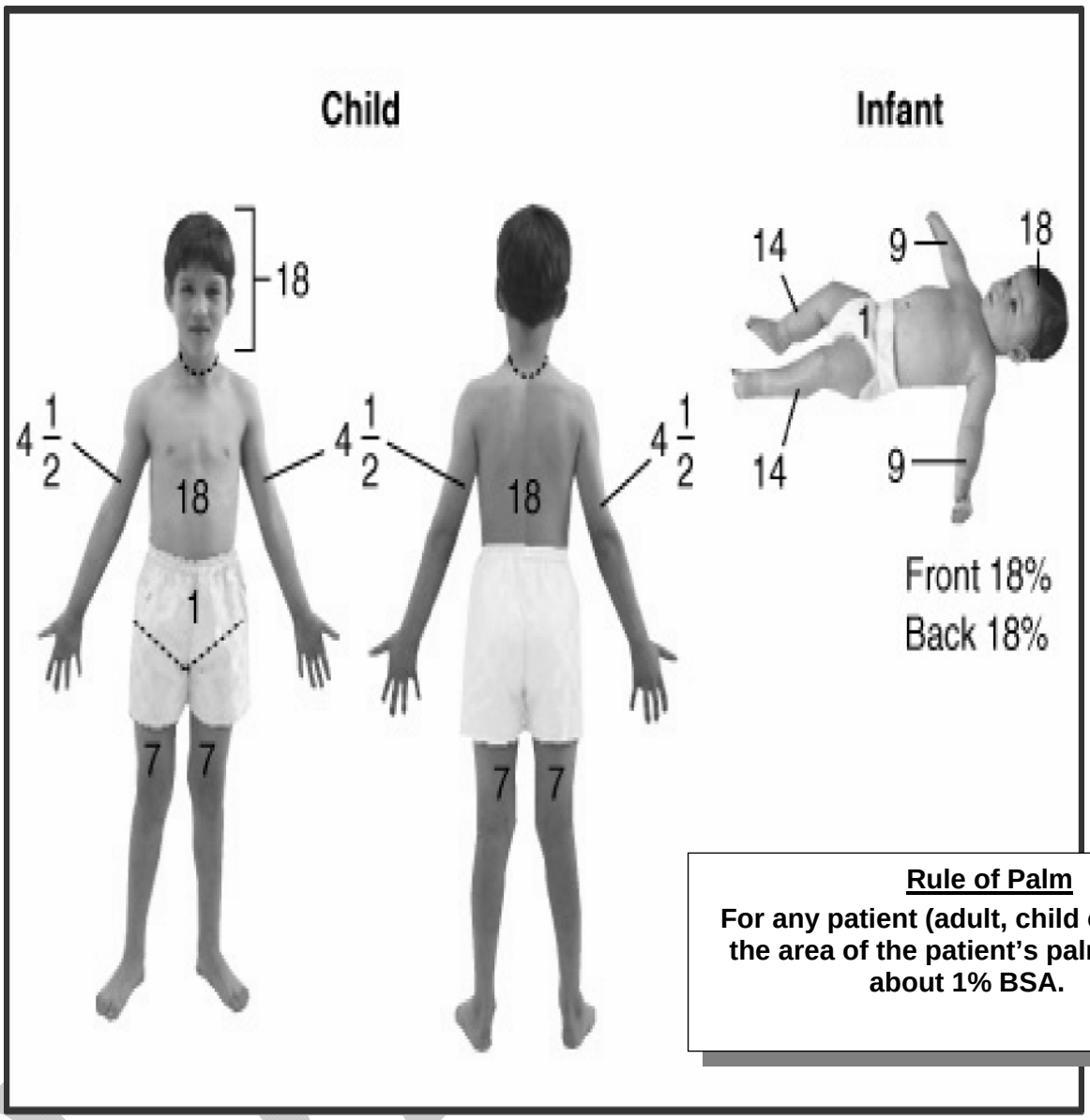


Rule of Palm

For any patient (adult, child or infant), the area of the patient's palm equals about 1% BSA.

Lynchburg General Hospital Emergency Department: EMS personnel are to provide pre-arrival notification of all patients inbound to Lynchburg General Hospital.

Contact:	LGH Medical Control	
	Via 800mhz:	"LGH-ER" talk group
	Via Channel 9:	Press 5-4-4
	Via phone:	200-3262 or 200-3263; (last resort only 200-3211)
	12 Lead Fax #:	200-5350

Virginia Baptist Hospital Outpatient Department or Labor and Delivery: EMS personnel are to provide pre-arrival notification of all patients inbound to Virginia Baptist Hospital.

Contact:	VBH Outpatient Department	
	Via 800mhz:	"VBH-OPD" talk group
	Via Channel 9:	Press 8-2-4
	Via phone:	200-4192 (Outpatient Department)
	Via phone:	200-4660 (Labor & Delivery)
	Via phone:	200-5765 (After 11pm for both Outpatient Dept. & Labor & Delivery)
Alternative:	Contact LGH Medical Control and the communication specialist can contact labor and delivery by phone.	

Bedford Memorial Hospital: EMS personnel are to provide pre-arrival notification of all patients inbound to Bedford Memorial Hospital.

Contact:	Bedford Medical Control	
	Via 800mhz:	"BCMH ED" talk group
	Via Channel 9:	Press 2-2-4
	Via Channel 10:	Contact Bedford County Sheriff's Office
	Via phone:	540-587-3250

Roanoke Memorial Hospital: EMS personnel are to provide pre-arrival notification of all patients inbound to Roanoke Memorial Hospital.

Contact:	RMH Med-Comm
	Via Channel 10
Via phone:	540-981-7500 (EMS dedicated line)
Via phone:	540-981-7337 (alternative to EMS dedicated line)

University of Virginia Medical Center: EMS personnel are to provide pre-arrival notification of all patients inbound to the University of Virginia Medical Center.

Contact:	UVA Med-Comm	
	Via Med Channel 9 or Med Channel 10	
	Via phone:	434-924-9287

SUPPLY EXCHANGE POLICY

BLS

(No Drugs Used)

⇩

PATIENT ARRIVE'S AT THE HOSPITAL

1. Patient taken to treatment bay.
2. Provider gives completed PPCR to receiving nurse.
3. Providers obtains and completes patient **supply sheet** provided in the EMS office.
4. Provider obtains patient ID sticker from the ED registrar and applies it to the **patient supply sheet**.
5. Provider gives patient **supply sheet** to Med Com Tech.
6. MC Tech obtains replacement items for the provider.
7. MC Tech. then places the **patient supply sheet** in colleting basket where it is kept for one week.

ALS

(IV supplies / Saline Loc's and other Patient Supplies not found in the BREMS drug box.)

⇩

1. Patient taken to treatment bay.
2. Provider gives completed patient copy of the PPCR with **physician's signature** to receiving nurse. Providers obtain and completes patient **supply sheet** provided in the EMS office.
3. Provider obtains patient ID sticker from the ED registar and applies it to the **patient supply sheet**.
4. Provider gives patient **supply sheet** to the MC Tech.
5. MC Tech obtains replacement items for the provider.
6. MC Tech. places the **patient supply sheet** in colleting basket where it is kept for one week.

The provider places the signed pharmacy copy of the PPCR sheet in the locked run sheet box located outside the EMS equipment room.

BREMS DRUG BOX EXCHANGE POLICY

This is the policy for both EMT and ALS Providers.

If the provider has used any item from the BREMS Drug Box the following procedure will be used .

Patient Taken To Treatment Bay

1. **Provider gives completed patient copy of the PPCR with physicians signature to receiving nurse.**

2. **Providers obtain and complete DRUG REPLACEMENT REQUISETION sheet provided in the in EMS office.**

    a. **Provider obtains patient ID sticker from the ED registrar and applies it to the DRUG REPLACEMENT REQUISITION sheet.**

3. **If controlled substance administered:**
    a. **Complete Controlled Substance Usage Form (found in narcotic pouch).**
    b. **Obtain wastage witness signature (if applicable).**

4. **Leave completed form in narcotic pouch.**

5. **Obtain key to EMS supply room from Communications Tech.**

6. **Exchange box (record on BREMS Box Exchange Record)**

7. **Place inventory sheet with PPCR in handle of used box.**

REMEMBER ALL SOFT SUPPLIES FLUIDS , IV CATH'S and other non drug items WILL NEED TO COME FROM THE MED COM TEC.

REMEMBER YOU MUST HAVE A PHYSICIANS SIGNATURE ON ALL RUN SHEETS LEFT WITH A DRUG BOXES EXCHANGE.

YOU MUST SIGN AND HAVE A WITNESSED SIGN THE CONTROL SUBSTANCE SHEET WITH ALL NARCOTIC WASTAGE .

READ THE BREMS WEBSITE FOR DRUG AND DRUG BOX CHANGES MONTHLY .

BG- 3: Drug Box Content Listing – All Levels

BREMS Drug Box Configuration

Top Drawer

Albuterol 0.083% Inh Sol (2) Yellow Lock (1)	EpiPen Jr. 0.15mg Auto-Injector (1) Aspirin Baby Chewable 81mg (4)	Nitroglycerin 2% Ointment (5) Nitroglycerin 0.4mg Sublingual (25)
EpiPen 0.3mg Auto-Injector (2) Glucagon 1mg Injection (1)		

Middle Drawer

Lidocaine 100mg/5ml Pre-Load (3) Naloxone 0.4mg/ml Inj 10ml (1)	Adenosine Inj 6mg/2ml vial (3)	Epinephrine Inj 1:1000 (1mg/ml) (3) Saline Bullets for Inh 3ml (2)	Lidocaine 2% (20mg/ml) Injection 2ml (1) Ondansetron 4mg/2ml Inj (2)	Magnesium Sulfate 1gm/2ml Inj (4) Furosemide 40mg/4ml Inj (3) Diphenhydramine 50mg/ml Inj 1ml (2) Sodium Chloride 0.9% for Inj 10ml (2)

Bottom

Narcotic Pouch Midazolam 1mg/ml Inj 5ml (2) Fentanyl 50mcg/ml Inj 2ml (2) Carpuject Syringe Holder (1)	Atropine Sulfate 1mg Pre-Load (3) Epinephrine 1:10,000 Pre-Load (8) Dextrose 2.5gm/10ml Pre-Load (1)	Sodium Bicarbonate 50mEq Pre-Load (2) Dextrose 25gm/50ml Pre-Load (2) Dopamine 400mg/D5W 250ml (1)

BG- 4: Helicopter Utilization and Operations – All Levels

Background: When determining the need for aeromedical transport, the consideration should be made as early as possible.

All Levels

Indication for Consideration:

1. Clinical Criteria:
    - Glasgow Coma Scale less than 10
    - Penetrating trauma to the abdomen , pelvis, chest, neck or head
    - Spinal cord or spinal column injury or any injury producing paralysis
    - Two or more long bone fractures or pelvis fracture
    - Major burns or burns to the face, hands, feet, or perineum; burns with respiratory involvement; electrical or chemical burns
    - Advanced life support to ground providers
    - Chest pain with ST elevation; if helicopter utilization will shorten transport time to the ER.
    - Stroke Patients; if helicopter utilization will shorten transport time to the ER.
    - If the patient's needs exceed the capabilities of the ground unit, the helicopter and the skill of the flight crew may be considered.

2. Mechanism of Injury:
    - Vehicle with roll-over with unbelted passengers
    - Vehicle striking a pedestrian greater than 20mph
    - Falls greater than 10 feet
    - Motorcycle victim ejected at greater than 20mph

3. Difficult Access:
    - Wilderness rescue
    - Ambulance egress or access impeded by road conditions, weather or traffic

4. Time/Distance Factors:
    - Transport time to local hospital by ground ambulance greater than transport time to trauma center by helicopter
    - Prolonged extrication.

Operations:

1. Contact the medivac service communications center with the exact location for rendezvous. Include route numbers, GPS coordinates, any pertinent landmarks, landing zone commander identification, and radio frequency/channel/talk group.

2. Provide the communications center with all available patient information and care being administered. Minimum information should include the chief complaint, age, sex, baseline vital signs including Glasgow Coma Scale.

3. Set up a landing zone that is at least 100 by 100 square feet and free of any obstructions or loose materials. The surface should be as level as possible with each corner marked with a strobe light, traffic cone or other visible marker. A fifth marker should be placed on the downwind side of the landing zone. Be sure to secure the markers, as the rotor wash can blow them a great distance. You can also mark the landing zone with rescue vehicles parked in a triangular fashion with their headlights on low beam until the helicopter is on final approach no white lights (head lights or scene lights) should be used at the landing zone. Never aim any lights into the pilot's eyes. This could destroy his night vision and result in a crash.

4. If setting up a landing zone in the roadway, it is essential that you mark all utility lines and relay their exact location as well as any other hazards to the pilot. Utility lines must be marked with a warning device below the wires spaced 4 to 5 feet apart. Do this for all utility lines in the area.

Aeromedical Transport Services
• Med-Flight III (Lynchburg): 866-267-1470 • Pegasus (Charlottesville): 800-552-1826 • Lifeguard 10 (Roanoke): 540-344-4357

BG- 5: Trauma Report Format – All Levels

Purpose: To standardized the format for trauma radio reports and better recognize patients in need of trauma alert.

Radio Report will consist of the following:

- Mechanism of Injury
- Injuries to the patient
- Vitals
- GCS (refer to page 168 if necessary).
- Loss of consciousness (yes or no)
- Treatment of the patient
- Trauma alert (yes or no), alert level and reason the provider feels the patient meets the particular Trauma Level

Note: Although patient may technically meet trauma alert criteria, the case may be discussed with a physician and upgraded or downgraded based on individual circumstances.

BG- 6: Notification of Trauma Alert Status – All Levels

Prehospital personnel are responsible for notifying the receiving hospital of a patient that meets criteria for a trauma alert (listed below) or if they believe the patient should be alerted based on mechanism of injury list below.
These criteria are to be used as guidelines and are not absolutes. Medical communications and the receiving physician may decide to upgrade or downgrade the response based on the complete history of the trauma.

