

**ACT  
Treatment  
Protocols**

WEST VIRGINIA  
Department of

**Health &  
Human  
Resources**



**BUREAU FOR PUBLIC HEALTH**

Office of Emergency Medical Services



## TABLE OF CONTENTS

Preface	
Acknowledgments	
Using the Protocols	

### INITIAL TREATMENT / UNIVERSAL PATIENT CARE

<b>TRAUMA</b>	<b>5100</b>
Severe External Bleeding	5101
Spinal Immobilization	5102
Spinal Trauma	5103
Chest Trauma	5104
Abdominal Trauma	5105
Musculoskeletal Trauma	5106
Head Trauma	5107
Hypoperfusion / Shock	5108
Traumatic Arrest	5109
Burns	5110
Eye Injuries	5111

<b>CARDIAC</b>	<b>5200</b>
Chest Pain	5202
Severe Hypertension	5203
Cardiac Arrest	5205
Tachycardia	5208
Symptomatic Bradycardia	5211
Right Ventricular AMI	5213
Return of Spontaneous Circulation - ROSC	5214

<b>RESPIRATORY</b>	<b>5300</b>
Bronchospasm	5302
Pulmonary Edema	5303
Inhalation Injury	5304
Airway Obstruction	5305

<b>PEDIATRIC</b>	<b>5400</b>
Medical Assessment	5401
Hypoperfusion / Shock	5402
Seizures	5403
Child Neglect / Abuse	5404
Sudden Infant Death Syndrome	5405

## TABLE OF CONTENTS

Cardiac Arrest	5406
Cardiac Dysrhythmias	5407
Trauma Assessment	5408
Fever	5409
Newborn Infant Care	5410
Pediatric Diabetic Emergencies	5411
Allergic Reaction / Anaphylaxis	5412

<b>ENVIRONMENTAL</b>	<b>5500</b>
Allergic Reaction / Anaphylaxis	5501
Heat Exposure	5502
Cold Exposure	5503
Snake Bite	5504
Near Drowning / Drowning	5505

<b>MEDICAL</b>	<b>5600</b>
Hypoperfusion / Shock	5601
Stroke / TIA	5602
Seizures	5603
Diabetic Emergencies	5604
Unconscious / Altered Mental Status	5605
Overdose / Ingestion / Poisoning	5606
Behavioral Emergencies / Patient Restraint	5607
OB/GYN Emergencies	5608
Nausea / Vomiting	5609

<b>CHILDREN WITH SPECIAL HEALTHCARE NEEDS</b>	<b>5700</b>
General Assessment	5701
Central Venous Lines	5702
CSF Shunt	5703
Feeding Tubes	5704
Apnea Monitors	5705
Pacemaker / Defibrillator	5706
Ventilator Support	5707

<b>PROCEDURAL PROTOCOLS</b>	<b>5800</b>
Morgan Lens	5801
Intraosseous Placement	5802
CPAP	5803
Chest Decompression	5804
Stoma / Tracheostomy Suction Management	5805

## TABLE OF CONTENTS

<b>SPECIAL TREATMENT PROTOCOLS</b>	<b>5900</b>
Airway Management	5901
Patient Comfort / Pain Management	5902

<b>SPECIAL OPERATIONAL POLICIES AND PROTOCOLS</b>	<b>9000</b>
Death in the Field	9101
Cease Efforts	9102
Field Trauma Triage	9103
Ambulance Diversion Policy	9104
Field Aeromedical	9105
Medical Communication Policy	9106
Patient Handoff	9107
Nerve Agent	9202
LVAD	9203

<b>APPENDIX</b>	
Fibrinolytic Check Sheet	A
Diversion Alert Status Form	B
Pediatric References	C
Assessment Mnemonics	D
Glasgow Coma Scale	E
Approved Abbreviations	F
Cincinnati Prehospital Stroke Scale	G
EMS Patient Care without Telecommunications	H

## Preface

The first set of West Virginia EMS Statewide ALS protocols was a monumental event in the history of EMS in West Virginia. These protocols are the product of many years of discussion, collaboration, debate, revisions, and hard work on the part of a legion of dedicated professionals. They are evidence of the ongoing effort to continually improve emergency medical care in West Virginia.

Unified statewide protocols had been a dream of countless EMS providers, administrators, and medical directors for many years. The development of statewide protocols began in the mid-1990s with the early development of Statewide EMT-B and First Responder protocols. The experience and lessons learned from that project led to the realization that the same could be accomplished with ALS protocols as well.

Over the last thirty years, Emergency Medicine has matured as a specialty. This has led to fewer and fewer localized variations in standards of emergency care. From a patient care prospective, these more uniform standards should be applicable to EMS on a statewide basis. To be sure, many individual providers who work in different regions of the state have faced the challenge of learning several different protocols for the treatment of a patient with the same condition.

In the spring of 2000, building on the success of the Statewide EMT-B and First Responder Protocols, the State Critical Care Committee unanimously approved the concept to begin development of Statewide ALS protocols. Realizing the magnitude of this endeavor, the Regional Program Directors developed the early framework documents which combined the regional protocols into common state protocols. A list was developed and refined by the Medical Directors outlining the title to be used for each needed protocol.

In February 2001, a protocol work group composed of EMS representatives from every region of the state convened at Flatwoods for an intense two day session. During this session, participants were instructed to use all available resources to construct a set of draft Statewide ALS Protocols. They were mandated to put old regional differences aside and cooperatively write the best patient care protocol possible. This effort produced the first draft of 54 ALS Protocols. This first draft was circulated across the state and reviewed by numerous personnel. Over 1,000 corrections and comments were received and reviewed. These comments were condensed into 13 pages of specific issues requiring discussion, debate, and action by the State Critical Care Committee. With input from the Medical Directors and providers in their region, the Regional Medical Directors discussed and debated these issues. The ultimate goal was consistent quality patient care and consensus was reached and the second draft was completed. Further refinement led to approval of the final version by the State Critical Care Committee in October and December of 2001. The West Virginia EMS Statewide EMS Protocols went into effect on February 15, 2002.

This was the beginning of unified protocols for EMS care in West Virginia and has led to additional protocols and modifications. The most recent revision began in December 2013. Forty-six representatives from the EMS community met in Flatwoods, WV. Five subcommittees were formed to review and update Trauma, Medical, Pediatric, Cardiac and Children with Special Needs protocols. The members were instructed to review and make changes, remove outdated material, or review and approve. Several meetings occurred during the first seven months of 2014. Protocols were developed and compiled into a new format. These revisions were submitted to the Regional Medical Directors and Medical Policy and Care Committee in July 2014. Multiple minor corrections were made over the following six months.

EMS personnel who use these protocols on a daily basis are encouraged to provide suggestions for improvement and feedback through their Agency Medical Director to their Regional Medical Director.

These protocols are a critical part of our quest to provide the citizens and visitors of the State of West Virginia the finest emergency medical care in the country.

Michael Mills, D.O., FACEP  
West Virginia State EMS Medical Director  
December 2014

# Acknowledgments

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City of Martinsburg Fire Department  
RESA

***Special thanks to all the EMS personnel who contributed their comments during the development of these protocols.***

# WVOEMS Treatment Protocols

## Using the Protocols

The West Virginia EMS Statewide Protocols are designed to enable EMS personnel to provide a wide variety of treatments to many types of patients. Understanding the organization and terminology of the protocols is important and will vastly improve the usability by the EMS provider.

### Protocol Layout:

The following information is found at the top each protocol page contained in boxes:

- WVOEMS logo
- Type of Protocol
- Protocol Number
- Title of Protocol

*Example:*

	<b>Paramedic Treatment Protocol</b>	<b>4101</b>
<b>SEVERE EXTERNAL BLEEDING</b>		

The following information is found at the bottom each protocol page contained in boxes:

- Version Number
- Date
- West Virginia Office of Emergency Medical Services - Statewide Protocols
- Number of pages within protocol

*Example:*

Version 1  
01/01/2015

West Virginia Office of Emergency Medical Services – Statewide Protocols

Page 1 of 1

### Protocol Numbering System:

Each Protocol is assigned a four (4) digit number. The first digit represents the level of care of the provider using the protocol. The second digit specifies the category of care. The last two digits indicate the specific protocol number.

# WVOEMS Treatment Protocols

## Using the Protocols

*Example:*

### **Chest Pain Protocol 4202**

- 4** - Level of Care = Paramedic
- 2** - Category of Care = Cardiac
- 02** - Specific Protocol Number = Chest Pain

### **Classifications of Levels of Care:** *(first digit)*

- 1000 - CCT-RN
- 2000 - CCT-Paramedic
- 3000 - C3-IFT (Interfacility Transport Paramedic)
- 4000 - Paramedic
- 5000 - Open
- 6000 - EMT

**Note:** 7, 8 and 9 thousand series are used as follows:

- 7000 - BLS Procedural Protocols
- 8000 - ALS Procedural Protocols
- 9000 - Special Operational Policies and Protocols

### **Category of Care:** *(second digit)*

- 4100 - Trauma
- 4200 - Cardiac
- 4300 - Respiratory
- 4400 - Pediatrics
- 4500 - Environmental
- 4600 - Medical
- 4700 - Special Healthcare Needs
- 4800 - Open
- 4900 - Special Treatment Protocols

### **Initial Treatment / Universal Patient Care:**

The Initial Treatment / Universal Patient Care protocol is the first protocol within these guidelines. It is to be used universally on all patients as a starting point for assessment and treatment prior to moving on to a specific protocol. This protocol is designed to establish support at the beginning of patient care while identifying specific signs and symptoms that will direct the EMS provider to a more complaint specific protocol.