The following are the criteria for alert:

Level I

- Clinical evidence of shock following trauma (adult BP < 90 or HR < 50 or > 130)
- Airway compromise/respiratory distress
- All intubated trauma patients
- Significant penetrating trauma to head, neck or torso (torso is above the inguinal ligaments, including genitalia)
- Penetrating traumatic arrest with signs of life in the field
- Unresponsive (GCS 8 or less with significant MOI)

Level II

- Pneumothorax, hemothorax or suspicion of aortic disruption
- Suspected vascular injury
- Second and third degree burns > 25% TBSA, significant inhalation injury or high voltage electrical injury (> 600 volts)
- GCS 9-12 with traumatic brain injury
- Clinical evidence of spinal cord injury
- Femur, pelvic or spinal injury (excludes ground level fall with isolated hip injury)
- Amputations proximal to the elbow or knee
- Pregnancy > 20 weeks (or fundal height above the umbilicus) with significant MOI OR with abdominal pain, vaginal bleeding or absence of fetal movement
- Ejection following MVC
- Motorcycle/ATV crash with separation of rider from vehicle

Level III

- **Altered mental status following trauma**
- Loss of consciousness following trauma
- Fall > 10 feet
- Pedestrian struck by vehicle
- Motorcycle/ATV crash without separation of rider from vehicle
- Rollover MVC
- Significant penetrating injury to an extremity
- Suspected multiple fractures
- Open fracture
- Suspected intra-abdominal injury
- Blunt traumatic arrest – medical control will automatically consult lead physician for possible upgrade based on history

BG- 7: Special Considerations in Transport of the Pediatric Patient – All Levels

All Levels

1. Any Pediatric Patient (Patients 12 years of age and younger) being evaluated for seizure, apnea, cyanosis or alteration in consciousness will be transported.

2. If parents refuse transport, a physician will be contacted via on-line Medical Communications for further steps to be taken.

3. If the patient is not transported, the EMS providers will document that they spoke to the parents or legal guardian regarding:
   - Their strong recommendation for immediate transport, and
   - Their concern for a life-threatening medical condition, and
   - The physician consulted and all steps taken.

Failure to follow these steps will be considered a deviation of the guidelines.

BG- 8: Special Considerations in Trauma of the Pediatric Patient – All Levels

All Levels

1. Aeromedical Flights of patients **< 16 years of age** that meet the below criteria will be transported to a pediatric trauma center.

2. Aeromedical utilization should be considered by EMS if the patient meets the below criteria and it will not cause a significant delay in transport of the patient.

3. **No** ground transportation of a pediatric patient will bypass a Level II Trauma Center unless specifically authorized by a physician (via Medical Control Communications).

4. There will be no rendezvous with a helicopter at Lynchburg General Hospital- if transported to LGH the patient will be evaluated in the emergency department and a transfer decision made by an attending physician.

Criteria:

- GCS < 14
- Systolic Blood Pressure < 90mmHg
- Respiratory Rate < 10 or > 29 breaths/minute
- Respiratory Rate < 20 breaths/minute in a infant < 1 year
- Penetrating injury to the head, neck, torso or extremities proximal to the elbow and knee
- Flail chest
- Two or more proximal long bone fractures
- Crushed, degloved or mangles extremity
- Amputation proximal to the wrist or ankle
- Pelvic fractures
- Open or depressed skull fracture
- Paralysis
- Fall > 10 feet or twice the child's height
- Auto versus Pedestrain or bicycle- thrown, run over or > 20 mph impact
- Motorcycle/ATV crash > 20 mph
- MVC:
  - Intrusion > 12 inches at the occupant site or > 18 inches at any site
  - Ejection
  - Death in the same passenger compartment

BOS- 1: BREMS Procedure Schedule

A skill marked with an "S" indicates that the procedure is a standard part of the basic curriculum for training for that level of EMS provider and does not require a special class. The provider may perform that procedure as long as they hold a current Virginia certification for that level and they are operating under an OMD of an EMS agency licensed in the BREMS Council Region. A skill marked with an asterisk (*) is an optional skill that is not required, but may be performed after the provider attends a special class and is checked off on the skill by a trainer approved by the Council Training Coordinator as authorized by the BREMS Regional Medical Director. The requirement for current certification and membership in a BREMS agency above also applies to optional skills.

OS#	Skills	FR	EMT-B	EMT-E	EMT-I	EMT-P
	Oropharyngeal Airways	S	S	S	S	S
	Nasopharyngeal Airways (Adult)	S	S	S	S	S
	Cardiac Arrest AED	S	S	S	S	S
	Cardiac Arrest Manual Defibrillation				S	S
OS-01	Spinal Immobilization	*	S	S	S	S
OS-02	Glucometry	*	*	S	S	S
OS-03	Intramuscular Injection		*	S	S	S
OS-04	Sublingual Med Admin.		*	S	S	S
OS-05	Inhaled Meds Nebulizer		*	S	S	S
	Transdermal Med. Admin			S	S	S
OS-06	Oral (PO) Med. Admin		*	S	S	S
OS-07	Oximetry		*	S	S	S
OS-08	12 Lead EKG Obtain		*	*	*	*
OS-18	12 Lead EKG Interpret				*	*
	Single EKG Lead Interpretation				S	S
OS-19	King Airway		*	*	*	*
	Endotracheal Intubation				S	S
	End Tidal CO2 Monitor-Colorimetric		S	S	S	S
OS-11	End Tidal CO2 Monitor-Quantitative			*	*	S
	Peripheral IV			S	S	S
	Intraosseous IV Pediatric				S	S
OS-12	Intraosseous IV Adult				*	*
	External Jugular IV				S	S
OS-13	Central Line Indwelling Access				*	S
	Needle Chest Decompression				S	S
OS-14	Synchronized Cardioversion				*	S
OS-15	External Pacing				*	S
OS-16	CPAP – Boussignac				*	*
	Oral Gastric Tube Adult				S	S
OS-17	Surgical Cricothyrotomy (Pertrach)					*

BOS- 2: BREMS Medication Schedule

A medication that is marked with an "S" indicates the administration is a standard part of the basic curriculum for training for that level of EMS provider and does not require a special class. The provider may administer that medication when indicated as long as they hold a current Virginia Certification for that level and they are operating under an OMD for an EMS agency licensed in the BREMS Council Region. A medication marked with an asterisk (*) indicates that it is optional for that level and requires a special training class and check off by a trainer approved by the Council Training Coordinator as authorized by the BREMS Regional Medical Director. The requirement for current state certification and membership in a BREMS agency above also applies to Optional Medications.

OM#	Medications	FR	EMT-B	EMT-E	EMT-I	EMT-P
PATIENT PRESCRIBED MEDICATIONS:						
	Epi-Pen & Epi-Pen Jr.		S	S	S	S
	Metered Dose Inhaler		S	S	S	S
	Nitroglycerin		S	S	S	S
NON- PRESCRIBED MEDICATIONS:						
	Oxygen 100% NRB Mask	S	S	S	S	S
OM-50	Oxygen Adjusted Dose		*	S	S	S
OM-51	Albuterol, Nebulizer		*	S	S	S
OM-53	Epi-Pen & Epi-Pen Jr.		*	S	S	S
OM-54	Glucagon		*	S	S	S
OM-55	Aspirin		*	S	S	S
OM-56	Nitroglycerin Tablets		*	S	S	S
	Nitroglycerin Paste			S	S	S
	Epinephrine 1:1,000			S	S	S
	Epinephrine 1:10,000				S	S
	Benadryl			S	S	S
	Dextrose			S	S	S
	Narcan			S	S	S
	Adenosine				S	S
	Lidocaine-Cardiac				S	S
	Lidocaine 2% (EZ-IO)				S	S
OM-61	Methylprednisolone (Solu-medrol)				*	S
	Atropine				S	S
	Magnesium Sulfate				S	S
	Sodium Bicarbonate				S	S
OM-59	Dopamine				*	*
OM-60	Ondansetron (Zofran)				*	S
	Lasix				S	S
	Fentanyl				S	S
	Versed				S	S

BOS- 3: Blood Glucose Determination – All Trained Providers

Indications:

- Altered mental status
- Known diabetic history
- Hyperthermia or hypothermia
- Prolonged trauma resuscitation
- Seizures/Status epilepticus
- Pancreatitis

Procedure:

To perform this procedure, the following equipment is needed: glucometer with test strips, a finger stick device with sterile lancets, alcohol wipe and tissue, gauze or adhesive bandage.

1. Take body substance isolation precautions.

2. Clean the patient's finger with an alcohol wipe and allow the alcohol to dry. Make sure the alcohol does not contaminate the blood sample.

3. Puncture the patient's finger with the finger stick device/sterile lancet to retrieve a small blood sample.

4. Place the blood sample onto a chemical reagent strip.

5. Following the manufacturer's recommendations, place the test strip in the glucometer and wait for the reading to appear.

6. Record the reading.

7. Treat the patient according to the signs and symptoms by referring to the appropriate protocol.

8. If the blood glucose level is less than 60 or greater than 300, then the blood glucose determination should be re-evaluated every 15 minutes.

Key Points/Considerations
• Since all glucometers work differently, the provider must be familiar with the manufacturer's instructions. The slightest mistake can alter the measurement's accuracy. For example, make sure the code numbers on the test strips match those on the digital reading on the glucometer.

BOS- 4: Central Line Access – Intermediate/Paramedic

Indications:

- **Cardiac arrest** situation when IV/IO access in not obtainable or is inadequate.

Procedure:

1. Set up a Normal Saline IV with emphasis on fully flushing the IV tubing.
2. Expose the central line area.
3. Prepare equipment
    - alcohol pads or equivalent
    - several 4x4 pads
    - 2 – 10ml syringes
    - surgical mask
4. Take one of the 10ml syringes and draw up 10ml of Normal Saline from the IV bag.
5. Open a 4x4 pad and place around the tip of the access port to create a sterile field.
6. Apply surgical mask.
7. Cleanse the tip of the central line (port you intend to access) aggressively with the alcohol pad or equivalent cleanser (Betadine, etc.)
8. Clamp or pinch tube then remove the cap and place the 10ml syringe (without saline) to the catheter. **Note: The central lines should never be left open to air.**
9. Unlock the clamp on the central line, if applicable, and aspirate 5 cc of blood from the port and discard. Blood should aspirate freely. If it does not, replace the cap and DO NOT use the access.
10. Lock the clamp if applicable and remove the syringe with the aspirated blood. Dispose in a biohazard container.
11. Apply the syringe with the 10ml of Normal Saline to the port, unlock the clamp, and flush the device. The saline should flush easily. Re-clamp.
12. Remove syringe and apply the Normal Saline IV to the port. Unclamp and adjust flow rate.

BOS- 5: Continuous Positive Airway Pressure- Intermediate/Paramedic (Boussignac CPAP Device ONLY!)

Indications:

- Acute cardiogenic or noncardiogenic pulmonary edema OR severe COPD exacerbations unresponsive to noninvasive medical management (oxygen, nitroglycerine, furosemide, nebulizer therapy).
- Impending respiratory or ventilatory failure resulting from pulmonary edema or COPD when intubation may be emergently required.
- Patient is alert, responsive, and is still able to handle secretions and protect their airway.

Contraindications:

- Patients less than 18 years of age.
- Inability to obtain a tight mask seal.
- Uncooperative or obtunded patients.
- Inability to handle secretions or maintain airway.
- Mild exacerbations of chronic obstructive pulmonary disease.
- Patients with tracheotomies.
- Trauma
- Hypovolemia/Shock

Complications:

- Discomfort
- Facial irritation or conjunctivitis
- Gastric distention
- Aspiration
- Pneumothorax (especially in COPD patients)

Procedure: (This procedure is only for the application of the Boussignac CPAP Device).

1. Discuss the procedure with the patient, including each of the following:
    - Effects of position pressure ventilation
    - Possibilities of discomfort
    - Need for cooperation
2. Check all equipment before proceeding:
    - Oxygen source
    - Pre-packaged CPAP mask, tubing and head harness
3. Apply SPO2 and cardiac monitor.
4. Connect the pre-set green extension tube to the flow meter.
5. Place patient in the most comfortable position (normally full or semi-fowlers).
6. Choose the best mask size (85% of the population will fall into the medium range).
7. Inflate mask with syringe until cushion is tight.
8. Open the flow meter at 15 LPM and ensure that there is flow coming through the device.

9. Initially hold the mask in place on the patient's face until breathing is comfortable for the patient. Continue to discuss the procedure with the patient and provide reassurance.
10. When tolerated, place the head harness on the patient and make necessary adjustments in the straps to ensure a tight fitting mask. Secure the mask in place by attaching 4 flexible straps on the harness.
11. Continue to monitor for patient comfort and air leaks due to mask position. Make adjustments in the seal as needed by inflating or deflating the mask with a syringe.
12. Adjust the flow meter as clinically indicated to change the amount of positive pressure.

    15 LPM = 5cmH2O CPAP; 20 LPM = 7.5cmH2O; 25 LPM = 10cmH2O

    *****COPD Patients should only receive a MAX of 5cm H2O**
    *****Never exceed 10cmH2O for any patient**

13. Attach nebulizer treatment as indicated (see below).
14. Suctioning can be accomplished via a flexible suction catheter that can be inserted through the open end of the CPAP mask, thus eliminating any interruption in positive pressure.
15. Obtain vital signs including SPO2 every 5 minutes while patient is on CPAP and discontinue its use if any of the following is encountered:
    a. Blood pressure falls below 90mmHg
    b. SPO2 falls below 90%
    c. Mental status deteriorates such that the patient is unable to tolerate the procedure
16. It may be necessary to discontinue CPAP, assist ventilations with a bag-value mask and prepare for assisted ventilation/intubation.
17. Assess for possible aspiration or pneumothorax.
18. Contact medical control at the receiving facility ASAP to ensure notification of nursing and respiratory therapy staff to CPAP usage.

Boussignac CPAP Device

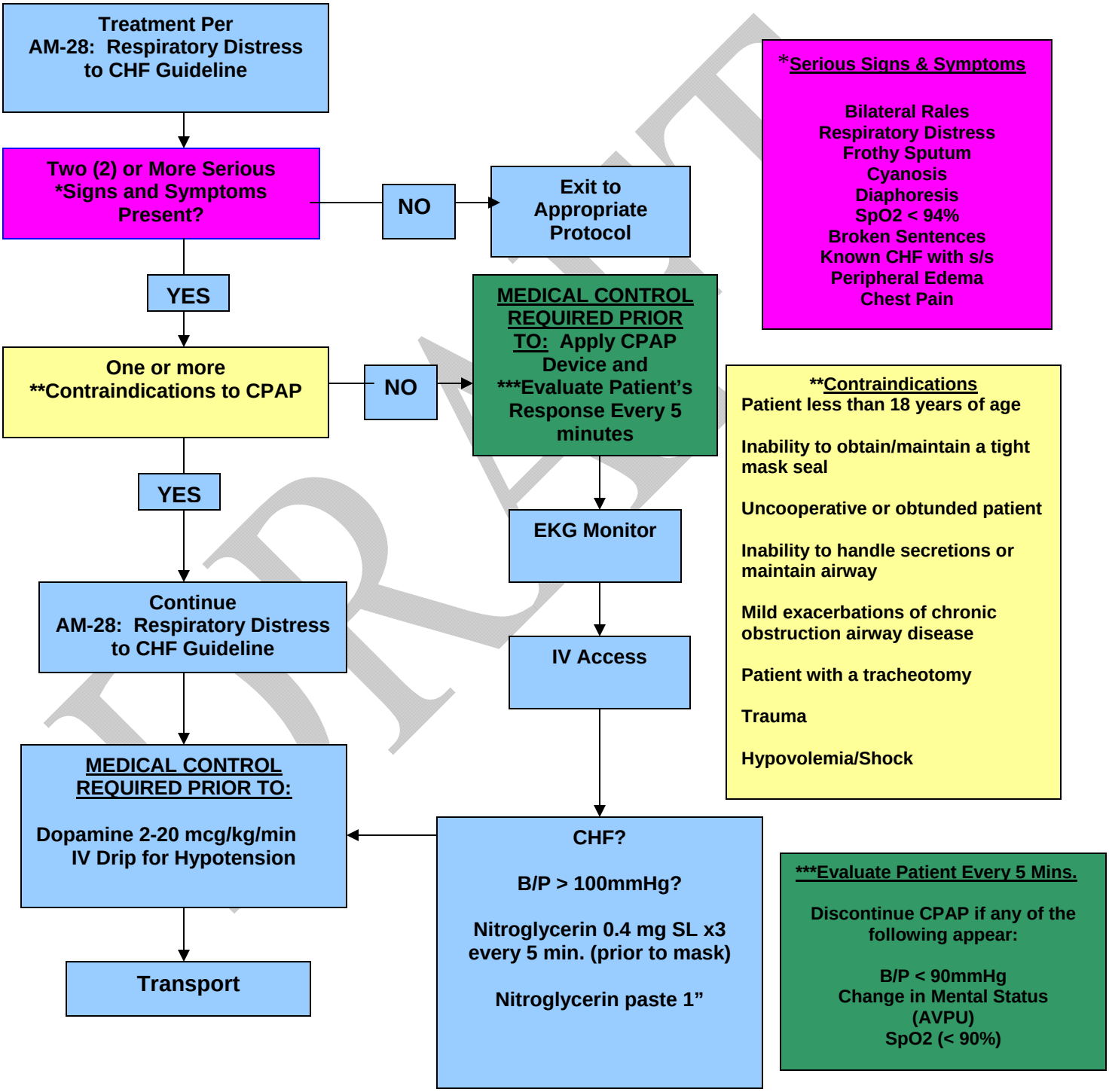
Boussignac CPAP Device with Nebulizer

Key Points/Considerations

• Providing mask CPAP may result in early physiologic improvement with less potential for intubation in patients with pulmonary edema or severe COPD exacerbations where respiratory failure is imminent.
• It is important to calm the patient as much as possible during the procedure. Attempt to discuss all procedures with the patient prior to application of CPAP.
• Standard treatment for CHF (Congestive Heart Failure) should still be administered. Nitroglycerin paste should be utilized, instead of Nitroglycerin sublingual tablets.
• Standard nebulizer equipment should be attached to the open end of the CPAP mask when necessary. Beware of excess use of Albuterol in CHF patients as the medication can increase cardiac strain and worsen heart failure.
• COPD patients should only have a Max of 5cmH2O, unless otherwise advised by medical control, as these patients are at increased risk of barotraumas i.e. pneumothorax.
• Patients should be monitored at all times when CPAP is being administered. Frequent physiologic and mental status assessment is vital to ensure compliance with the procedure.
• Unless the patient cannot tolerate the procedure or hemodynamic or respiratory variables deteriorate, the patient shall remain on CPAP until transfer at the receiving facility.
• Be aware of and economize oxygen utilization by using the on-board oxygen system as much as possible. When using a D size oxygen cylinder:
  ➢ 15 LPM will provide 23 minutes of CPAP
  ➢ 20 LPM will provide 16 minutes of CPAP
  ➢ 25 LPM will provide 14 minutes of CPAP

Respiratory Distress Protocol Supplement

Continuous Positive Airway Pressure (CPAP)- Intermediate/Paramedic



BOS- 6: Cricothyrotomy, Surgical – Paramedic

Indication:

- Complete airway obstruction lasting >3 minutes
- Inability to secure airway by any other invasive means

Relative Contraindications:

- Contraindicated if < 10 years old
- Suspected laryngeal fractures
- Bleeding disorders

Use of the Adult PERTRACH Disposable Emergency Cricothyrotomy Device

Procedure:

1. Observe universal precautions (sterile gloves minimum)
2. Place patient in supine position with head extended (if cervical spine is intact). If this is not advisable have second person stabilize the cervical spine in a jaw thrust procedure while you insert the device.
3. Open the sterile package, prep the neck area with betadine or alcohol (the kit contains directions with illustrations).
4. Locate the cricothyroid membrane.
5. Remove the dilator from the package and advance it into the tube.
6. Insure the syringe is attached to the splitting needle.
7. Insert the splitting needle through the skin directly over the cricothyroid membrane. While advancing splitting needle perpendicular to the skin, lightly pull back on the plunger of syringe until you see air bubbles or you feel a break in resistance, cease advancement of splitting needle.
8. Incline the needle more than 45 degrees toward the carina and complete insertion. Always maintain the tip of the needle in the midline of the airway.
9. Remove the syringe.
10. Insert tip of dilator into the hub of the splitting needle. Squeeze wings of needle, then open them out to split needle. Remove needle, continuing to pull them apart in opposite directions, while leaving the dilator in trachea.
11. Place thumb on knob while first and second fingers are curved under flange of trachea tube. By exerting pressure, advance dilator and trach tube into position until flange is against skin.
12. Remove dilator. Inflate cuff until you have control of the airway. Verify with pilot balloon. Secure trach tube around patient's neck with twill tie. Attach oxygen delivery device to tube, if necessary.

Recommendations:

- Gauze pads may be placed around the trach tube, between skin and the 15mm adaptor, thus varying the length of the tube in the trachea, as needed.
- Test position of trach tube in airway after its insertion by suctioning trachea through it. Also, listen for breathing sounds. If you are not sure you are in the airway, use the second needle and repeat the procedure.

Warnings:

- Store PERTRACH kit in clean dry conditions away from heat and light (there is no expiration date if the sterile package is not broken).
- Insertion of device through thyroid cartilage can injure vocal cords.
- Retraction of the dilator back through unsplit needle could result in damage to dilator. Over-inflation of cuff may cause cuff to burst.

BOS- 7: Defibrillation/Cardioversion/Transcutaneous Pacing – (All Levels- Defibrillation); (Intermediate/Paramedic- Cardioversion/Transcutaneous Pacing)

DEFIBRILLATION:

1. Turn the unit on
2. Apply electrodes to chest according to manufacturer's instructions. Confirm shockable rhythm.
3. Place defibrillator in appropriate lead usually the "Paddles" or "Pads" mode.
4. Use either Combo electrode pads or the paddles:
   - **COMBO PADS**: apply electrode pads/cables to clean, dry skin according to manufacturer's recommendations.
   - **PADDLES:** apply gel [or use gel pads] and press paddles firmly to chest
     [Use pediatric paddles if weight < 10 kg]
     STERNUM -> right upper anterior chest
     APEX -> left lower antero-lateral chest
5. Observe the monitor to confirm the rhythm
6. Select energy level using manufacturer's recommendations. If the rescuer does not know the type of biphasic waveform in use, a default dose of 200 J is acceptable. For monophasic machines the default dose is 360 J.
7. Press the CHARGE button, Assure **"All clear",** Deliver shock.

SYNCHRONIZED CARDIOVERSION:

1. Turn the unit on.
2. Consider sedation.
3. Attach Combo pads or prepare paddles as described under defibrillation procedure above.
4. Apply ECG electrodes.
5. Observe the cardioscope to determine the rhythm [LEAD II].
6. Activate the synchronization mode.
7. Assure that a "sync marker" occurs on each QRS complex. If not, increase the QRS size, or choose LEAD I or III.
8. Select the appropriate energy level:
   - **Monophasic**: 100 joules. If no change, synchronized cardiovert at 200 joules. If no change synchronized cardiovert at 300 joules. If no change, synchronized cardiovert at 360 joules.
   - **Biphasic**: 75 joules. If no change, synchronized cardiovert at 120 joules. If no change, synchronized cardiovert at 150 joules. If no change, synchronized cardiovert at 200 joules.

9. Charge the unit.
10. Assure **"All clear!"**
11. Deliver shock.

EXTERNAL PACING:

1. Turn the unit on.
2. Consider sedation.
3. Apply ECG electrodes.
4. Observe the monitor to determine the rhythm [LEAD II].
5. Apply QUICK-PACE or Combo electrode pads to clean, dry skin according to manufacturer's instructions:
   [Use pediatric pacing pads if weight < 10 kg]
6. Place defibrillator in the pace mode.
7. Set the pacing rate to 60/min. in adults, 100/min. in child ≥ 6 yrs., 120/min. in child, < 6 yrs. This rate can be adjusted up or down (based on patient clinical response) once pacing is established.
8. Increase mA, assure pacing spike precedes each QRS, until a spike appears on the monitor to indicate each delivered pacing stimulus. This represents electrical capture.
   - Adults: Increase the CURRENT by pressing the "up 20" button repeatedly until a QRS complex follows each spike. MAX: 200 MA.
   - Children: Press the "up 20" button to reach 40 MA. Then press the "up 5" button repeatedly until a QRS follows each spike. MAX: 100 MA.
9. Reassess patient for signs of improved perfusion. If no improved perfusion or mechanical capture - discontinue pacing.
10. Modify the current as needed to maintain effective pacing with both electrical and mechanical capture.

BOS- 8: End-Tidal CO2 Detection –Enhanced/Intermediate/Paramedic

Indication:

- All patients that have been intubated.

Therapeutic Effect:

- Measures presence of CO_2 in the airway.

Contraindications (relative):

- Prolonged down time or death.

Procedure: (This procedure is written for the EZ-Cap Device. Other devices are available that have different colors so providers must be familiar with what their agency may carry).

1. Inspect detector for purple color and dryness.
2. Suction any fluid present in the endotracheal tube.
3. Attach detector to BVM.
4. Connect BVM with CO_2 detector to ET tube. Keep detector clean and dry.
5. Begin ventilations using proper rate. Do not use continuous hyperventilation.
6. Observe CO_2 detector for color changes during exhalation.
7. Monitor detector for color change and initiate corrective measures:

    - **Patient with a pulse:**
        - Yellow, leave in place.
        - Tan, re-evaluate: Check possible causes of low perfusion such as inadequate ventilation, hypovolemia, etc. Ventilate 6 more times and re-assess tube placement and CO_2 detector for color change.
        - Purple, problem: Tube is incorrectly placed, extubate. Ventilate with BVM, re-intubate.
    - **Patient with prolonged pulselessness:**
        - Yellow, leave in place.
        - Tan, re-evaluate: May be due to retained CO2 from BVM ventilation, ETOH, carbonated drinks, or inadequate CPR. Ventilate 6 more times and re-assess tube placement and CO_2 detector for color change.
        - Purple, problem: **Visualize vocal cords**. If tube is placed below vocal cords, leave in place, and check adequacy of CPR. If tube is incorrectly placed, extubate, ventilate with BVM and re-intubate.

Special Considerations:

- CO_2 detectors are only an adjunct to careful patient assessment.
- Do not use detectors as sole method of assessing correct tube placement, especially in the patient without a pulse. Keep detector clean and dry.
- If detector is not purple upon removal from package, discard the detector.
- Fluid in detector inactivates detector. If wet will appear mottled. If this happens discard the detector, it is no longer reliable.
- If pediatric detector is unavailable, adult detector can be used only for the initial assessment of tube placement (see # 6 above). CO_2 detectors become inactivated when used for long periods of time. Usually limit to 2 hours in the adult and 1 hour for pediatric use. See specific manufacturer guidelines provided for your detector.

BOS- 9: External Jugular Vein Cannulation – Intermediate/Paramedic

Indication:

- External jugular cannulation is appropriate in the critical patient who needs IV access and in whom no suitable IV/IO access is found or when attempts at peripheral IV/IO access have been unsuccessful.

Contraindication:

- Vein is not visible

Key Points/Considerations

The external jugular veins runs in a line from the angle of the jaw to the junction of the medial and middle third of the clavicle. Pressing on the vein just above the clavicle will make it more prominent.

This is a painful site to access, so typically this procedure is reserved for use in patients with extreme decrease in LOC or unresponsive.