# WVOEMS Treatment Protocols

## Using the Protocols

### Special Shading and Icons:

The following shaded boxes with icons indicate that specific contact is required with **Medical Command** (red telephone) or the **Medical Command Physician** (physician) in order to perform specific treatments.

*Examples:*

*Treatment requires consultation with medical command*



*Treatment requires consultation or direct contact with  
Medical Command Physician*



### Special Pediatric Notes:

For the purposes of these protocols, any patient under the age of 12 years will be considered a pediatric patient. Certain patients who are larger or smaller than the norms for their age may require modification of treatment. Providers should consult with Medical Command as needed in making this determination.

## INITIAL TREATMENT / UNIVERSAL PATIENT CARE

- Initial Treatment / Universal Patient Care protocol is designed to guide the EMS provider in the initial and ongoing approach to assessment and management of medical and trauma patients.
- The patient examination should focus on rapid assessment and interventions. On-scene management of high priority patients should be limited to stabilization of life-threatening problems. Other procedures should always be performed while en route to the hospital or a landing zone.
- The goal for on-scene time should not exceed ten minutes for high priority trauma and medical patients. Shorter scene times are desirable for high priority patients. Rescue efforts for patients that are entrapped or have access/egress problems should be coordinated to minimize scene time.
- Medical Command should be notified as soon as possible when applicable to prepare the receiving hospital for the patient.
- At any time a provider is uncertain of how to best manage a patient, on-line Medical Command must be contacted for instruction.
- Rarely are emergent transports (red lights and sirens) required once the patient has been evaluated and treated. It is important that the attendant in charge (AIC) carefully evaluate the risks and benefits of an emergency transport to the hospital. The time saved transporting in an emergent mode is frequently very short. Furthermore, the time saved is unlikely to affect patient outcome. Ultimately, the mode of transportation decision is the responsibility of the AIC.

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### A. SCENE SIZE-UP

1. Take appropriate standard precautions. Put on personal protective equipment as appropriate, including gloves, eye protection mask and gown.
2. Assess scene safety.
3. Assess mechanism of injury and/or nature of illness.
  - a. Medical – determine nature of the illness from the patient, family, or bystanders. Why EMS was activated?
  - b. Trauma – determine the mechanism of injury from the patient, family, or bystanders, and inspection of the scene.
4. Determine total number of patients. Initiate a mass casualty plan if necessary and initiate triage.
5. Summon additional resources as necessary to manage the incident. Additional resources include, but are not limited to: fire, rescue, advanced life support, law enforcement, utilities.

## INITIAL TREATMENT / UNIVERSAL PATIENT CARE

### B. PRIMARY SURVEY

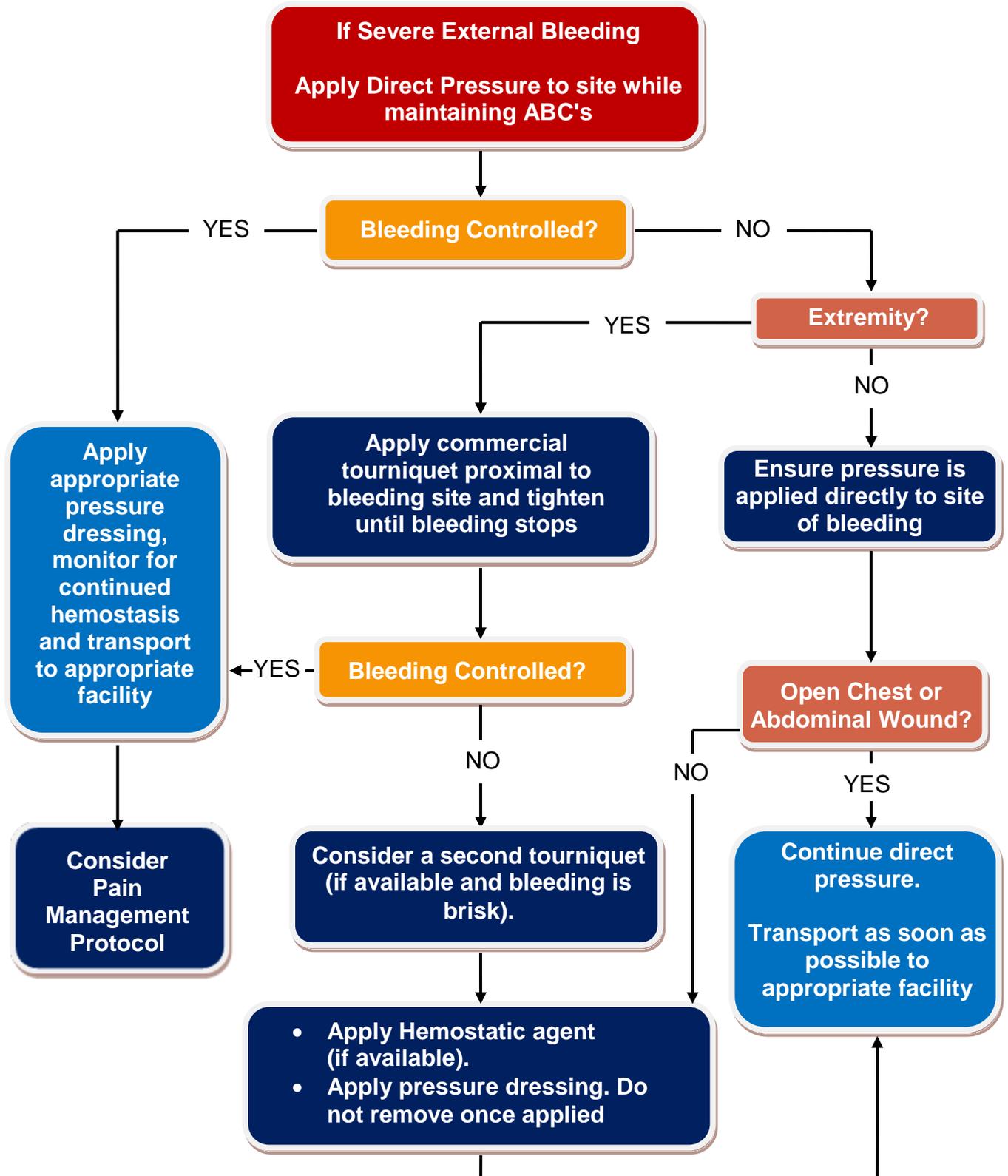
1. Form a general impression of the patient. Consider appearance, work of breathing, and circulation to skin. If a life-threatening condition is found, treat immediately.
2. Pediatric Patients may experience respiratory distress as a result of many different causes. A general impression should be established utilizing the **Pediatric Assessment Triangle (PAT)**. Appearance, work of breathing, and circulation. (Appendix C)
3. Determine the Mechanism of Injury (MOI) or Nature of Illness (NOI)
4. Assess patient's **mental status** (maintain spinal immobilization if required)
  - a. Assess using **GLASGOW COMA SCALE**. (Appendix E)
  - b. If the victim is unresponsive with no breathing or abnormal breathing (ie only gasping), see **Cardiac Arrest Protocol 4205 / 6205**.
  - c. Perform a Blood Glucose Reading on all patients exhibiting altered mental status
5. Assess the patient's **airway** status. Provide manual in-line stabilization of the head and neck for suspected spinal injury.
  - a. For a complete airway obstruction, see **AIRWAY MANAGEMENT protocol 4901 / 6901**
6. Assess the patient's **breathing**.
  - a. If respirations are inadequate, ventilate with 100% oxygen.
  - b. If spontaneous respirations are adequate:
    - i. Severe Distress – Administer Oxygen with a non-rebreather mask at 15 L/minute.
    - ii. Mild to Moderate Distress – Administer Oxygen with a nasal cannula at 2 to 6 L/minute to maintain SpO<sub>2</sub> at 94 to 99 %.
    - iii. Do not use nasal cannula in infants and small children. Blow-by oxygen or mask to keep SpO<sub>2</sub> at 94 - 99 %.
7. Assess the patient's **circulation**.
  - a. Assess pulses at appropriate pulse points.
  - b. Control major bleeding.

## INITIAL TREATMENT / UNIVERSAL PATIENT CARE

- c. Check perfusion by evaluating skin color, temperature, and moisture.
  - d. Acquire 12 lead ECG and transmit if applicable.
  - e. ALS providers – Establish IV/IO access and apply cardiac monitor if applicable.
8. **Expose** patient.
  9. Identify the priority of the patient based on assessment findings.
  10. Expedite transport for high priority patients
- C. SECONDARY SURVEY
1. Obtain vital signs, including:
    - a. Respirations
    - b. Pulse
    - c. Blood pressure
    - d. Skin color, temperature, and condition
  2. Obtain chief complaint.
  3. Obtain history of present illness and past medical history
  4. Conduct a physical examination (head-to-toe assessment) or focused exam
- D. Perform Ongoing Exam and assess interventions.
- E. Consider Patient Comfort Protocol 4902.