Procedure:

1. Place the patient in the supine position, preferably head down, to distend the vein and to prevent air embolism.
2. If C-spine injury is not suspected, turn the patient's head to the opposite side. If C-spine precautions are necessary, manually stabilize the head in a neutral position during the procedure.
3. Clean the site and align the angiocath with the vein, pointing the needle at the junction of the medial and middle thirds of the clavicle.
4. Press on the vein just above the clavicle to make it more prominent and insert the angiocath at the midpoint of the vein, cannulating in the usual manner.
5. Once the needle is removed from the angiocath quickly attach the IV tubing to prevent the introduction of an air embolism.
6. Tape the IV tubing securely. Cervical collars can be placed over the IV site if C-spine immobilization is necessary.

BOS-10: **Intraosseous Insertion (EZ-IO)- Intermediate/Paramedic**
(To Be Used on Pediatric & Adult Patients)

Indications for Tibia Intraosseous Insertion:

- Intravenous fluids or medications are needed and a peripheral IV cannot be established in 1 attempt or 60 seconds
- Intraosseous insertion may be considered PRIOR to peripheral IV attempts in the following life threatening situations:
  - Cardiac arrest
  - Profound hypovolemia with alteration of mental status
  - Patient in extremis with immediate need for delivery of medications and or fluids
  - Patients in need of vascular access where veins are not easily identified

Contraindications for Tibia Intraosseous Insertion:

- Suspected fracture of the tibia or femur of the selected extremity
- Excessive tissue at insertion site
- Absence of anatomical landmarks
- Previous significant orthopedic procedures
- Infection at the insertion site

Complications for Tibia Intraosseous Insertion:

- Discomfort
- Extravasation
- Compartment Syndrome
- Infection
- Fracture

Procedure for Tibia Intraosseous Insertion:

1. Take body substance isolation precautions.
2. Locate tibia insertion site.
3. Prepare insertion site using aseptic technique.
4. Prepare the EZ-IO® driver and appropriate needle set.
5. Stabilize site and insert appropriate needle set.
6. Remove EZ-IO® driver from needle set while stabilizing catheter hub.
7. Remove stylet from catheter and immediately place in sharps container.
8. Connect primed EZ-Connect®.
9. Aspirate to confirm placement.
10. Slowly administer appropriate dose of Lidocaine to alert patients.
11. Flush the EZ-IO® catheter with the appropriate amount of normal saline.
12. Begin infusion.
13. Utilize pressure bag for continuous infusions.
14. Dress site, secure tubing and apply wristband as directed.
15. Monitor EZ-IO® site and patient condition.

Key Points/Considerations
Administer a rapid syringe bolus (flush) of saline prior to infusion **NO FLUSH = NO FLOW** > 40 kg (EZ-IO AD®) - 10 ml normal saline < 40 kg (EZ-IO PD®) - 5 ml normal saline Repeat syringe bolus (flush) as needed **Pain**: Insertion of the EZ-IO in conscious patients does not require local anesthesia IO Infusion for alert patients has been noted to cause severe discomfort: Prior to IO syringe bolus in alert patients, administer 2% Lidocaine (preservative free) through the EZ-IO hub. EZ-IO AD® administer 20 – 40 mg 2% Lidocaine EZ-IO PD® administer 0.5 mg /kg 2% Lidocaine

BOS-11: Intubation, Endotracheal –Intermediate/Paramedic

Indications:

- Adult cardiac or respiratory arrest
- Pediatric cardiac arrest Adult unresponsive medical or trauma patients

Contraindications:

- Gag reflex present
- D_{50} or Naloxone to be used [precaution only]

Procedure:

Prepare equipment:

1. Leave suction on throughout the procedure.
2. Have available: Magill forceps, lubricant, tape, CO2 detector.
3. Prepare the endotracheal tube: attach a 10 ml syringe, insert a stylet [avoid tip protrusion], lubricate tip, and check cuff [10 ml air].
4. Age < 8 yrs: select appropriate size uncuffed tube from Broselow tape.
5. Prepare the laryngoscope: assemble, check light.

Prepare the patient:

1. Trauma: stabilize the neck in neutral position.
   Medical: perform a head tilt.
   Pediatric: maintain neutral head position.
2. Suction the airway clear [use a rigid-tip catheter].
3. Remove any foreign bodies.
4. Insert an oropharyngeal airway [patient must not gag].
5. Apply a BVM with oxygen at 15 LPM.
6. Ventilation rate: Adults: 16-20/min.
7. Assure bilateral breath sounds and equal chest rise.

Intubate patient [MAX: 2 attempts, 30 seconds each]:

1. Assistant applies cricoid pressure, if possible. **Once** cricoid pressure is applied it is held until successful intubation.
2. Hold the laryngoscope in the left hand.
3. Remove the oropharyngeal airway [suction, if needed].
4. Insert blade into the right side of the mouth.
5. Displace the tongue left:
   - Curved blade: place tip into the vallecula.
   - Straight blade: place tip under the epiglottis [use in infants].
6. Lift the handle perpendicular to the blade. Do not pry.
7. Visualize vocal cords: insert endotracheal tube between them.
8. Advance the cuff 2 cm past the vocal cords.
9. Remove the stylet.
10. Inflate the cuff [10 ml air] Avoid excessive pressure.
11. Confirm tube placement by using an end-tidal CO_2 detector or suction device.

12. Reposition the endotracheal tube, if needed.

13. Reinsert the oropharyngeal airway as a bite block.
14. Secure the tube with a manufactured tube holder.
15. Always recheck tube placement after moving the patient. Suction, if needed.

Complications:

- Trauma to teeth, epiglottis, cords [do not pry]
- Perforation of trachea, esophagus [lubricate, stylet position]
- Emesis and aspiration [apply cricoid pressure]
- Laryngospasm [lubricate]
- Arrhythmias [oxygenate first]
- Right mainstem bronchus intubation [check breath sounds]
- Esophageal intubation [confirm endotracheal intubation with CO2 detector, visualize cords, check breath sounds]
- Increased intracerebral pressure [assure no gag reflex]
- Pediatric: monitor heart rate since stimulation of the airway may induce bradyarrhythmias

Special Cases: [Medical Control Required]

- Any intubation in a child, < 1 year old:
  - **Atropine 0.02mg/kg** IV/IO/IM
    - Minimum 0.1 mg
    - Maximum 1 mg
- Patients at risk for increased Intracranial Pressure (ICP- head injury):
  - **Lidocaine 2mg/kg** IV/IO over 60 seconds if able to give 3 minutes before intubation. If immediate intubation is required**, DO NOT** give the Lidocaine.

BOS-12: King Airway LTS-D – EMT-Basic & Above

Indications:

- Adult cardiac or respiratory arrest
- Adult unresponsive medical or trauma patients without gag reflexes
- King Airway is a back-up airway to the ET **[Intermediate/Paramedic Only].**
- King Airway is a back-up airway to the oropharyngeal and nasopharyngeal airway for **[EMT-B & Enhanced].**

Procedure:

- Test cuff inflation system by injecting the maximum recommended volume of air into the cuffs. Remove all air from both cuffs prior to insertion.
- Apply water-based lubricant to beveled distal tip, posterior aspect of the tube and avoid introduction of lubricant in or near the ventilatory openings.
- Pre-oxygenate patient.
- Position the head: "sniffing" position is ideal, "neutral" position is acceptable.
- Hold the King Airway at the connector with dominant hand. With non-dominant hand, hold mouth open and apply chin lift. Using a lateral approach introduce tip into mouth.
- Advance the tip behind the base of the tongue while rotating tube back to the midline so that the blue orientation line faces the chin of the patient.
- Without exerting excessive force, advance tube until base of connector is aligned with teeth or gums.
- Inflate cuffs using the maximum volume of the syringe provided in the kit.
- Attach the resuscitator bag to the King Airway.
  - While bagging the patient gently withdraw the tube until ventilation becomes easy and free flowing (large tidal volume with minimal airway pressure).
  - Adjust cuff inflation if necessary to obtain a seal of the airway at the peak ventilatory pressure employed.
- Confirm placement of tube:
  - Auscultate over te epigastrium and bilaterally at the apices and the bases of the lungs.
  - Observe for symmetrical chest rise and fall.
  - Look for moisture condensation in the tube with an exhaled breath.
  - If trained, use an end-tidal CO2 detection device.
- Secure tube. Reconfirm airway placement after device is secured, after every patient movement and at regular intervals.

Caution:

- Because of the chance of regurgitation, the provider operating the BVM should assure they use proper BSI procedures to protect them from splash that may come from the gastric tube port (this port is not to be blocked when there is no gastric tube in place).
- Only trained Intermediates & Paramedics can insert an oral gastric tube.

Remove:

- Remove the King Airway when protective reflexes have returned.
- Prior to removal, make sure suction is ready. FULLY deflate both cuffs before removal of the King Airway. NOTE: if a 90cc syringe is not available, it may require more than one filling to achieve complete evacuation of the King Airway cuffs.
- Remove carefully, suctioning if needed.
- If no c-spine issues put patient on side in recovery position.
- If needed be prepated to assist breathing with BVM and oxygen 10-15 lpm.
- If patient's respiration are normal place on NRB mask at 15 lpm.

Contraindications:

- Responsive patients with an intact gag reflex.
- Patient with known esophageal disease.
- Patients who have ingested caustic substances.

BOS-13: Needle Chest Decompression – Intermediate/Paramedic

Indications: Field relief of tension pneumothorax is indicated ONLY when the patient has progressive severe respiratory distress with cyanosis, decreased breath sounds of the affected side, and later hypotension. In addition the patient may have distended neck veins and tracheal shift away from the affected side. If the patient is intubated, there should be increasing difficulty in ventilating.

Complications:

- Hemorrhage from vessel laceration.
- Creation of a pneumothorax if one was not already present.
- Laceration of the lung.
- Infection.

Procedure:

1. Maintain airway and administer oxygen by non-rebreather face mask at 15 LPM.
2. If tension pneumothorax is diagnosed, there should normally be contact with medical command prior to treatment. However, if there are communications difficulties or the provider believes the life of the patient is in immediate danger, then the procedure may be followed.
3. Expose the entire chest.
4. Clean the affected side.
5. Prepare for the procedure using one of three techniques:
    - Attach a 3" - 14 gauge IV catheter (ADULT) to a large syringe; a 1.75" – 14 gauge IV catheter to a large syringe.
    - Puncturing the IV catheter and needle through a condom or the finger of a rubber glove, **or**
    - Simply use the IV catheter and needle alone.
6. Insert the 14" gauge catheter and needle assembly over the top of the rib in the second or third intercostal space in the *midclavicular* line, or, <u>if unsuccessful</u>, over the top of the rib in the fifth or sixth intercostal space in the *midaxillary* line.
7. If a tension pneumothorax is present, then a rush of air will be heard or the plunger of the syringe will be easy to pull back.
8. Remove the needle from the catheter and leave the plastic catheter in place.
9. If a condom is not available, then attach a one-way valve device to the end of the catheter.

Key Points/Considerations
➢ Tension pneumothorax is rare, but when present it must be treated immediately.
➢ Non-tension pneumothorax is relatively common, is not immediately life threatening and should <u>not</u> be treated in the field.
➢ Positive pressure ventilation may lead to the development of a pneumothorax and to rapid progression to tension pneumothorax.
➢ A needle decompression performed on a patient without a pneumothorax will cause a pneumothorax.

BOS-14: Oral Gastric Tube Insertion – Intermediate/Paramedic

Indication:

- To decompress gastric distention in the intubated patient

Contraindication:

- Patient not intubated
- Nasal insertion not to be attempted

Procedure:

1. Assemble equipment - OG tube, 50 ml syringe, tape, emesis basin, gloves, saline for irrigation, stethoscope, suction, lubricant.
2. Observe universal precautions.
3. Measure the tube from the patient's mouth, around the earlobe to the umbilicus; mark the correct tube length.
4. Insert lubricated tube into the mouth.
5. Pass the tube to the predetermined length. Do not force the tube if resistance is encountered. If unable to insert tube to predetermined measurement, the tube may be in the trachea or curled in the patient's throat.
6. Check the placement by aspirating gastric contents. If there is no return place a stethoscope over the epigastric region and auscultate while injecting 20-30 ml of air into the tube.
7. Tape the tube in place and connect to low suction as indicated.
8. Document the procedure, size of tube, tube placement check and patient response.

BOS-15: Pulse Oximetry – EMT-Basic & Above

Procedures:

1. Ensure patient has a radial pulse or that the point of attachment is warm and is being perfused.
2. Ensure there is no polish on the nail.
3. Turn oximeter power on.
4. Attach probe and ensure that a good signal is being received (according to the manufacturer's recommendations).
5. Record oxygen saturation.

The goal is to obtain a SaO2 level of 98 to 99%.

SaO2 Reading	Oxygen Device	Oxygen Volume
95% to 99%	none	None
91% to 94%	Nasal cannula	2 – 6 lpm
86% to 91%	Non-rebreather	15 lpm
Less than 86%	Non-rebreather or Bag-valve mask	At least 15 lpm

Regardless of the SaO2 level, **EMS providers should never withhold oxygen from a patient complaining of difficulty breathing or chest pain. These patients and patients with any kind of shock should be given oxygen by a Non-Rebreather Mask at 10-15 lpm.**

Key Points/Considerations
➢ Patients with Carbon Monoxide poisoning will have falsely high readings. ➢ Cold extremities will not obtain an accurate reading.

BOS-16: Spinal Precautions – All Trained Levels

Key Points/Considerations
High Risk Mechanism of Injury/Indexes of Suspicion:

High Speed MVC	Falls greater than three (3) times the patient's height
Axial load	Diving accidents
Penetrating wounds in/near spinal cord	Sport injuries to head/neck or spine
Unconscious trauma patient	Previous spinal surgery
Elderly	

Procedure:

1. Apply manual stabilization on all suspected spine injured patients until a decision to immobilize/not immobilize has been established.
2. Does the patient complain of neck or spinal pain or tenderness?
   - Yes: Immobilize the patient utilizing cervical collar, long spine board, and immobilization straps and head blocks.
   - No: Perform motor and sensory exam.
3. Does the patient have a normal motor and sensory exam (ability to move, symmetrical movement of all extremities and feels light touch on all extremities):
   - No: Immobilize the patient utilizing cervical collar, long spine board, and immobilization straps and head blocks.
   - Yes: Determine appropriate treatment based on mechanism of injury and reliability of the patient utilizing the following:

High Risk Mechanisms of Injury/Indexes of Suspicion:

- Immobilize the patient utilizing cervical collar, long spine board, and immobilization straps and head blocks.

Key Points/Considerations
➢ **If a patient is sitting in a vehicle (complaining of neck, spinal pain or tenderness and/or does not have a normal motor and sensory exam) use a short spine board to extricate the patient.**
➢ **Reliable Patients:** Alert and oriented, not intoxicated, no head injury or loss of consciousness, no distracting injuries and is able to communicate adequately.
➢ **Unreliable Patients:** Experiencing acute stress reaction, head injury, loss of consciousness, altered level of consciousness, intoxicated with alcohol or drugs, and/or other distracting injuries

Non-reliable Patient with Low Risk Mechanisms of Injury/Indexes of Suspicion:

- Immobilize the patient utilizing cervical collar, long spine board, and immobilization straps and head blocks.

Reliable Patient with Low Risk Mechanisms of Injury/Indexes of Suspicion:

- Does the patient exhibit spinal pain or tenderness when the entire axial spine is palpated:
  - ➢ Yes: Immobilize the patient utilizing cervical collar, long spine board, and immobilization straps and head blocks.
  - ➢ No: Perform motor and sensory exam.
- Does the patient have a normal motor and sensory exam (ability to move, symmetrical movement of all extremities and feels light touch on all extremities):
  - ➢ No: Immobilize the patient utilizing cervical collar, long spine board, and immobilization straps and head blocks.
  - ➢ Yes: Do not immobilize.
- Provide documentation in the PPCR that the Spinal Immobilization Guideline was followed and document above findings.

BOS-17: Suctioning, Tracheal – Enhanced/Intermediate/Paramedic

Indications:

- Secretions in an endotracheal or tracheostomy tube/stoma
- Difficulty ventilating above patients

Procedure:

Prepare the patient:

1. Apply the appropriate size BVM.
2. Give oxygen at 15 LPM.
3. Support respirations at 12-16/min. or higher as indicated.

Prepare equipment:

1. Suction on [Adults 80-120 mm Hg; Children 80-100 mm Hg; Infants 40-60 mm Hg]
2. Open a sterile suction catheter packet
3. Put gloves on. Have sterile water or saline ready.

Suction the patient [MAX: 10 seconds each for adults, 3-5 sec for infants]:

1. First, ventilate at 20-24 breaths/min. for 10 sec [Infants: 40 breaths/min.]
2. Dip the catheter in sterile water or saline to lubricate.
3. Insert the catheter as far as it will go without forcing.
4. Cover the suction valve with thumb to begin suctioning.
5. Twist the catheter while removing it.
6. Reventilate at 20-24 breaths/min. for 10 sec [Infants: 40 breaths/min.]
7. Check patient's pulse and breath sounds [both sides of chest].
8. Repeat sequence if needed, cleaning catheter with sterile water or saline as required.

Complications:

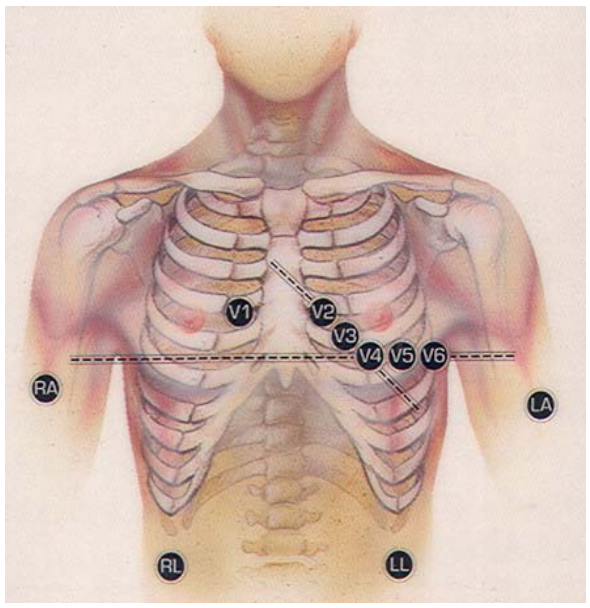
- Trauma to trachea [gentle insertion, proper catheter]
- Emesis and aspiration [suction ready]
- Bronchospasm [wheezing]
- Arrhythmias
- Increased intracerebral pressure

BOS-18: 12-Lead ECG – EMT-Basic & Above

Indications: Any patient complaining of chest pain believed to be of cardiac origin.

Procedure:

1. Explain what you are going to do to the patient. Reassure him or her that the machine will not shock them.
2. Prepare all of the equipment and assure the cable is in good repair. Check to make sure there are adequate leads and materials for prepping the skin.
3. Prep the skin. Dirt, oil, sweat and other materials on the skin can interfere with obtaining a quality tracing. The skin should be cleansed with an appropriate substance. If the patient is diaphoretic, dry the skin with a towel. On very hot days or in situations where the patient is very diaphoretic, tincture of Benzoin can be applied to the skin before attaching the electrode. Patients with a lot of hair may need to have the area immediately over the electrode site shaved to assure good skin/electrode interface.
4. Place pads according to diagram:



Resting / Classic 12-Lead

Lead	Electrode Location
V1	Fourth intercostal space at the right border of the sternum.
V2	Fourth intercostal space at left border of the sternum.
V3	Midway between locations V2 & V4.
V4	At the mid-clavicular line in the fifth intercostal space.
V5	At the anterior axillary line on the same horizontal level as V4.
V6	At the mid-axillary line on the same horizontal level as V5.
RA & LA	Traditionally placed anywhere on the arm, alternate placement to reduce muscle artifact is midway between the elbow and the shoulder.
RL & LL	Traditionally placed a few inches above the ankle, alternate placement to reduce muscle artifact is on the upper leg as close to the torso as possible.

5. Assure that all leads are attached and a good tracing is being received.
6. Record the tracing.
7. Examine the tracing if trained. Do not completely rely on the machine's interpretation of the tracing. If necessary, confirm with **Medical Control**.
8. Transmit the tracing to the receiving facility, if capable. After obtaining and transmitting, **DISCONNECT** the 12 Lead.

BREMS

Successful Transmission of 12 Lead

Medical Control

- Receive 12 Lead ECG from EMS
- Show 12 Lead ECG to ED Physician
- STEMI → YES
  - ED Physician Activate Cath Lab
- Advise EMS to By Pass ED- Straight to Cath lab
- If receive EMS Run Sheet, Send to Cindi Cole via interoffice mail.

Emergency Medical Services

- Perform 12 Lead ECG
- Transmit ECG to ED (Notify Medical Control of Transmission- (possible "Heart Alert")
- Give Patient Report to Medical
- By Pass ED to Cath Lab IF advised by Medical Control
- If Pt. has gone straight to Cath Lab and after you finish your EMS run sheet, please take the EMS run sheet to Medical Control

Unsuccessful Transmission of 12 Lead

Medical Control

- Take patient report from EMS
- **EMT- Basic & EMT-Enhanced**: May read what the 12 lead prints out. (OS-08).

  Intermediates & Paramedics: May interpret the 12 lead rhythm (state if they see ST elevation in any of the leads). (OS-08 & OS-18)
- Pass Patient Report to ED Physician
- STEMI → YES
  - ED Physician Activate Cath Lab
- Upon EMS arrival to ED, Physician to look over 12 Lead ECG from EMS Crew.
- If Cath Lab is ready, send patient straight to Cath Lab with 12 Lead ECG print out from EMS Crew.
- If receive EMS Run Sheet, Send to Cindi Cole via interoffice mail.

Emergency Medical Services

- Give patient report to Medical Control (provider gives name of agency and level of care on ambulance). Possible "HEART ALERT"
- **EMT- Basic & EMT-Enhanced**: May read what the 12 lead prints out (OS-08).

  Intermediates & Paramedics: May interpret the 12 lead rhythm (state if they see ST elevation in any of the leads). (OS-08 & OS-18).
- Make Sure to print out a copy of the 12 Lead ECG for Physician .
- Show 12 Lead ECG to ED Physician upon arrival.
- If Cath Lab is ready, take patient straight to Cath Lab with 12 Lead ECG print out from EMS Crew.
- If Pt. has gone straight to Cath Lab and after you finish your EMS run sheet, please take the EMS run sheet to Medical Control

Early Notification of Cardiac Patients:
With an Incoming Cardiac Patient, call Medical Control so they can have early access to patient information.

LGH Medical Control (434) 200-3262
OR
(434) 200-3263

Bedford Memorial Hospital (540) 586-9500

BHZMAT-1: Hazardous Materials Exposure/Weapons of Mass Destruction – General

FR	EMT	E	I	P	
S	S	S	S	S	The rescuer's safety is the first priority.
S	S	S	S	S	The possibility of ongoing respiratory exposure or chemical contamination should prompt a "No Approach" response by EMS units until the scene is secured by the fire service/hazardous materials response unit. • A "No Approach" response does not mean to do nothing. Ambulatory patients may be directed out of the area of ongoing chemical exposure. Keep other arriving rescuers from becoming contaminated. Always be aware of possible rescuer exposure.
S	S	S	S	S	EMS operates in the "cold" zone only.
S	S	S	S	S	Ensure the patient has been decontaminated by Hazardous Material Responders prior to beginning treatment.
S	S	S	S	S	**DO NOT** become part of the problem.
S	S	S	S	S	Under the Incident Command System, the fire service commands the scene.
S	S	S	S	S	Contact **Medical Control** as soon as possible to notify them of the incident.

Consult Medical Control for further consideration.

BHZMAT- 2: Haz Mat/WMD – Biological

FR	EMT	E	I	P	
S	S	S	S	S	Stage a safe distance from the scene.
S	S	S	S	S	Contact fire service and Hazardous Material Responders, if not already dispatched.
S	S	S	S	S	Wait for the scene to be cleared. Ensure patients are decontaminated.
S	S	S	S	S	Perform initial assessment and treat priority conditions.
S	S	S	S	S	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen – BVM or NRB mask.
S	S	S	S	S	**Medical Control Required** in order to activate the response of appropriate resources for needed medications.
S	S	S	S	S	Receive authorization from Incident Commander for the release of Antibiotics to front-line responders and follow their direction. **Consult Medical Control** for any concerns. Most prophylactic treatments may be administered in a delayed fashion and still be effective.
	S	S	S	S	Transport and notify the receiving facility as soon as possible.

Consult Medical Control for further consideration.

BHZMAT- 3: Haz Mat/WMD – Blister Agents

Background: Signs and symptoms may include red skin, blisters, itching, burning, dry cough, and/or hoarse voice. Signs and symptoms may be delayed 2 to 4 hours.

FR	EMT	E	I	P	
S	S	S	S	S	Stage a safe distance from the scene.
S	S	S	S	S	Contact fire service and Hazardous Material Responders, if not already dispatched.
S	S	S	S	S	Wait for the scene to be cleared. Ensure patients are decontaminated.
S	S	S	S	S	Perform initial assessment and treat priority conditions.
S	S	S	S	S	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen – BVM or NRB mask.
S	S	S	S	S	If severe burns, refer to **[Adult Burns- pg. 80]** protocol.
	S	S	S	S	Transport and notify the receiving facility as soon as possible.
		S	S	S	Establish IV access.
			S	S	Obtain ECG.

Consult Medical Control for further consideration.

BHZMAT-4: Haz Mat/WMD – Choking Agents

Background: Common choking agents include chlorine, methylisocyanate and methylene diphenylene isocyanate (MDI). Signs and symptoms may include shortness of breath, choking, secretions and dry cough.

FR	EMT	E	I	P	
S	S	S	S	S	Stage a safe distance from the scene.
S	S	S	S	S	Contact fire service and Hazardous Material Responders, if not already dispatched.
S	S	S	S	S	Wait for the scene to be cleared. Ensure patients are decontaminated.
S	S	S	S	S	Perform initial assessment and treat priority conditions.
S	S	S	S	S	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen – BVM or NRB mask.
S	S	S	S	S	Provide continuous irrigation.
	S	S	S	S	Transport and notify the receiving facility as soon as possible with a goal to limit on-scene time to 10 minutes or less.
			S	S	Obtain ECG.
			O	O	**Medical Control Required:** Apply CPAP as a treatment for pulmonary edema/crackles resulting from exposure to chocking agents; refer to **[Continuous Positive Airway Pressure procedure- pg. 128]** procedure.

Consult Medical Control for further consideration.

BHZMAT- 5: Haz Mat/WMD – Radiation

Background: A radioactive substance is one that emits ionizing radiation. There are four types of ionizing radiation. These include:

- Alpha particles: Alpha particles are slow-moving, low-energy particles that usually can be stopped by such things as clothing and paper. When they come in contact with the skin they penetrate only a few cells deep, therefore constituting a minor hazard.
- Beta particles: Beta particles are smaller that alpha particles, but are higher in energy. They can be stopped by aluminum and similar materials. Beta particles can be harmful if inhaled or ingested.
- Gamma rays: Gamma rays are more highly energized and penetrating than alpha and beta particles. Gamma radiation is extremely dangerous, carrying high levels of energy capable of penetrating thick shielding, capable of inflicting extensive cell damage. Protection can be provided by lead shielding.
- Neutrons: Neutrons are more penetrating than other types of radiation with penetrating power of 3 to 10 times greater than gamma rays. Exposure to neutrons causes direct tissue damage.