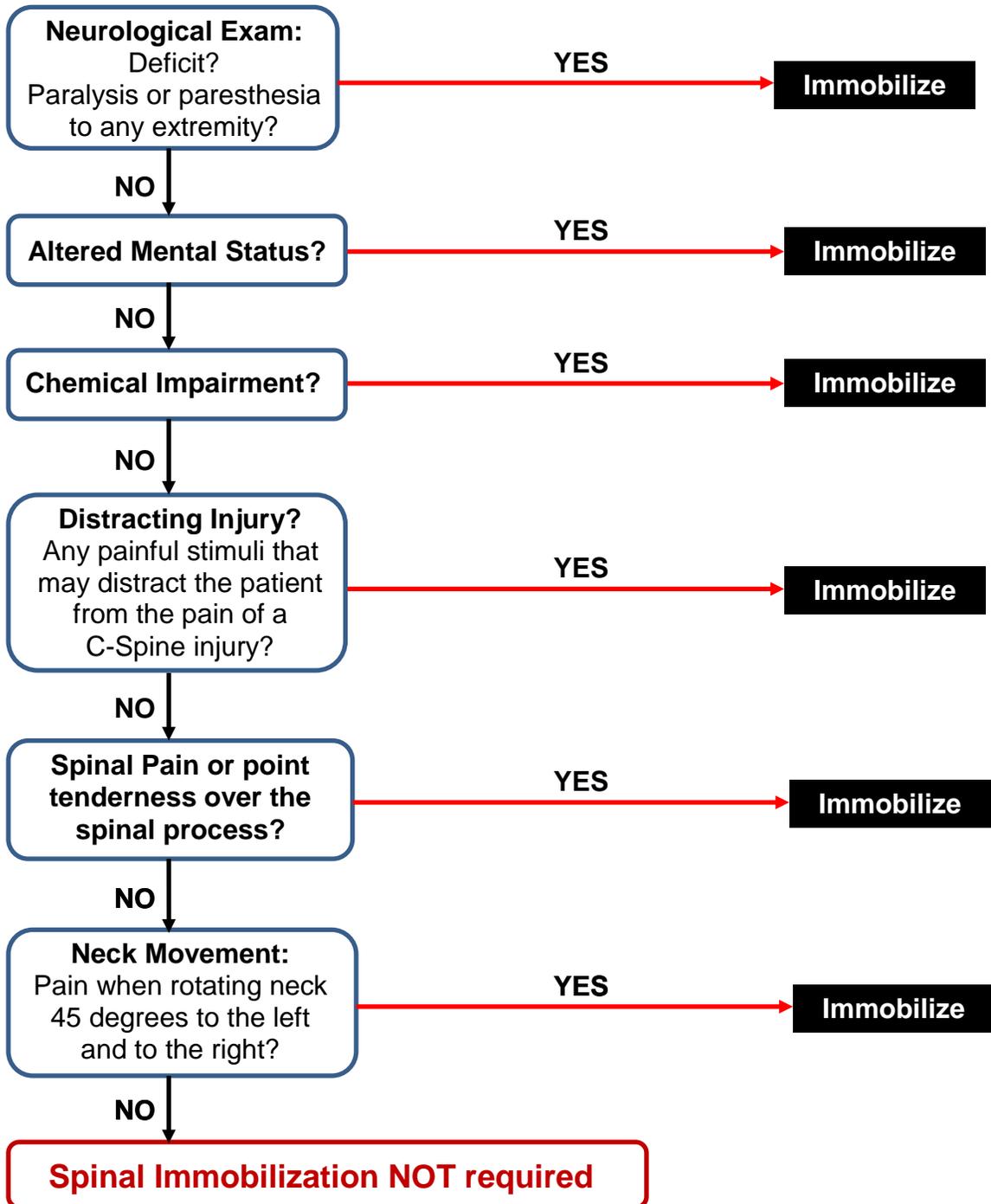
**NOTE:** Assessment Mnemonics can be found in Appendix D.

**SEVERE EXTERNAL BLEEDING**



## SPINAL IMMOBILIZATION

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Spinal Immobilization is indicated in patients who exposed to a mechanism that could cause spinal injury. Follow the immobilization criteria below:



## SPINAL TRAUMA

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Identify risk of spinal column and spinal cord injury/injuries.
- C. Assure adequate airway.
- D. Prevent and/or reduce further spinal column or spinal cord injury through application of appropriate evidenced-based immobilization.
- E. Presentation:
  - 1. Mechanism of injury consistent with potential for spinal injury.
  - 2. Cervical pain or tenderness.
  - 3. Numbness or parasthesias below the injury.
  - 4. Paralysis below the site of injury.
  - 5. Signs and symptoms of neurogenic shock.
- F. Assess the patient for any mechanism that could cause cervical spine injury, to include any of the following:
  - 1. History of loss of consciousness or unconscious.
  - 2. Disoriented or altered LOC with GCS < 15.
  - 3. Suspected use of drugs or alcohol.
  - 4. Midline cervical tenderness? Complaints of neck pain.
  - 5. Focal neurologic deficit.
  - 6. A painful and/or distracting injury that could mask cervical pain or injury.
  - 7. Patient is unable to communicate due to a language barrier.
  - 8. Patient is unable to appropriately respond to above questions.

## SPINAL TRAUMA

- G. If any of the above criteria are met, apply manual c-spine stabilization and, if it does not cause increased agitation or pain, apply a properly fitted cervical collar.
- H. If no high-risk criteria are present, assess for presence of low risk criteria:
  - 1. Low risk mechanism:
    - a. Low energy mechanism.
    - b. Simple rear-end collision without airbag deployment.
    - c. Glass rule: Age 16 - 65 year old, front seat occupant correctly wearing seatbelt without damage to any of the glass in the occupant compartment.
  - 2. NEXUS Criteria:
    - a. No neurologic signs.
    - b. No midline tenderness.
    - c. No distracting injury.
    - d. No intoxication causing GCS < 15.
    - e. No altered level of consciousness.
- I. Extrication of a patient to a stretcher:
  - 1. If patient does not meet criteria for c-spine immobilization and has no other injury, including thoracic or lumbar injury, that would preclude standing or ambulating, patient may self-extricate with assistance to a waiting stretcher.
  - 2. Patient(s) who are on the ground with c-collar applied, have altered mental status with GCS < 15, have neurologic signs of injury, and patient(s) unable to stand from a sitting position should be positioned and immobilized to a long spine board or scoop stretcher for extrication to the stretcher.

**Note:** Patients with paralysis of upper extremities, lower extremities, and chest wall muscles may be using abdominal muscles to breathe and may require assistance with ventilation.

## CHEST TRAUMA

Twenty-five percent of all motor vehicle deaths are due to thoracic trauma. Rapid recognition and immediate treatment of chest injuries can prove to be life-saving.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Perform the following, if indicated:
  1. Stabilize flail segment of chest.
  2. Seal any open chest wounds by taping three (3) sides with an occlusive dressing.
  3. Stabilize any impaled objects.
  4. If signs of a tension pneumothorax are present, (absent breath sounds and SBP < 90 mm Hg in adults or SBP < 80 mm Hg in children) and patient has altered mental status, then perform **Chest Decompression Protocol 5804** on affected side. Contact **MCP** immediately. Remember that tracheal deviation is a late sign. 
- C. Transport immediately.
- D. Notify **Medical Command**.
- E. Treat cardiac dysrhythmias per appropriate cardiac protocol.

**Note:**

1. Chest pain after trauma could be a sign of significant injury and not cardiac chest pain. Nitroglycerin **should not be used** without **MCP order**.
2. If tension pneumothorax develops in a patient with a sealed sucking chest wound, attempt to resolve by releasing air from the seal prior to decompressing chest.
3. Chest decompression is only indicated for a true tension pneumothorax with the signs listed above. It is not appropriate to needle decompress a simple pneumothorax. If the patient is awake and talking; do not perform a chest decompression unless by direct **MCP order**.

## ABDOMINAL TRAUMA

Prehospital care is directed toward rapid stabilization and transport to an appropriate medical facility for definitive surgical intervention and treatment.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Treatment:
  - 1. Rapid transport. Consider aeromedical transport.
- C. Penetrating trauma:
  - 1. Stabilize impaled objects with bulky dressings.
  - 2. Control external bleeding.
  - 3. Search and locate exit wounds, when applicable.
- D. Eviscerating trauma:
  - 1. Cover eviscerations with moist, sterile dressings.
  - 2. Apply occlusive bandage over dressings.
- E. Blunt trauma:
  - 1. Recognize and reassess.
  - 2. Rapid transport.
  - 3. If patient is in shock, perform **Shock Protocol 5108**.