FR	EMT	E	I	P	
S	**S**	**S**	**S**	**S**	Stage a safe distance from the scene.
S	**S**	**S**	**S**	**S**	Contact fire service and Hazardous Material Responders, if not already dispatched.
S	**S**	**S**	**S**	**S**	Wait for the scene to be cleared. Ensure patients are decontaminated.
S	**S**	**S**	**S**	**S**	Confirm exposure to radiation.
S	**S**	**S**	**S**	**S**	Perform initial assessment and treat priority conditions.
S	**S**	**S**	**S**	**S**	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen – BVM or NRB mask.
S	**S**	**S**	**S**	**S**	Attach dosimeter to patient/providers.
S	**S**	**S**	**S**	**S**	**Medical Control Required** in order to activate the response of appropriate resources for needed medications.
S	**S**	**S**	**S**	**S**	Contact Incident Commander for the release of **Potassium Iodide** to front- line units.
			S	**S**	**Medical Control Required**: Administer **Potassium Iodide 130mg** tablet by mouth.
	S	**S**	**S**	**S**	Transport and notify the receiving facility as soon as possible with a goal to limit on-scene time to 10 minutes or less.

Consult Medical Control for further consideration.

BHZMAT- 6: Haz Mat/WMD – Riot Control Agents

Background: Common riot control agents include Oleoresin Capsicum (OC), Chlorobenzal-malononitrile (CS) and Chloroacetophenone (CN). Signs and symptoms may include shortness of breath, burning eyes, nose, airways and skin.

FR	EMT	E	I	P	
S	S	S	S	S	Stage a safe distance from the scene.
S	S	S	S	S	Contact fire service and Hazardous Material Responders, if not already dispatched.
S	S	S	S	S	Perform scene size-up.
S	S	S	S	S	Perform initial assessment and treat priority conditions.
S	S	S	S	S	Ensure the patient is decontaminated.
S	S	S	S	S	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen – BVM or NRB mask.
S	S	S	S	S	Provide continuous irrigation.
S	S	S	S	S	Consider neutralizing agent such as baking soda and water.
	S	S	S	S	Transport and notify the receiving facility as soon as possible with a goal to limit on-scene time to 10 minutes or less.
		S	S	S	Administer **Albuterol 2.5mg** via nebulizer for wheezing and shortness of breath.
			S	S	Obtain ECG.

Consult Medical Control for further consideration.

BHZMAT- 7: Haz Mat/WMD – Vapor/Liquid/Powder

Background: Exposure to hazardous vapors, liquids and powders can cause a variety of reactions with signs and symptoms ranging from mild to severe. Although the onset of symptoms may be delayed, those exposed should be evaluated by a physician.

Mild signs and symptoms include: headache, shortness of breath, dizziness, weakness, nausea/vomiting, salivation, bradycardia, diaphoresis, hypotension, wheezing, and eye pain/dim vision.

Severe signs and symptoms include: paralysis, seizures and coma. (Liquid toxins can also result in muscle fasiculations.)

FR	EMT	E	I	P	
S	S	S	S	S	Stage a safe distance from the scene.
S	S	S	S	S	Contact fire service and Hazardous Material Responders, if not already dispatched.
S	S	S	S	S	Wait for the scene to be cleared. Ensure patients are decontaminated.
S	S	S	S	S	Perform scene size-up.
S	S	S	S	S	Perform initial assessment and treat priority conditions.
S	S	S	S	S	Administer oxygen as needed. Support respirations as necessary and provide maximum flow oxygen – BVM or NRB mask.
	S	S	S	S	Transport and notify the receiving facility as soon as possible.
		S	S	S	Establish IV access.
			S	S	Obtain ECG.
			S	S	If bradycardic and hypotensive, Administer **Atropine 1mg** via IV every 3 minutes until bradycardia resolves.
			S	S	If muscle fasciculation is present, treat as seizures by referring to **[Adult Seizure-]** protocol.

Consult Medical Control for further consideration.

WG-1: Drug Box Exchange Procedure

1. EMS provider breaks seal and places seal in top tray of drug box.

2. EMS provider documents medications used on PPCR or patient reporting software and **a physician's signature shall be obtained** (including **DEA number in any and all cases where narcotics are used).** Boxes will be returned to the Emergency Department, if the signature of the physician or nurse is not legible and/or there is not a DEA number when needed.

3. EMS provider and E.D. nurse, physician, Pharmacist or Pharmacy Technician and/or other person as authorized, check used box to account for narcotics. Both assure that all trash and used needles have been removed from the box. The old seal should be left in the box and forwarded to the pharmacy. The nurse, physician, or authorized person will sign the appropriate space indicating that all narcotics have been accounted for.

4. E.D. nurse, physician, Pharmacist or Pharmacy Technician or authorized person issues a new box to the EMS provider; both complete the "Drug Box Exchange Log". The seal on the new box is not to be broken until needed on the scene of an emergency. Boxes on which seals have been broken must be returned to the E.D. or Pharmacy for exchange. A copy of a PPCR or patient reporting printout with an explanation of why the seal was broken must accompany the box.

5. Pharmacy will fill the box in accordance with the contents used from the box schematic. The pharmacy checks the box to assure all contents are present and in-date. The box is sealed with a blue numbered seal provided by the EMS Council. A hospital sticker indicating the date of the first drug to expire is to be placed on the outside of the box.

6. If a box is returned to the pharmacy with dirty needles or excessive litter and debris, the box will be held out of service and the EMS Council notified. The Council will in turn notify the agency and/or personnel responsible and they will be required to report to the hospital to correct the situation. Repeated occurrences by the same provider/agency may result in suspension or revocation of drug box privileges.

7. Refilled boxes are returned to the E.D. or stored in the pharmacy for distribution. Each hospital is responsible to assure that the boxes are properly secured against tampering while at the hospital.

8. If an EMS provider opens a box and finds one or more medications missing he/she shall document such on the PPCR or patient reporting software and the EMS provider shall notify the EMS Council in writing of the discrepancy; noting the box number and seal number in the report. If the missing drug is a narcotic **refer to item # 11**. As long as the missing medication is not a narcotic, the box may be returned to service by the hospital pharmacy after restocking the box.

9. No item for item exchange may be made in the E.D. The box must be returned to

the pharmacy to be checked, restocked, and resealed.

10. When narcotics are used on a call. The **ALS technician** will bring the unused portion to the E.D. The nurse, physician, or authorized person checking the box will record the amount remaining on the PPCR or patient reporting printout and sign his/her name. The person signing will then be responsible for proper disposal and accounting for the narcotic according to hospital policy.

11. In the event that medications are missing are missing from the box the following steps must be followed:
    A. If the seal is found to be broken during a routine drug inspection:
        i) Avoid handling the box.
        ii) Contact local law enforcement. **(NARCOTICS ONLY)**
        iii) Contact the agency Chief or Captain
        iv) Contact the Western Virginia EMS Council
        v) Complete and file a drug diversion form with the Office of EMS **(see 12 VAC 5-31-520, D of the Virginia EMS Rules and Regulations)**
        vi) Have drug box inspection forms ready for police, EMS Council, and Office of EMS personnel.

    B. If the seal is on the box and medications are missing while performing patient **care or after arriving at the hospital:**
        i) Continue patient care, you may continue to utilize the contents of the box.
        ii) If the medication needed is not present consider requesting another unit to meet en route, DO NOT DELAY TRANSPORT.
        iii) Upon arrival at the hospital notify the E.D. Nursing Supervisor of the problem.
        iv) Follow the procedures listed in **11-A, above**.
        v) The box must be secured in the hospital and may be released only after being notified by the EMS Council.

    C. In all cases you will be asked to write a report stating the events surrounding the incident. It should include the box number, seal number, witnesses and a description of what occurred.

    D. Depending on the individual circumstances, the Operational Medical Director of the agency or the Regional Medical Director may suspend the agency's authorization to administer drugs in the pre-hospital setting pending outcome of a formal investigation by law enforcement or the Office of EMS and may require implementation of additional security measures at the agency(s) expense.

WG-2: Drug Box Log Requirements

Drug Box Log Requirements

1. All EMS agencies in the Western VA EMS Council region must maintain a drug box log that indicates the unit the drug box is assigned to, the box number, the seal number, the initials of the individual checking the boxes and the date. This log must be updated on a weekly basis at a minimum and preferably be maintained on a daily basis.

2. Should the individual performing the box check find a box that has been tampered with they should refer to item #11 above.

WG-3: Drug Box Content Listing

DRUG	PACKAGE	QUANTITY
Adenosine	6 mg inj.*	3
Amiodarone	150 mg inj.*	3
Atropine	1 mg prefill	6
Dextrose 25%	2.5 gram prefill	1
Diazepam	10 mg inj.*	2
Diphenhydramine	50 mg inj.*	1
Dopamine	800 mg/500 ml premixed bag	1
Epinephrine 1:1,000	30 inj.*	1
Epinephrine 1:10,000	10 ml prefill	1
Furosemide	40 mg inj.*	2
Haloperidol	5 mg inj.*	2
Lidocaine	100 mg prefill	4
2% Lidocaine Jelly	5 ml tube	1
Magnesium	1 gram inj.*	2
Methylprednisolone	125 mg inj.*	1
Morphine Sulfate	10 mg inj.*	2
Naloxone	4 mg inj.*	1
Normal Saline	10 ml inj.*	2
Normal Saline	50 ml bag	1
0.05% Oxymetazoline	15 ml spray	1
Promethazine	25 mg inj.*	1
Sodium Bicarbonate	50 mEq prefill	3

Description	Quantity
IV additive labels	2
60 gtt set	1
3 way stop cock	1
Carpuject Delivery Device	1

STAT Drug Pack

DRUG	PACKAGE	QUANTITY
Albuterol	0.083% cartridge	3
Baby Aspirin	81 mg tablet	4 minimum
Dextrose 50%	25 gram prefill	2
Epinephrine pen	0.3 mg autoinjector	2
Epinephrine pen	0.15 mg autoinjector	1
Glucagon	1 mg kit	1
Nitroglycerin	0.4 mg SL tablets	1 bottle
Nitroglycerin Paste		
Disposable Nebulizer Kit		1

**** inj. may be an ampule, vial, prefilled syringe or carpuject device***

Nitroglycerin *is to be sealed with a tamper seal once the seal is broken the pharmacy is to remove the bottle from the box.*

WG-4: Drug Box Schematic

Top Shelf

<table>
<tr>
<td rowspan="2">Adenosine
6 mg vial (3)

Magnesium
1 gram vial (2)

Amiodarone
150 mg vial (3)</td>
<td>Diphenhydramine
50 mg vial

Methylprednisolone
125 mg vial</td>
<td rowspan="2">Furosemide
40 mg vial (2)

Epinephrine 1:1,000
30 ml vial</td>
</tr>
<tr>
<td>Normal Saline
10 ml vials (2)</td>
</tr>
<tr>
<td colspan="3">3 way stop cock</td>
</tr>
</table>

Middle Shelf

Promethazine 25 mg vial (2)	**Haloperidol** 5 mg vial (2)	**Naloxone** 4 mg vial	**Diazepam** 10 mg vial (2)	**Morphine** 10 mg vial (2)

Bottom

Dopamine 800 mg/500 ml premixed bag **Sodium Bicarbonate** 50 mEq prefill (3) **Normal Saline** 50 ml bag **60 gtt drip set (1)**	**Atropine** 1 mg prefill (6) **Epinephrine 1:10,000** 1 mg prefill **Lidocaine** 100 mg prefill (4) **Dextrose 25%** 2.5 gram prefill

WG-5: Trauma Triage Patient Description

Patients meeting any of the following criteria should be transported to a **Level I** or **Level II Trauma Center** according to the specific guidelines outlined in the **WVEMS Regional Trauma Triage Plan.** Please consult the plan for your response area. Note that in some cases, the plan calls for transfer to the closest hospital, and then for interfacility transfer to an appropriate trauma center.

Pre-Hospital Trauma Center Transfer Criteria

Adult Patient	Pediatric Patient
Airway Assisted Ventilation Partial or complete airway obstruction Unable to establish or maintain an airway	**Airway** Requires constant observation for patency O2 administration or assisted ventilation Partial or complete airway obstruction Intubation
Central Nervous System Unconscious/Unresponsive greater than 5 minutes Does not follow commands Unable to move extremities	**Central Nervous System** Unconscious/Unresponsive greater than 5 minutes Not moving extremities
Hemodynamics Systolic pressure less than 90 with signs and symptoms of shock Pulse greater than 120 with signs and symptoms of shock Uncontrolled bleeding	**Hemodynamics** less than 10 kg – systolic less than 50 10 – 20 kg – systolic less than 70 greater than 20 kg – systolic less than 90 Poor Peripheral pulses Poor perfusion Uncontrolled bleeding
Penetrating Injury (such as stab wound, gunshot, or impalement) Head Neck Chest, Abdomen Extremities with uncontrolled bleeding and/or loss of pulse Amputation above knee or elbow	**Penetrating Injury** Head Neck Chest, Abdomen Extremities with uncontrolled bleeding and/or loss of pulse Amputation above knee or elbow
Trauma in Pregnancy	

Patients with CPR initiated at the scene should be transported to the closest hospital.

WG-6: Procedure Schedule

WVEMS PROCEDURE SCHEDULE

A skill marked with an "S" indicates that the procedure is a standard part of the basic curriculum for training for that level of EMS provider and does not require additional training. The provider may perform that procedure as long as they hold a current Virginia certification for that level and they are operating under an OMD of an EMS agency licensed in the WVEMS Council Region. A skill marked with an asterisk (*) is an optional skill that is not required, but may be performed if approved by the agency OMD. The agency must place on file with the WVEMS Regional Education Coordinator a list of the procedures allowed to be performed by their providers.

	Skills	FR	EMT-B	EMT-E	EMT-I	EMT-P
	Oropharyngeal Airways	S	S	S	S	S
	Nasopharyngeal Airways (Adult)	S	S	S	S	S
	Cardiac Arrest AED	S	S	S	S	S
	Cardiac Arrest Manual Defibrillation				S	S
	Spinal Immobilization	*	S	S	S	S
	Glucometry	*	*	S	S	S
	Intramuscular Injection		*	S	S	S
	Sublingual Med Admin.		S	S	S	S
	Inhaled Meds Nebulizer		S	S	S	S
	Transdermal Med. Admin		*	S	S	S
	Oral (PO) Med. Admin		S	S	S	S
	Oximetry		*	S	S	S
	12 Lead EKG Obtain	*	*	*	S	S
	12 Lead EKG Interpret				S	S
	Single EKG Lead Interpretation				S	S
	King Airway		*	S	S	S
	Endotracheal Intubation				S	S
	End Tidal CO2 Monitor-Colorimetric		*	S	S	S
	End Tidal CO2 Monitor-Quantitative				S	S
	Peripheral IV			S	S	S
	Intraosseous IV Pediatric				S	S
	Intraosseous IV Adult				S	S
	External Jugular IV				S	S
	Needle Chest Decompression				S	S
	Synchronized Cardioversion				S	S
	External Pacing				S	S
	CPAP				*	S
	Needle Cricothyrotomy (Melker)					S
	Blood Draw			*	S	S

WG-7: WVEMS Medication Schedule

WVEMS MEDICATION SCHEDULE

A medication that is marked with an "S" indicates the administration is a standard part of the basic curriculum for training for that level of EMS provider and does not require additional training. The provider may administer that medication when indicated as long as they hold a current Virginia Certification for that level and they are operating under an OMD for an EMS agency licensed in the WVEMS Council Region. A medication marked with an asterisk (*) indicates that it is optional for that level and requires that an agreement be in place with the agency OMD to allow administration of that medication.

	Medications	FR	EMT-B	EMT-E	EMT-I	EMT-P
PATIENT PRESCRIBED MEDICATIONS:						
	Epi-Pen & Epi-Pen Jr.		S	S	S	S
	Metered Dose Inhaler		S	S	S	S
	Nitroglycerin		S	S	S	S
NON- PRESCRIBED MEDICATIONS:						
	Oxygen 100% NRB Mask	S	S	S	S	S
	Oxygen Adjusted Dose		S	S	S	S
	Albuterol, Nebulizer		*	S	S	S
	Epi-Pen & Epi-Pen Jr.		S	S	S	S
	Glucagon		*	S	S	S
	Aspirin		S	S	S	S
	Nitroglycerin Tablets		S	S	S	S
	Epinephrine 1:1,000			S	S	S
	Epinephrine 1:10,000				S	S
	Benadryl			S	S	S
	Dextrose			S	S	S
	Narcan			S	S	S
	Amiodarone				S	S
	Lidocaine-Cardiac				S	S
	Lidocaine 2% (EZ-IO)				S	S
	Atropine				S	S
	Magnesium Sulfate				S	S
	Sodium Bicarbonate				S	S
	Dopamine				S	S
	Ondansetron (Zofran)				*	S
	Lasix				S	S
	Fentanyl				S	S
	Versed				S	S

WOG-1: Transtracheal Jet Insufflation

TJI is appropriate when airway control is needed and endotracheal intubation cannot readily be accomplished. This includes patients unconscious or semi-conscious secondary to trauma (with the possibility of C-spine fracture), teeth clamped shut in trismus or with seizures, laryngospasm, facial trauma, active bleeding, excessive vomitus, etc.

PROCEDURE

1. Stabilize and clean the trachea and locate the cricothyroid membrane.

2. Puncture the cricothyroid membrane in the middle with a 12 or 14 gauge angiocath attached to a 10 ml syringe containing 2-3 ml of sterile saline. May also use an FDA approved pre-manufactured device.

3. Aspirate after the needle is advanced about halfway into the trachea (aspiration of air confirms correct position)

4. Advance the catheter caudally until the hub rests on the skin.

5. Attach the insufflator to the hub and ventilate by depressing the trigger until the chest rises (approximately 1 second for ventilation and 4 seconds for exhalation)

    a. Bag-valve resuscitators and commercial demand valves should not be utilized. Only FDA approved insufflation devices should be used.

6. Observe chest rise and fall and auscultate for breath sounds

7. Airway resistance can be increased if necessary by placing the second hand lightly over the nose and mouth during ventilation.

8. Advanced airway management may be performed with the catheter in place.

WOG-2 – C.P.A.P.

This procedure is designed to assist the conscious patient that is in severe respiratory distress.

Indications: Respiratory distress associated with suspected pulmonary edema, asthma C.O.P.D. (Emphysema, Chronic Bronchitis), with an oxygen saturation of Less than 90% while receiving oxygen via non-rebreather.

Contraindications: Altered mental status, hypoventilation, upper airway or facial trauma open stoma or tracheostomy, severe cardiopulmonary instability, pulmonary edema other than CHF, systolic pressure less than 100.

PROCEDURE

1. Assess patient needs and initiate high flow oxygen as needed.

2. Monitor pulse oximetry and end-tidal CO2.

3. Apply C.P.A.P. if indicated:

    a. Connect C.P.A.P. device to suitable oxygen supply.

    b. Attach breathing circuit to C.P.A.P. device and ensure device is functioning appropriately.

    c. Apply and secure proper size breathing circuit mask to patient, ensuring proper seal is obtained and maintained.

    d. Titrate until positive patient conditions are displayed and increase in pulse oximetry in noted.

4. Reassess patient

5. Follow appropriate protocol based on underlying condition i.e., asthma, CHF, COPD

WOG-3: Melker Airway®

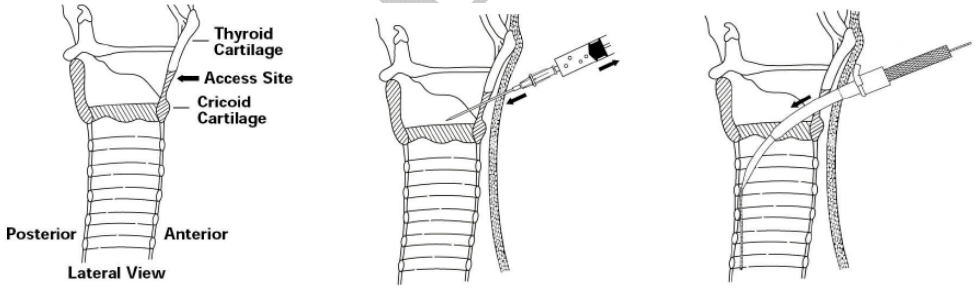
This procedure is for establishing an emergency airway when conventional methods have been unsuccessful or are not possible.

Indications: Airway obstruction, severe upper airway or facial trauma, 2 failed intubation attempts.

Contraindications: Patient less than 4 years of age, ability to successfully intubate, ability to effectively use airway adjunct and BVM device, inability to definitively identify the appropriate anatomical structures.

PROCEDURE

1. Identify the cricothyroid membrane between the cricoid and thyroid cartilages.
2. Cleanse the area of insertion with an alcohol prep or iodine solution.
3. Carefully palpate the area of insertion and manually stabilize the cartilage. Make one inch vertical incision, midline, using a #15 short handle scalpel blade.
4. Attach the 6cc syringe to the 18 gauge TFE catheter and advance it through the incision caudally at a 45 degree angle.
5. Aspirate for air.
6. Remove the syringe and needle leaving the catheter in place.
7. Feed the wire guide through the catheter and into the airway approximately one inch.
8. Remove the catheter and leave the guide wire in place.
9. Advance the dilator, tapered end first, into the connector end of the airway until the handle stops against the connector.
10. Advance the emergency airway access assembly over the wire guide with a reciprocating motion and completely into the trachea.
11. Remove the wire guide and dilator simultaneously.
12. Secure the emergency airway catheter in place with the tracheostomy tape strip.
13. Connect the catheter to the appropriate ventilatory device and ventilate per protocol.



WOG-4: Capnography

The purpose of this procedure is to confirm placement and effectiveness of advanced airway procedures; also, it should be utilized to identify the underlying cause of respiratory distress in patients with a pulse.

Indications: Any patient with a respiratory complaint or history, any patient receiving advanced airway procedures.

Contraindications: None

PROCEDURE

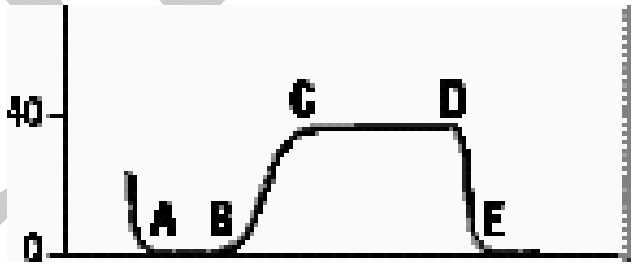
Intubated Patients:

1. Confirm tube placement using traditional methods outlined per the protocol for the device used, to include secondary confirmation device.
2. Attach the Capnography tube device to the advanced airway port.
3. Observe waveform and numerical values present after 6 respiratory exchanges have occurred.

Non-Intubated Patients:

1. Patient should be assessed and respiratory needs addressed.
2. Apply the sampling device as appropriate per the manufacturer's guidelines.
3. Observe the waveform and numerical values present after 6 respiratory exchanges have occurred.

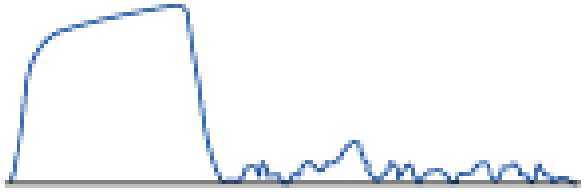
The diagram below shows the shape of a normal capnogram.



A-B: A near zero baseline – Exhalation of CO2 free gas contained in dead space.
B-C: Rapid, sharp rise—Exhalation of mixed dead space and alveolar gas.
C-D: Alveolar plateau—Exhalation of mostly alveolar gas.
D: End-tidal value— Peak CO2 concentration—normally at the end of exhalation.
D-E: Rapid, sharp downstroke—Inhalation

WOG-4: Capnography (continued)

Sudden loss of EtCO2 to zero or near zero

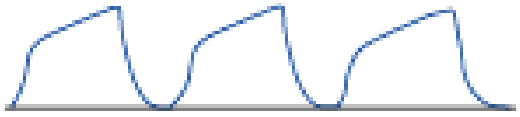


Possible causes:
Airway disconnection
Dislodged ET tube/esophageal intubation
Totally obstructed/kinked ET tube
Complete ventilator malfunction

Sustained low EtCO2 with good alveolar plateau

Possible causes:
Hyperventilation
Hypothermia
Sedation, anesthesia
Dead space ventilation

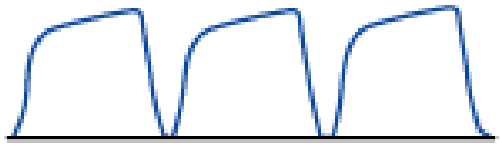
Sustained low EtCO2 without alveolar plateau



Possible causes:
Incomplete exhalation
Partially kinked ET tube
Brochospasm
Mucous plugging
Poor sampling techniques

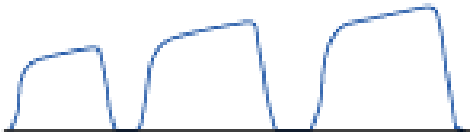
WOG-4: Capnography (continued)

Elevated EtCO2 with good alveolar plateau



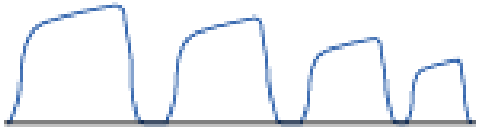
Possible causes:
Inadequate minute ventilation/hypoventilation
Respiratory-depressant drugs
Hyperthermia, pain, shivering

Gradually increasing EtCO2



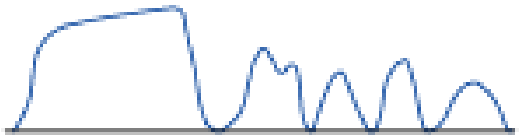
Possible causes:
Hypoventilation
Rising body temperature/malignant hyperthermia
Increased metabolism
Partial airway obstruction
Absorption of CO2 from exogenous source

Exponential decrease in EtCO2



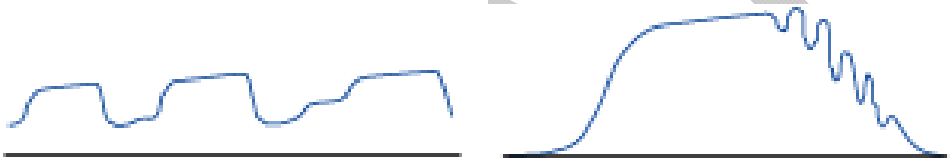
Possible causes:
Cardiopulmonary arrest
Pulmonary embolism
Sudden hypotension; massive blood loss
Cardiopulmonary bypass

Sudden decrease in EtCO2 to a low non-zero value



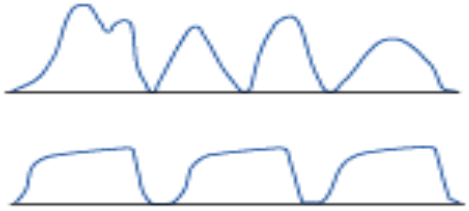
Possible Causes:
Leak in the airway system
ET tube in hypopharynx
Poorly fitting anesthetic mask
Partial airway obstruction
Partial disconnect from ventilator circuit

Rise in baseline and EtCO2



Possible causes:
Defective exhalation valve
Rebreathing of previously exhaled CO2
Exhausted CO2 absorber

Spontaneous breathing during mechanical ventilation



Spontaneous breathing efforts may be evident on the CO2 waveform display. The patient on the top demonstrates poorer quality spontaneous breathing effort than the patient on the bottom.

WOG-5: External Jugular Cannulation

External jugular Cannulation is appropriate in the critical patient who needs IV access and in whom no suitable peripheral vein is found or when attempts at peripheral IV access have been unsuccessful.

The external jugular vein runs in a line from the angle of the jaw to the junction of the medial and middle third of the clavicle. Pressing on the vein just above the clavicle will make it more prominent.

PROCEDURE

1. Place the patient in a supine position, preferably head down, to distend the vein and to prevent air embolism.

2. If C-spine injury is not suspected, turn the patient's head to the opposite side. If C-spine precautions are necessary; manually stabilize the head in a neutral position during the procedure.