4. Contact **Medical Command**.



## MUSCULOSKELETAL TRAUMA

Isolated musculoskeletal and extremity injuries are rarely a first priority. Pelvic injuries are high risk for serious internal bleeding. Total or partial amputations require special treatment procedures.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Treatment:
  1. Treat all painful, swollen, or deformed areas as fractures.
  2. Determine patient priority status:
    - a. Stable patients - splint before transporting.
    - b. Unstable patients - immobilize completely on long spine board - load and go.
  3. Use bandaging, dressing, and splinting device(s) appropriate to the injury.
  4. If isolated injury **only**, perform **Patient Comfort / Pain Management Protocol 5902**.
  5. If pelvic injury: stabilize, monitor closely, and perform **Shock Protocol 5108**, if indicated.
  6. Total or partial amputations:
    - a. Wrap severed part in sterile gauze slightly dampened with normal saline and place in sealed container (waterproof bag) immersed in ice water.
    - b. In **consultation with Medical Command**, determine best mode of transport and most appropriate destination. 
  7. Contact **Medical Command** and transport to closest appropriate facility.

## HEAD TRAUMA

The goal of pre-hospital treatment of head injuries is to prevent further neurological deterioration until definitive care can be provided. This is best done by maintaining an adequate airway, oxygenation, prevention, and treatment of hypotension combined with smooth, rapid transport to an appropriate facility with minimal on-scene time.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Maintain airway as indicated by **Airway Management Protocol 5901** with the following special considerations in patients requiring assisted ventilation:
  - 1. If signs of impending Central Nervous System herniation (increasing BP, bradycardia, decreasing GCS, dilation of one pupil, paralysis, and decerebrate or decorticate posturing) are present, then ventilate 12 - 20 breaths per minute to maintain end tidal CO<sub>2</sub> at 30 mm/Hg.
  - 2. If no signs of CNS herniation, ventilate 10 - 12 breaths per minute to maintain end tidal CO<sub>2</sub> at 35 - 40 mm/Hg.
- C. Transport and continue treatment en route. Consider ALS backup or aeromedical evacuation without delaying transport and meet en route.

D. Contact **Medical Command**



- E. Elevate head of bed 30° above horizontal if patient is not hypotensive.
- F. Perform and document neurological status checks every five (5) minutes.
- G. If patient is confused or unconscious, consider checking serum glucose treat as indicated in **Diabetic Protocol 5604**. **DO NOT** delay treatment or transport to check serum glucose but this should be done as soon as possible.
- H. If patient develops seizure activity, refer to **Seizure Protocol 5603**.
- I. Monitor airway, vital signs, and level of consciousness repeatedly at scene and during transport, **status changes are important**.

**Note:**

- 1. When head injury patients deteriorate, first check for proper airway, adequate oxygenation, and adequate blood pressure.
- 2. Avoid hypoxemia and hypotension.

## HYPOPERFUSION / SHOCK

Shock, or hypoperfusion, is decreased effective circulation causing inadequate delivery of oxygen to tissues. Signs of early (compensated) shock include tachycardia, poor skin color, cool/dry skin, and delayed capillary refill. Systolic blood pressure is normal in early shock. In late (decompensated) shock, perfusion is profoundly affected. Signs include low blood pressure, tachypnea, cool/clammy skin, agitation, and altered mental status.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Categories of Shock:
  1. Hypovolemic
  2. Distributive
  3. Cardiogenic
- C. Determine most likely cause of shock:
  1. Hypovolemic (loss of fluid) is **most common**. Usually from bleeding or vomiting and diarrhea.
  2. Distributive (loss of vascular tone) is usually from sepsis (infection). Other causes include anaphylaxis, toxic chemicals, or spinal cord injury.
  3. Cardiogenic (heart pump failure) - most common cause in adults is acute MI or CHF. Is rare in children.
- D. If hypovolemic shock is suspected (most common):
  1. Monitor vital signs, ECG, and pulse oximeter.
  2. Expedite transport.
  3. As soon as possible, and without delaying transport, establish two (2) IV lines of normal saline with as large a catheter as possible up to a 14 gauge.
  4. If systolic blood pressure < 90 or patient has other signs and symptoms of shock such as tachycardia, delayed capillary refill, cool/clammy skin, or altered mental status, then administer 20 ml/kg normal saline IV up to a maximum of 2 liters and reassess.

## HYPOPERFUSION / SHOCK

5. If on reassessment blood pressure is still  $< 90$  or other signs and symptoms of shock are still present, then contact **Medical Command** and reconsider causes.



E. If still felt to be hypovolemic shock:

1. Repeat 20 ml/kg normal saline IV **per order of MCP**.
2. Continue treatment **per MCP orders**.



F. If blood pressure is  $> 90$  systolic and patient has no other signs or symptoms of shock, administer 100 ml/hour normal saline IV and continue to monitor patient.

G. If distributive shock is suspected:

1. If anaphylaxis or allergic reaction, refer to **Allergic Reaction / Anaphylaxis Protocol 5501**.
2. Initial treatment same as hypovolemic shock above.

H. If cardiogenic shock is suspected:

1. Immediate transport.
2. Establish IV normal saline and administer fluid bolus of 250 ml assessing for signs of fluid overload.
3. Reassess appearance, vital signs, and signs and symptoms of shock.
4. If there is no rhythm disturbance and patient remains poorly perfused after the initial fluid bolus:

- a. Contact Medical Command and consider repeat 250 ml fluid bolus **per MCP order**.



**Note:** Patients with distributive shock from infection may also have hypovolemia from vomiting, diarrhea, and poor fluid intake.

## TRAUMATIC ARREST

Patients who are found in full cardiac arrest as a result of trauma have an essentially zero chance of survival. If on the arrival of EMS personnel the patient has any signs of life (pulse or respirations), rapid transportation and treatment offer the only hope for survival. Trauma patients who have a witnessed cardiac arrest require rapid treatment and transportation. Early recognition of tension pneumothorax and immediate treatment can prove life-saving.

A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.

B. If patient is found pulseless and apneic, **contact MCP directly** for consultation on not beginning resuscitation. Follow **Death in the Field Protocol 9101**.



C. If patient has any pulse or respirations or has arrest witnessed by EMS personnel, begin CPR with C-spine protection.

D. Establish and secure airway according to **Airway Management Protocol 5901**.

E. If intubated and unable to ventilate due to increased airway pressures, reconfirm proper ET placement and perform bilateral chest decompression.

F. As soon as possible and without delaying transport, establish two (2) IV lines of normal saline with as large a catheter as possible up to a 14 gauge and administer 20 ml/kg normal saline IV up to 2 liters and reassess.

G. Full immobilization.

H. On scene time should be < 5 minutes, if possible.

I. If patient is entrapped, consider **Cease-Efforts Protocol 9102 per direct MCP order**.



J. **Consult MCP** for further treatment orders.



## BURNS

Burns can be caused by direct thermal injury, exposure to caustic chemicals, and contact with electrical sources. Factors to be considered when treating burn patients include the nature of the burn, whether the patient was in an enclosed space, the source of the burn, the patient's history, the duration of the contact, and the temperature of the thermal agent. Always protect providers from exposures to hazardous materials. **NEVER ATTEMPT TO REMOVE PATIENT FROM AN IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH) ENVIRONMENT UNLESS TRAINED, CERTIFIED, AND PROPERLY EQUIPPED. NEVER PLACE YOURSELF OR YOUR CREW IN DANGER.** Decontamination, if necessary, should be done by appropriate certified personnel.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Stop the burning process:
  - 1. **Thermal burns:** Irrigate the burned area with tepid water (sterile, if possible) to cool skin. **DO NOT** attempt to wipe off semisolids (grease, tar, wax, etc.). **DO NOT** apply ice. Dry the body when the burn area is  $\geq 10\%$  BSA to prevent hypothermia.
  - 2. **Dry chemical burns:** Brush off dry powder and irrigate with copious amounts of tepid water (sterile, if possible) for 20 minutes. Continue en route to the hospital.
  - 3. **Liquid chemical burns:** Irrigate the burned area with copious amounts of tepid water (sterile, if possible) for 20 minutes. Continue en route to the hospital.
- C. If signs of respiratory involvement are present, such as facial burns, singed face or nasal hairs, swollen, sooty, or reddened mucous membranes, or patient was in a confined space and/or unconscious, assume inhalation injury and treat per **Inhalation Injury Protocol 5304**.
- D. Remove clothing from around burned area, but **DO NOT** remove/peel off skin or tissue. Remove and secure all jewelry and tight fitting clothing.
- E. Assess the extent of the burn using the **Rule of Nines** and the degree of burn severity.
- F. **Minor Burns:**
  - 1. Cover with clean dressing.

## BURNS

2. Consider application of cool/moist compress.

3. Notify **Medical Command** and Consider **Patient Comfort/Pain Management Protocol 5902.**



### G. Major Burns:

1. Cover with clean dry dressing.
2. Fluid management per **Shock / Hypoperfusion Protocol 5108.**
3. Consider **Patient Comfort / Pain Management Protocol 5902.**

4. **In consult with medical command**, establish transport mode (ground vs. air) considering transport to burn center.



### H. Thermal Burns:

1. Cool water immersion of minor localized burns may be effective if accomplished in the first few minutes after a burn.
2. Cover extensive partial and full thickness burns with a dry, sterile dressing. Keep the patient warm and treat per **Shock / Hypoperfusion Protocol 5108.**
3. Use soft, non-adherent dressings between areas of full thickness burns, such as between the fingers and toes, to prevent adhesion.
4. Be cautious and conservative when administering fluids to the burn patient with inhalation injury.

### I. Electrical Injuries:

1. Assure scene safety and notify appropriate agencies to mitigate the hazard.
2. Commonly occurring with electrical injuries are long bone fractures, cardiac dysrhythmias, and neurological deficits. Victims of lightning strikes may be in cardiac arrest, but frequently can be resuscitated quickly after intubation and assisted ventilations.
3. Assess for multiple entrance and exit wounds.
4. Cover wounds with clean dressings as required.

## BURNS

5. Perform 12 lead ECG and continual monitoring for possible cardiac disturbances. Electrical current may induce dysrhythmia's such as bradycardia's, tachycardia's, ventricular fibrillation, and asystole.

6. In consultation with **Medical Command**, establish mode (ground vs. air) and destination of transport, including consideration of transport to a burn center.



### J. Chemical Burns:

1. Attempt to identify substance from labels, data sheets, or other personnel on-scene, but **DO NOT** delay treatment or transport during this process.
2. Request additional resources, as needed (ERG, Haz Mat Team, etc.).

3. Contact **Medical Command** with the nature of the substance. **Medical Command** shall notify WV Poison Control for further information as required.



4. Avoid self-contamination by using protective clothing and gloves.
5. Decontaminate grossly by removal of excess chemical.
6. Common chemicals that cause burns:
  - a. **Phenol** is a gelatinous caustic used as an industrial cleaner. It is difficult to remove because it is insoluble in water. Use alcohol, which may be found in areas where Phenol is regularly used, to dissolve the product. Follow removal with irrigation using large volumes of cool water.
  - b. **Dry Lime** is a strong corrosive that reacts with water. It produces heat and subsequent chemical and thermal injuries. Brush dry lime off the patient gently, but as completely as possible. Then rinse the contaminated area with large volumes of cool to cold water.
  - c. **Sodium** is an unstable metal that reacts destructively with many substances, including human tissue and water. Decontaminate the patient quickly with gentle brushing.
  - d. **Riot Control Agents** (Mace, Pepper Spray, etc.) cause intense irritation of the eyes, mucous membranes, and respiratory tract. Treatment is supportive and most patients recover in 10 - 20 minutes of exposure to fresh air. If necessary, irrigate the patient's eyes with Normal

## BURNS

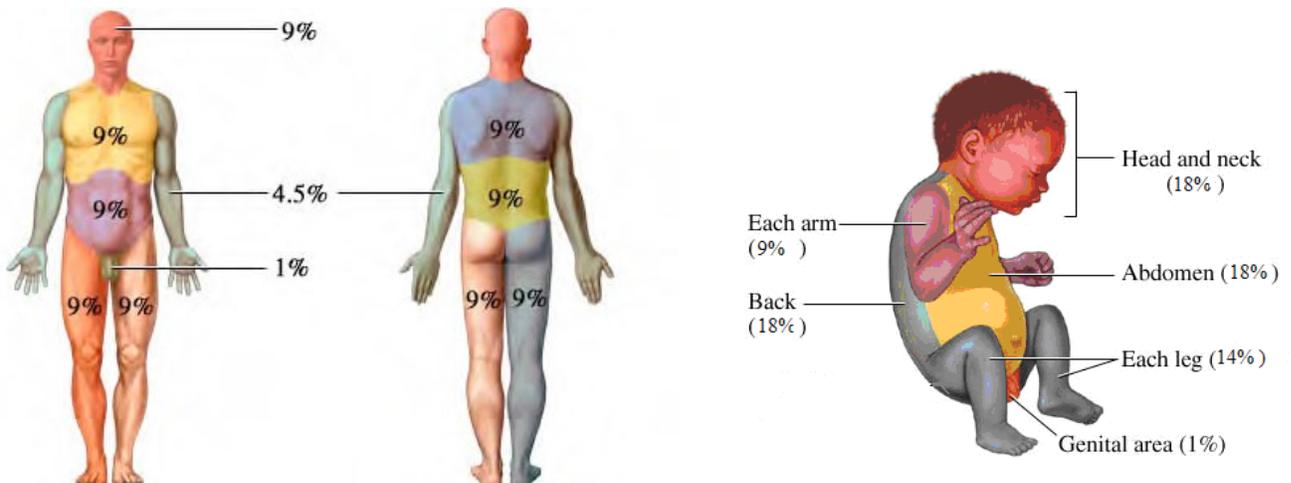
Saline if you suspect the agent remains in the eyes.

- e. **Hydrofluoric Acid** is a common corrosive that reacts with water. It produces heat and subsequent chemical and thermal injuries resulting in extreme pain to the affected areas. Cover the wound and avoid contact with water.

7. Flush with large amounts of water. Precaution: Certain substances such as heavy metals may cause further burning if flushed with water. If in doubt about flushing, contact **Medical Command**. If eyes are involved, flush for at least 20 minutes.



Minor Burns Criteria	Major Burns Criteria
<ol style="list-style-type: none"> <li>1. Superficial and partial thickness: Adult &lt;18%, Child &lt;9%</li> <li>2. Full thickness &lt;2%.</li> <li>3. Does not meet major burn criteria 3 thru 6.</li> </ol>	<ol style="list-style-type: none"> <li>1. Superficial and partial thickness: Adult &gt;18%, Child &gt;9%</li> <li>2. Full thickness &gt;2%.</li> <li>3. Partial or full thickness of: face, neck, hands, feet, genitalia</li> <li>4. Suspected or positive airway involvement.</li> <li>5. Electrical burns.</li> <li>6. Circumferential burns or associated injuries.</li> </ol>



## EYE INJURIES

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Penetrating trauma to globe:
1. Observe for bleeding and leakage of iris material or clear fluid.
  2. Do not palpate globe or apply any pressure to the eye.
  3. Shield injured eye and patch the non-injured eye.
  4. Stabilize impaled objects in place.
  5. Avoid unnecessary movement. Advise patient not to cough, sneeze, or move.
- C. Ultraviolet light exposure (i.e., arc welder or sun lamp burns):
1. Symptoms may be delayed 3 - 10 hours after exposure.
  2. Place cool compresses lightly over both eye lids.
- D. Sudden, painless loss of vision:
1. May be due to central retinal artery occlusion, stroke, or other embolic event.
  2. Administer oxygen 2 – 6 LPM via nasal cannula.
  3. Transport supine.
- E. Foreign Bodies in the eye that require irrigation:
1. Administer **Tetracaine (optional)**, 2 drops per eye being irrigated.
  2. Attached saline bag to IV tubing.
  3. Turn patients head injured eye down and flush continuously throughout transport.

NOTE: Tetracaine is a single use medication. Repeated doses will predispose the cornea to ulceration and destruction of the superficial layer of the cornea.

- F. Transport and continue treatment en route.

- G. Contact **Medical Command** for further treatment options.



## Chest Pain Discomfort / Acute Coronary Syndrome

- A. Indications for this protocol include one or more of the following:
1. Most patients complaining of substernal chest pain, pressure, or discomfort unrelated to an injury or other readily identifiable cause.
  2. History of previous ACS / AMI with recurrence of similar symptoms.
  3. Any patient with a history of cardiac problems who experiences lightheadedness or syncope.
  4. Patients of any age with suspected cocaine abuse and chest pain.
  5. Diabetic, female, and/or elderly patients with atypical chest discomfort or other symptoms associated with ACS / AMI in the absence of pain.
- B. Perform **Initial Treatment / Universal Patient Care Protocol**. Assessment should be directed toward identifying ACS / AMI vs. identifying a non-cardiac cause of the symptom(s).
- C. If patient has no history of a **true** allergy to aspirin **and** has no signs of active bleeding (i.e., bleeding gums, bloody or tarry stools, etc.), administer 4 (four) 81 mg chewable **Aspirin** orally (324 mg total). Note: May be administered prior to obtaining 12 lead ECG and/or establishment of IV access.
- D. Obtain 12 lead ECG, unless it **significantly** delays treatment or transport. Transmission of 12 lead ECG or interpretation should be sent to the receiving facility or **Medical Command**. Pre-treatment 12 lead ECG preferred.

1. If 12 lead ECG indicates STEMI or presumably new LBBB, transport patient to nearest facility capable of emergency PCI if this transport can be accomplished in < 30 minutes. If transport time to a facility with these capabilities will be > 30 minutes, consider transport options in the following order. All transport destinations should be directed by consultation with **Medical Command**.



- a. Aeromedical transport to PCI capable facility, if available.
- b. Transport to closest facility with fibrinolytic capability.
- c. Transport to closest facility capable of providing stabilizing care and expeditious transfer to facility with PCI.

## Chest Pain Discomfort / Acute Coronary Syndrome

2. If 12 lead ECG indicates signs of ischemia, possible NSTEMI, or is normal/non-diagnostic, transport to closest facility capable of providing stabilizing care and transfer to facility with PCI, if indicated.
3. If patient has a BP < 90 **DO NOT** administer nitroglycerin.
  - a. If 12 lead ECG indicates Inferior Wall AMI as indicated by ST Segment elevation in two or more of leads II, III or aVF, a 12 lead ECG should be obtained using right chest leads (V4R at a minimum). If right chest leads show ST Segment elevation, **DO NOT** administer sublingual **Nitroglycerin**. Follow **Right Ventricular Infarct Protocol 5213**.