3. Clean the site and align the angiocath with the vein, pointing the needle at the junction of the medial and middle thirds of the clavicle.

4. Press on the vein just above the clavicle to make it more prominent and insert the angiocath at the mid-portion of the vein, cannulating in the usual manner.

5. Once the needle is removed from the angiocath, quickly attach the IV tubing to prevent the introduction of an air embolism.

6. Tape the IV tubing securely. Cervical collars can be placed over the IV site if C-spine immobilization is necessary.

WOG-6: Intraosseous Infusion

Personnel who have been trained and certified in the use of intraosseous infusion may perform the procedure under the following conditions:

1. Patient Selection

    a. Patient 6 years of age or less unless otherwise specified by online Medical Control.

    b. Patient unstable and in critical or impending critical condition.

    c. Patient has no immediate IV route available.

2. Procedure

    a. Only the medial tibial site will be utilized by field personnel.

    b. The Jamshidi bone marrow needle will be utilized.

    c. Procedure shall follow in accordance with established training guidelines set by the Regional Medical Directorate.

WOG-7: EZ I.O.®

The EZ-IO Intraosseous device is an alternative to the Jamshidi bone marrow needle that requires additional training and specific approval of the agency OMD. The EZ-IO Intraosseous Device may be inserted in either the tibia or the humerous and may be utilized on adult as well as pediatric patients.

1. Patient Selection/Indications

    a. Cardiac arrest, medical or traumatic

    b. Profound hypovolemia with alteration of mental status

    c. Major thermal burns

    d. Multi-system trauma

    e. Any other patient requiring immediate volume, blood, and/or medication administration in which adequate peripheral access attempts (including external jugular vein, when accessible) have been unsuccessful and where further delay will likely result in further patient decompensation or demise.

2. Contraindications

    a. General
        i. Adequate IV and or IO access already in place.
        ii. Inability to locate landmarks due to significant edema or obesity.
        iii. Peripheral arterial and or peripheral vascular disease

    b. Site Specific

        i. Previous orthopedic procedures
        ii. IO insertion within previous 24 hours
        iii. Bone fracture
        iv. Tumor, infection, or soft tissue injury
        v. Tibia insertion site shall not be utilized in the presence of a knee replacement

PROCEDURE

1. Locate the proper site for EX-IO insertion; Adult tibial, adult humeral or pediatric tibial.

2. Prepare the area of insertion by cleaning with an alcohol prep or iodine solution

3. Prepare the EZ-IO driver and needle set

a. Open the EZ-IO case

b. Remove the driver and one EZ-IO cartridge

c. Open the EZ-IO cartridge and attach the needle set to the driver

d. Remove the needle set from the cartridge

e. Remove the safety cap from the needle set.

4. Begin insertion of the EZ-IO needle set. Position the driver at 90 degrees to the insertion site and power the needle set through the skin until you feel the tip encounter bone.

5. Continue to insert the EZ-IO applying firm and steady pressure. Stop when the needle flange touches the skin or a sudden decrease in resistance is felt.

6. Remove the driver from the needle set and return it to the case.

7. Remove the stylet from the catheter and dispose of in an approved sharps container.

8. Confirm proper placement by at least one of the following methods.

    a. Catheter stands up at a 90 degree and is firmly seated in the bone

    b. Blood at the tip of the stylet (not always visible)

    c. Aspiration of a small amount of bone marrow with a syringe

    d. A free-flow of drugs or fluids without difficulty and no evidence of leakage under the skin

9. Attach the primed EZ-Connect or any standard luer lock extension set to the EZ-IO hub and flush with 10 cc of Normal Saline

10. Begin infusing fluids and/or medications per appropriate protocol. Pressure infusion may be necessary to maintain specified flow rates.

11. Apply wristband and dress the site.

REMOVAL

1. The EZ-IO should never be in place greater than 24 hours.

2. Grasp the hub directly or attach a sterile syringe (preferred), while supporting the patient's extremity rotate the catheter clockwise and gently pull. Once catheter has been removed place it in an approved sharps container.

WOG-8: M.A.S.T./P.A.S.G

1. Indications for use

    a. Unstable fractures of the pelvis or lower extremities.

2. Absolute contraindications

    a. Acute recognized respiratory distress, specifically pulmonary edema with associated rales.

    b. Penetrating chest trauma

3. Relative contraindications

    a. When more appropriate splinting devices are available (i.e., traction splint for isolated femur fracture)

4. Application procedures

    a. Complete primary survey and treat any life-threatening conditions.

    b. Complete secondary survey

    c. Dress and document all wounds and injuries to be covered.

    d. Using appropriate immobilization, move the patient on to the MAST/PASG or slip them onto the patient (not lifting the legs greater than 12 inches)

    e. Secure garment attaching as much Velcro as possible. **Keep the top of the abdominal section below the lowest rib.**

    f. Connect foot pump and inflate garment to 30 – 60 mm/Hg

    g. Perform distal neurovascular assessment as with any splinting device.

5. Deflation

    a. Deflate abdominal section if patient begins to show indications of respiratory distress

    b. DO **NOT CUT MAST/PASG OFF OF THE PATIENT.**

WOG-9: Needle Pleural Decompression

1. Any patient suspected of having a tension pneumothorax should be receiving high flow oxygen and ventilatory assistance. Needle pleural decompression is appropriate in the critical patient who presents with a rapidly decompensating tension pneumothorax evidenced by more than one of the following (not ALL may be present).

    a. Increasing respiratory distress and cyanosis.

    b. Loss of radial pulses (decompensated shock)

    c. Decreasing level of consciousness.

    d. Poor ventilation despite an open airway.

    e. Neck vein distension (may not be present in hypovolemia)

    f. Absent or decreased breath sounds on the affected side.

    g. Signs and symptoms of shock

    h. Tracheal deviation away from the side of injury (A **LATE** sign).

2. Providers should be aware of the potential complications associated with this procedure, as follows:

    a. Hemorrhage as a result of laceration of the intercostal vessels due to poor needle placement.

    b. Creation of a pneumothorax if the patient is misdiagnosed. Laceration of the lung with air leakage and bleeding is possible if misdiagnosed or if technique is improper.

    c. Infection, which is minimized by cleaning the skin surface prior to the procedure.

PROCEDURE

1. Locate the second or third intercostal space on the anterior chest at the midclavicular line **on the same side of the tension pneumothorax**. This can be aided by feeling for the bump located on the sternum about a quarter of the way from the suprasternal notch or “angle of Louis”.

2. Clean the area with an antiseptic.

3. Prepare a flutter valve or other appropriate manufactured device and attach to a 14 gauge 3 inch angiocath. **(DO NOT USE THE FINGER OF A RUBBER GLOVE)**

WOG-9: Needle Pleural Decompression

4. Remove the plastic cap from the angiocath needle and insert the angiocath into the skin over the **UPPER** border of the second or third rib, midclavicular line. Insert the angiocath at a 90 degree angle to the rib.

5. While advancing the angiocath, feel for a "pop" and listen for the sound of air escaping from the needle. Advance the catheter until the hub of the angiocath contacts the skin, then remove the needle and leave the catheter in place.

6. Stabilize the angiocath hub in place with tape and do not remove the angiocath unless directed by Medical Control. Monitor the patient closely for the reoccurrence of the tension pneumothorax.

WOG-10: 12 Lead ECG

The purpose of this guideline is to promote the definitive identification of the patient that may be suffering a myocardial infarction or serious dysrhythmia. It is the intended to ease the transfer of the cardiac patient to the receiving facility and decrease the time it takes the patient to reach definitive therapy.

Indications: Chest pain, dyspnea, palpitations, syncope, malaise

Contraindications: Not to be administered during a cardiac arrest unless ROSC is obtained.

PROCEDURE

1. Prepare all of the equipment in accordance with manufacturer guidelines i.e., cleaning the skin, accounting for all leads, prepping the skin, removing clothing from the torso, removing watches and jewelry from the arms, sock from the legs, shaving the chest in the area the electrodes will be placed, etc.

2. Ensure the skin is clean and dry.

3. Place the limb leads. **LIMB LEADS ARE NOT TO BE PLACED ON THE CHEST OR TORSO.**

4. Place the pre-cordial leads.

5. Ensure that all leads are attached.

6. Turn machine on.

7. Record the tracing after ensuring that an accurate feed is being received from each channel or electrode.

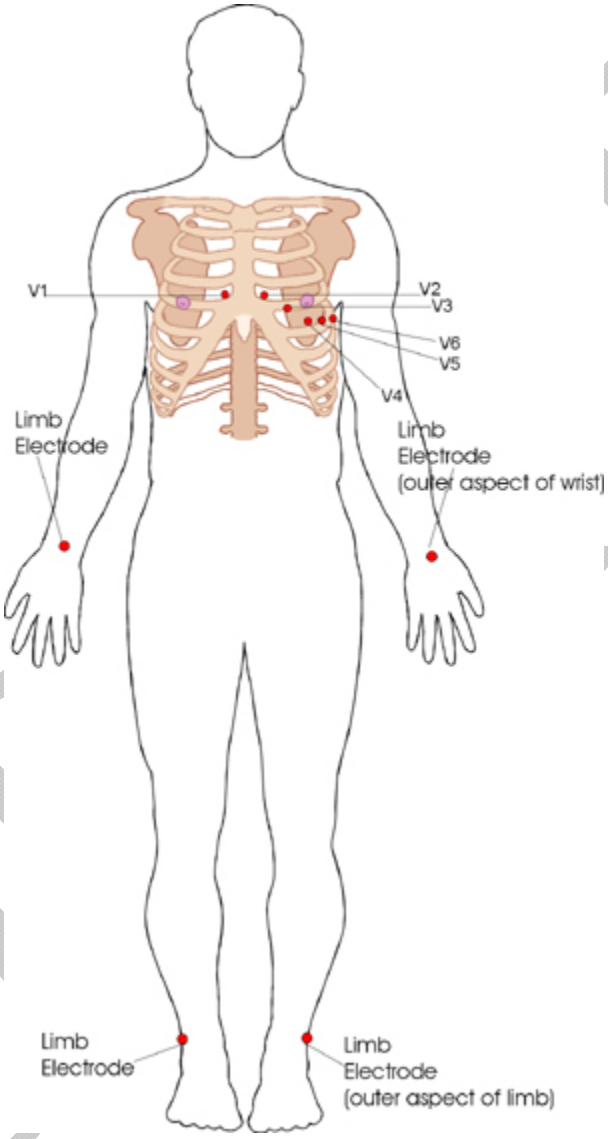
8. Examine the tracing following the guidelines in this protocol and prior training.

9. Send ECG to ED via telemetry if available or contact receiving facility for assistance with interpretation.

10. Consider requesting ED bypass directly to Cardiac Catheterization Lab in confirmed acute cases.

WOG-10: 12 Lead ECG

ELECTRODE POSITIONS FOR 12 LEAD ECG



Please note that for a 12 lead ECG, 10 electrodes are placed on the body and the twelve leads are derived from the signals obtained from the 10 electrodes. The terms 'electrodes' and 'leads' are not interchangeable and should not be confused.

Also note that electrode V3 should be placed midway between electrodes V2 and V4 and that electrodes V4, V5 and V6 should all be placed at the same level as V4.

WOG-11: Blood Draw

Prehospital providers may draw blood in the field to assist receiving facilities in securing diagnostic laboratory tests more rapidly. All ALS level technicians who have received proper training and evaluation in the technique of phlebotomy as part of starting an IV site may perform the procedure only under the following conditions:

Patient Selection

1. Patients who meet the criteria for establishment of an IV site under **AC-2 Symptomatic Cardiac Patient Protocol**

2. Patients who meet the criteria for establishment of an IV site under **AC-8 Pulmonary Edema Protocol**

3. Patients who meet the criteria for establishment of an IV site under **AM-3 or AM-5 Asthma and/or Exacerbation of COPD Protocol**

Condition of patient should be taken into account through the provider's impression. Drawing blood in the field is **NOT REQUIRED** but will enable receiving facilities to complete diagnostic tests more rapidly and could mean faster definitive diagnoses and treatment for the patient. Never stop to draw blood if it will delay critical measures i.e., drug administration during cardiac arrest, transport of a multi-system trauma patient, etc.

PROCEDURE

1. Select a site that is appropriate for IV cannulation, as well as phlebotomy. Prepare all necessary equipment; blood tubes, vacutainer with luer-lock adapter, IV fluid and/or saline lock.

2. Cannulate the vain in normal manner. Do not attach IV tubing.

3. Attach vacutainer **OR** 10cc or larger syringe to the IV catheter hub. Do not delay treatment as dictated by patient condition to obtain blood samples in the field.

4. Draw blood in order prescribed by the receiving facility. If blood draw is difficult or flows extremely slow **DO NOT** lose a patent IV site to draw blood samples in the field.

5. Note time of blood draw on PPCR or patient reporting software and on the blood tubes. Label each individual tube with the patients last name, DOB, and your initials. Tape tubes to the patients IV bag or place in a plastic bag for delivery to the staff at the receiving facility.

WOG-12: King Airway

Aggressive BLS management of the airway should be attempted prior to the placement of the King Airway. If the provider is unable to maintain adequate ventilation to the patient in need of airway management the King Airway should be considered. Intermediates and Paramedics should consider use of the King Airway after a total of two attempts to secure a definitive airway with an ET tube.

Procedure

1. Check cuff to insure patency.
2. Apply chin lift and introduce correct size King LTS-D into corner of mouth.
3. Advance tip under base of tongue, while rotating tube back to midline.
4. Without exerting excessive force, advance tube until base of connector is aligned with teeth or gums.
5. Inflates LTS-D cuffs as follows:
    a. Size 3 – 55 ml
    b. Size 4 – 70 ml
    c. Size 5 – 80 ml
6. Attaches resuscitation bag and while gently bagging, slowly withdraws tube until ventilation is easy and free flowing (large tidal volume with minimal airway pressure).
7. Auscultates lungs and stomach observing for chest rise and fall.
8. Secures King Airway with a commercial tube holder.