4. If 12 lead ECG indicates PVC's evaluate for underlying causes. Consult **Medical Command Physician** for treatment options.



5. If blood pressure is > 90 mm/hg systolic and patient has **not** taken Sildenafil (*Viagra®*) or Vardenafil (*Levitra®*) within last 24 hours or Tadalafil (*Cialis®*) within the last 72 hours:

- a. Administer **Nitroglycerin** 0.4 mg SL. Note: May be administered prior to establishment of IV access.
- b. Repeat **Nitroglycerin** 0.4 mg SL every 3 - 5 minutes to a maximum of three (3) doses unless pain is relieved.

- c. If blood pressure falls below 90 systolic or decreases more than 30 mm/Hg below patient's normal baseline blood pressure, then discontinue dosing and **consult Medical Command Physician** to discuss further treatment.



- d. If blood pressure < 90 systolic and/or patient is experiencing severe bradycardia or tachycardia, treat according to appropriate protocol. Further treatment **per MCP orders**. If patient has taken Sildenafil (*Viagra®*) or Vardenafil (*Levitra®*) within last 24 hours, or Tadalafil (*Cialis®*) within the last 72 hours, nitroglycerin should only be given **by Medical Command Physician order**.



## Chest Pain Discomfort / Acute Coronary Syndrome

E. If chest pain persists:

1. Administer **Morphine Sulfate** 2 mg slow IV

- Use caution if hypotensive and/or bradycardic. Consider use of **Fentanyl (Sublimaze®)**.
- If systolic BP drops below 90 mm/Hg during administration of **Morphine Sulfate**, discontinue analgesic administration and administer IV fluid bolus 250 mL Normal Saline and contact Medical Command.

**-OR-**

Administer **Fentanyl (Sublimaze®)** 1 microgram/kilogram – up to 100 micrograms max single dose, slow IV.

2. If discomfort persists, **consult Medical Command Physician** to discuss further treatment with nitroglycerin, additional Morphine Sulfate, or Fentanyl. Monitor blood pressure and respiratory effort.



F. Treat dysrhythmias according to specific protocols.

G. If transport time permits, complete AHA Fibrinolytic Checklist. (Appendix A)

## SEVERE HYPERTENSION

An elevated blood pressure reading in emergency patients is not uncommon and usually is not by itself an emergency. The goals of pre-hospital treatment should be focused on the following: prevent a neurologic or cardiovascular catastrophe, rapidly identify those patients who are in a hypertensive crisis and the body system(s) affected or potentially affected, and control symptomatic elevated blood pressure in certain situations.

**This protocol is only applicable to patients with hypertensive crisis without signs and symptoms of stroke.**

Specific problems such as chest pain, pulmonary edema, and preeclampsia/eclampsia should be treated per appropriate protocols. Drug therapy shall be considered in careful consultation **with the Medical Command Physician.**

- A. Perform **Initial Treatment / Universal Patient Care Protocol**
- B. Systolic BP > 240 mm/Hg and/or Diastolic BP > 120 mm/Hg taken manually and repeated in opposing arms.

Patient may exhibit one or more of the following symptoms:

- 1. Chest pain
  - 2. Seizures
  - 3. Focal motor deficits
  - 4. Changes in mental status
  - 5. Decreased or blurred vision
  - 6. Shortness of breath
  - 7. Headache
- C. Cardiovascular problems such as angina, acute CHF, and aortic dissection may also be the presenting symptoms. Patients with suspected cocaine overdose or alcohol withdrawal may exhibit similar symptoms.

**Note:** *HYPERTENSION IS ALSO A NEUROPROTECTIVE REFLEX IN THE SETTING OF TRAUMATIC BRAIN INJURY OR INCREASED INTRACRANIAL PRESSURE. GREAT CAUTION MUST BE EXERCISED IN ADMINISTERING ANTI-HYPERTENSIVE AGENTS.*

## SEVERE HYPERTENSION

- D. Specific symptoms such as chest pain, CHF, etc. should be treated per appropriate protocol.
- E. Treatment goal: reduce MAP by 10 - 15% of initial value. **DO NOT** reduce BP to normal range (i.e. 120 / 80) as it may lead to a decrease in cerebral perfusion.

Measure blood pressure manually every five (5) minutes. If two (2) successive readings have a systolic > 240 or a diastolic >120 mmHg, consider intervention **if symptomatic per MCP order**.

**Nitroglycerin** (*second line medication*)

0.4 mg SL every 3 - 5 minutes.

Repeat if BP remains > 200/120 mm/Hg and symptoms remain (max. dose 1.2 mg).



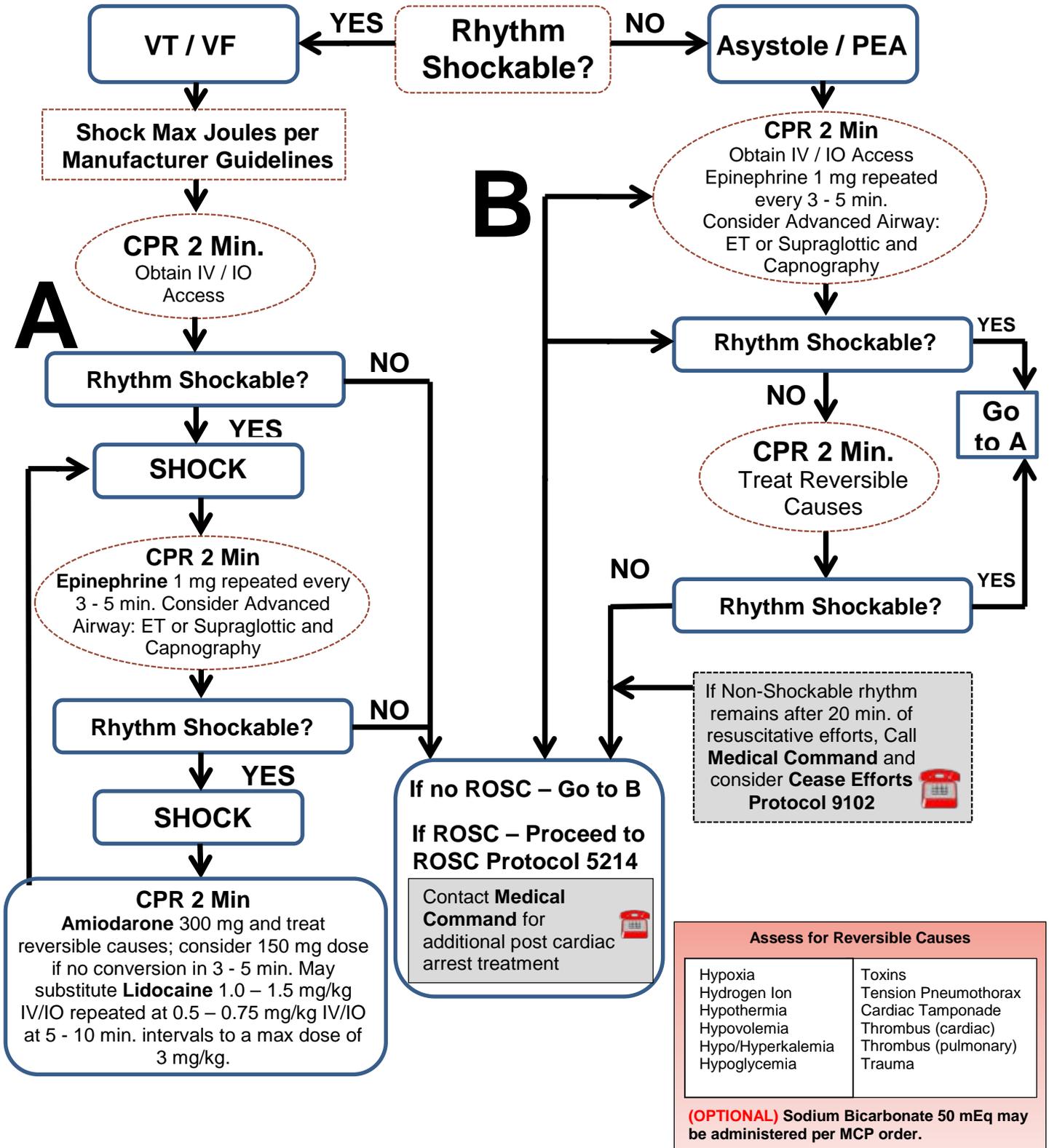
**-OR-**

**Morphine Sulfate** (*third line medication*)

2 - 10 mg IVP or IM

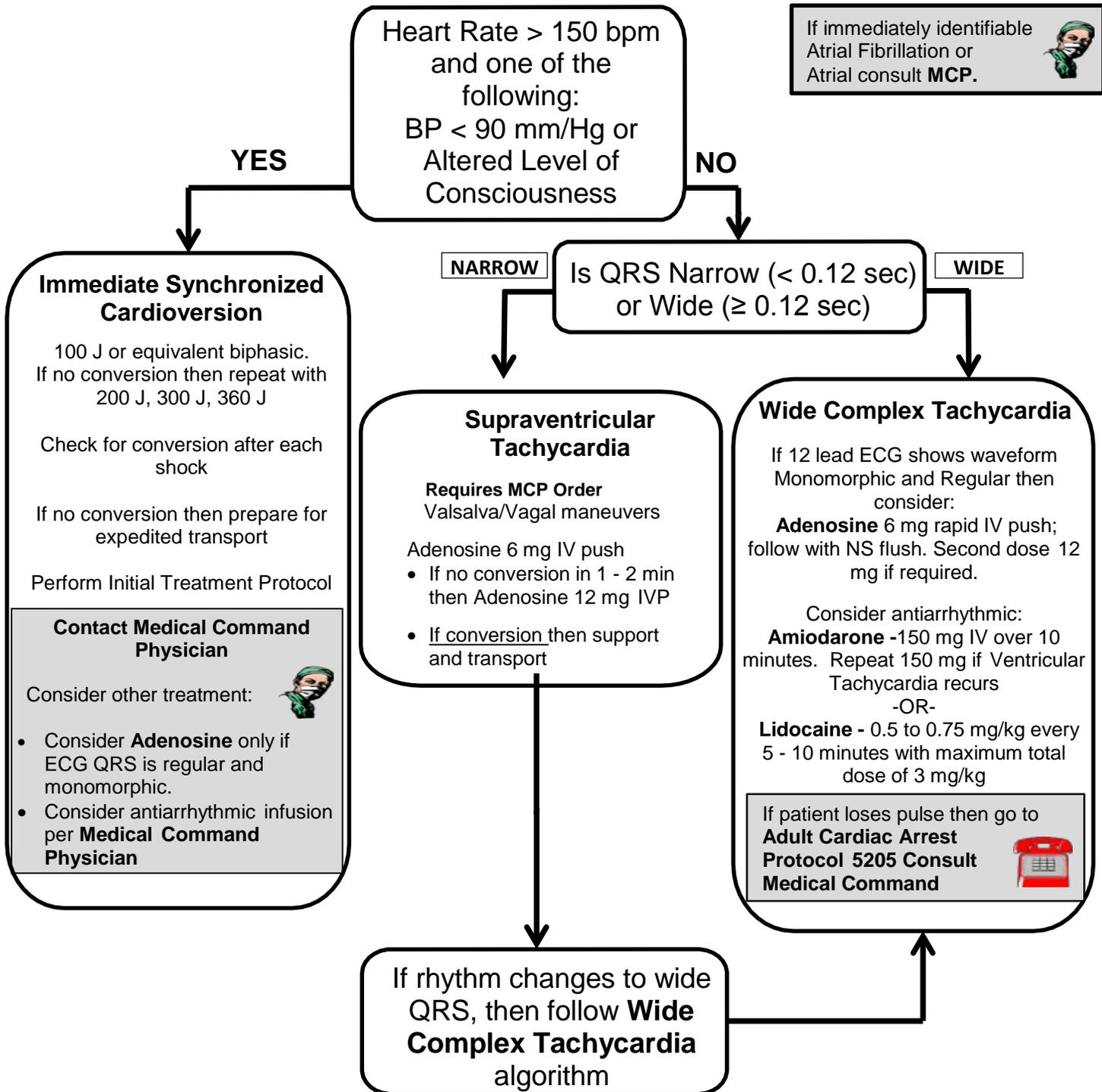
## ADULT CARDIAC ARREST

Follow Initial Treatment Protocol



## ADULT TACHYCARDIA

If immediately identifiable  
Atrial Fibrillation or  
Atrial consult **MCP**.



**SYMPTOMATIC BRADYCARDIA**

**Adult Bradycardia (with pulse)**

**Heart Rate < 50**

YES

NO

- Perform **Initial Treatment Protocol**
- Oxygen (if Hypoxic)
- ECG Monitor
- Monitor BP and SpO2
- Obtain IV / IO Access
- Perform 12 lead ECG

**Is Bradycardia associated with signs of poor perfusion:**

- Hypotension
- Acutely Altered Mental Status
- Signs of Shock
- Chest Discomfort
- Acute Heart Failure
- Ischemic or abnormal ECG findings

Closely monitor and observe for possible deterioration during transport

Identify and Treat Underlying causes for all patients

**Increase Heart Rate With:**

**Atropine** 0.5 mg IV. May repeat every 3 - 5 minutes up to a maximum dose 3 mg; Atropine administration should not delay implementation of external pacing for patients.

**Transcutaneous Pacer:** If Atropine is ineffective, patient with poor perfusion, or high degree AV Block. (consider pre-medication with **Midazolam (Versed®)** 2 mg for TCP)

**Fentanyl (Sublimaze®)** 1 microgram/kilogram - up to 100 micrograms max single dose, slow IV.



**Consider:**

**Apply transcutaneous pacer pads to patients presenting in AV Block**

## RIGHT VENTRICULAR AMI

- A. Perform **Initial Treatment / Universal Patient Care Protocol**
- B. Indication for this protocol is any patient with signs of an Inferior Wall ST Elevation Myocardial Infarction (STEMI) with concurrent ST elevation in right chest lead V4R.

**Note: Administration of sublingual nitroglycerin is CONTRAINDICATED in this situation.**

- C. Administer oxygen by appropriate route to maintain SpO<sub>2</sub> at 94 to 99%.
- D. If patient has no history of a true allergy to aspirin and has no signs of active bleeding (i.e., bleeding gums, bloody or tarry stools, etc.), then administer 4 (four) 81 mg chewable Aspirin orally (324 mg total). Aspirin may be administered prior to establishing IV.
- E. Establish two (2) IV lines, preferably 18 gauge or larger, of normal saline.
- F. If chest pain persists:

- Administer **Morphine Sulfate** 2 mg slow IV.
  - Use caution if hypotensive and/or bradycardic. Consider use of **Fentanyl (Sublimaze®)**.
  - If systolic BP drops below 90 mm/Hg during administration of **Morphine Sulfate**, discontinue analgesic administration and administer IV fluid bolus 250 mL Normal Saline and contact Medical Command.



**-OR-**

Administer **Fentanyl (Sublimaze®)** 1 microgram/kilogram – up to 100 micrograms max single dose, slow IV.

- If discomfort persists, **Contact Medical Command Physician** to discuss further treatment. Monitor blood pressure and respiratory effort.

- G. Monitor blood pressure carefully. If systolic BP falls below 90 mm/Hg, discontinue pain medications and treat hypotension per **Shock Protocol 5108**
- H. Treat dysrhythmias according to specific protocols.
- I. If transport time permits, complete AHA Fibrinolytic Checklist (Appendix A).

## RETURN OF SPONTANEOUS CIRCULATION (ROSC)

This protocol should be followed for all **adult** cardiac arrests with ROSC. If it is unknown whether the arrest is traumatic or medical, continue with this protocol.

- A. Follow **Initial Treatment / Universal Patient Care Protocol**
- B. If ventilation assistance is required, ventilate at 10 - 12 breaths per minute. Do not hyperventilate.
  - 1. Avoid excessive ventilation. Start at 10 - 12 breaths/minute. *If capnography available:* Titrate to target ETCO<sub>2</sub> of 35 - 40 mm/Hg.
    - a. Titrate oxygen to minimum necessary to achieve SpO<sub>2</sub> at 94 - 99 %.
    - b. Start with 100% oxygen during the CPR phase.
- C. Consider Advance Airway: ET or Supraglottic
- D. Reassess patient. If patient becomes pulseless, begin CPR and follow **Cardiac Arrest Protocol 5205**.
- E. Continue to monitor ABC's.
- F. Follow Initial Treatment / Universal Patient Care Protocol
- G. Start an IV / IO NS KVO if not already performed.
- H. Treat hypotension (SBP < 90 mm/Hg) with an IV/IO fluid bolus consistent with **Hypoperfusion / Shock Protocol 5108**.
- I. Perform 12 lead ECG. If STEMI, follow STEMI guidelines.
- J. Consider treatable causes. (H's and T's)

Assess for Reversible Causes	
Hypoxia	Toxins
Hydrogen Ion	Tension Pneumothorax
Hypothermia	Cardiac Tamponade
Hypovolemia	Thrombus (cardiac)
Hypo/Hyperkalemia	Thrombus (pulmonary)
Hypoglycemia	Trauma
<b>(OPTIONAL) Sodium Bicarbonate 50 mEq may be administered per MCP order</b>	

- K. If ventilation assistance is required with an advanced airway in place and quantitative

## RETURN OF SPONTANEOUS CIRCULATION (ROSC)

waveform capnography (*if available*); target ETCO<sub>2</sub> is 35 - 40 mm/Hg.

- L. Transport to a facility capable of Percutaneous Coronary Intervention (PCI) and/or therapeutic hypothermia in consultation with **Medical Command**.



- M. If patient remains unresponsive after ROSC, consider cooling the patient with 250 ml Normal Saline 4 degrees Centigrade (*optional equipment if available*); cold packs to axilla, groin, neck, etc.

- N. Consider the administration of **Amiodarone** Infusion or **Lidocaine** infusion if the patient was resuscitated following an episode of VF/VT and is without profound bradycardia or high-grade heart block (2nd degree Type II or 3<sup>rd</sup> degree or idioventricular rhythm) **per MCP Order**.  
**Note:** *Continue using the anti-arrhythmic medication that was administered during resuscitation.*



- O. If hypotension persists after 250 ml IV / IO fluid bolus, administer Dopamine 5 – 20 micrograms/kg/min **per MCP Order**.

## BRONCHOSPASM

Bronchospasm may be the manifestation of several disease processes, most commonly asthma, chronic bronchitis, and emphysema (COPD). Physical examination reveals wheezing and prolonged expiratory phase of breathing. Respiratory Distress is categorized as follows:

- **Minimal Distress:** A slight increase in work of breathing with no wheezing or stridor evident.
- **Moderate Distress:** A considerable increase in work of breathing with wheezing and/or abnormal breath sounds evident.
- **Severe Distress:** Extreme work of breathing (retractions) with a decreased LOC.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. If heart rate < 130 for adults or < 150 pediatrics:
1. Administer **Albuterol** 2.5 mg combined with **Ipratropium Bromide (Atrovent®)** 0.5 mg (Combi-Vent / Duo-Neb) with oxygen 8 - 10 LPM. If **Ipratropium Bromide (Atrovent®)** is contraindicated or the patient is a pediatric, administer **Albuterol** only.
  2. Reassess vital signs and lung sounds.
  3. If distress is unrelieved and patient appears severe:
    - a. Expedite transport.
    - b. Administer a second dose of **Albuterol** 2.5 mg combined with **Ipratropium Bromide (Atrovent®)** 0.5 mg (Combi-Vent / Duo-Neb) with oxygen 8 - 10 LPM per **Medical Command**. If **Ipratropium Bromide (Atrovent®)** is contraindicated or the patient is a pediatric, administer **Albuterol** only. 
    - c. If distress continues and patient is < 35 years of age and has no history of cardiac disease or hypertension, consider administration of **Epinephrine** 0.3 mg IM per **MCP order**. 
  4. If distress is relieved:
    - a. Monitor vital signs and transport.
    - b. Notify **Medical Command**.

## BRONCHOSPASM

- C. If heart rate > 130 for adults and > 150 pediatrics:
1. Confirm that patient's tachycardia appears to be from respiratory distress and not from other causes.
  2. If patient is < 35 and has no cardiac history:
    - a. Proceed with treatment as in "B" above.
    - b. Monitor patient's symptoms and vital signs very closely.
    - c. If any signs of increasing chest pain or cardiac symptoms develop, stop nebulizer, and treat per appropriate protocol.
- d. **Contact Medical Command** for further treatment options. 
3. If patient shows no improvement, consider use of CPAP or aggressive airway management.

## PULMONARY EDEMA

Patients experiencing pulmonary edema will have rales or crackles on lung exam and JVD and/or peripheral edema and/or frothy sputum. Rales can also be heard in patients with lung infections who are not in pulmonary edema and furosemide is not appropriate treatment for these patients. Patients in severe pulmonary edema may benefit from assistance with positive pressure ventilation.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.

**NOTE:** If patient has taken Sildenafil (*Viagra*®) or Vardenafil (*Levitra*®) within last 24 hours, or Tadalafil (*Cialis*®) within the last 72 hours, treat per D - K of this protocol.

- B. If patient has rales along with JVD and initial blood pressure is > 180 **systolic**; administer **Nitroglycerine** 0.4 mg every 3 – 5 minutes up to a total of three (3) doses or 1.2 mg.

- C. Obtain a manual BP between doses of Nitroglycerine.

- D. If patient **DOES NOT** take **Furosemide (Lasix**®) and **diastolic** BP remains > 100; administer **Furosemide** 40 mg IV/IO.



- E. If patient **DOES** take **Furosemide (Lasix**®) and **diastolic** BP remains > 100; administer **Furosemide** 80 mg IV/IO.

- F. If patient is in severe respiratory distress, consider CPAP if available per **CPAP Protocol 5803**.

- G. **If wheezing is present**, administer **Albuterol** 2.5 mg combined with **Ipratropium Bromide (Atrovent**®) 0.5 mg (Combi-Vent / Duo-Neb) with oxygen 8 - 10 LPM. If **Ipratropium Bromide (Atrovent**®) is contraindicated or the patient is a pediatric, administer **Albuterol** only.

- H. May repeat **Albuterol** 2.5 mg combined with **Ipratropium Bromide (Atrovent**®) 0.5 mg (Combi-Vent / Duo-Neb) per order of **Medical Command**. If **Ipratropium Bromide (Atrovent**®) is contraindicated or the patient is a pediatric, administer **Albuterol** only.



- I. Transport with **further orders per MCP**.



- J. If blood pressure < 90 systolic and patient has rales and JVD:

1. Expedite transport and monitor vital signs closely.

**PULMONARY EDEMA**

2. Contact **Medical Command** for further orders per MCP.



K. If blood pressure is < 90 systolic, refer to **Shock Protocol 5108**.

## INHALATION INJURY

Inhalation injury may be caused by toxins or thermal burns. In either case, the patient should be removed from the environment. **NEVER ATTEMPT TO REMOVE PATIENT FROM AN IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH) ENVIRONMENT UNLESS TRAINED, CERTIFIED, AND PROPERLY EQUIPPED. NEVER PLACE YOURSELF OR YOUR CREW IN DANGER.** Decontamination, if necessary, should be done by appropriate certified personnel.

Note: Obtain **Data Sheets** for inhalant and/or refer to **DOT Emergency Response Guide** for direction. Contact **Medical Command** which may consult with WV Poison Control Center.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Specific history and physical exam:
  - 1. Type and amount of toxin, if known.
  - 2. Duration of exposure.
  - 3. History of loss of consciousness.
  - 4. If thermal injury, assess nares and oropharynx for singeing and soot.
  - 5. Assess lung sounds; if wheezing, refer to **Bronchospasm Protocol 5302**.
  - 6. If burns are present, treat per **Burn Protocol 5110**.
- C. Transport.
- D. Notify **Medical Command**.

## AIRWAY OBSTRUCTION

### A. Conscious Patient:

1. Able to talk or cough:
  - a. Reassure victim and encourage coughing.
  - b. Oxygen 15 LPM non-rebreather mask.
2. Unable to talk or cough, or weak ineffective cough:
  - a. Deliver repeated abdominal thrusts until obstruction relieved or victim becomes unconscious. For patients < 1 year of age, do alternating 5 back blows and 5 chest thrusts.
  - b. Chest thrusts are preferred on advanced pregnancy and marked obesity.
  - c. Transport immediately and notify **Medical Command**.

### B. Unconscious:

1. Open airway and attempt ventilation.
2. Reposition airway, if necessary, and attempt ventilation.
3. Begin CPR starting with compressions.
4. Finger sweep for foreign body if visible. **DO NOT perform finger sweep on patients < 8 years of age.**
5. Repeat steps 1 - 5 above.
6. If still obstructed, visualize with laryngoscope, remove obstruction with Magill forceps.
7. If unsuccessful, transport immediately. Repeat steps 1 - 5 en route.
8. Consider **protocol 5901** for further airway management.
9. **Contact Medical Command.**



## PEDIATRIC MEDICAL ASSESSMENT

The initial procedures needed to assess and manage pediatric medical patients are similar. Primary cardiac problems are rare in children. Pediatric patients may experience respiratory distress as a result of many different causes.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
  1. General impression using **Pediatric Assessment Triangle (PAT)**. Appearance, Work of Breathing, and Circulation of Skin. (Appendix C)
  2. Hands on physical assessment using **Pediatric ABCDE's**. Airway, breathing, circulation, disability, and exposure.
  3. **Do Not** use nasal cannula in infants and small children. Use blow-by oxygen or mask to keep SPO2 at 94 - 99 %.
  4. Perform focused history, more detailed physical exam, and ongoing assessment at the appropriate time before or during transport.
- B. Provide immediate resuscitation, as needed, and immediately make transport decision.
- C. **Do Not** use a combitube in patients < 70 lbs. or < 5 feet tall.

## PEDIATRIC HYPOPERFUSION (SHOCK)

Shock, or hypoperfusion, is decreased effective circulation causing inadequate delivery of oxygen to tissues. Signs of early (compensated) shock include tachycardia, poor skin color, cool/dry skin, and delayed capillary refill. Systolic blood pressure is normal in early shock. In late (decompensated) shock, perfusion is profoundly affected. Signs include low blood pressure, tachypnea, cool/clammy skin, agitation, and altered mental status.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Shock is categorized as:
  1. Hypovolemic
  2. Distributive
  3. Cardiogenic
- C. Determine the most likely cause of shock.
  1. Hypovolemic (loss of fluid) is most common. Usually from bleeding or vomiting and diarrhea.
  2. Distributive (loss of vascular tone) is usually from sepsis (infection). Other causes include anaphylaxis, toxic chemicals, or spinal cord injury.
  3. Cardiogenic (heart pump failure) is **rare** in children. Most common cause is congenital heart disease.
- D. If hypovolemic shock is suspected:
  1. If associated with trauma, refer to **Pediatric Trauma Assessment Protocol 5408**.
  2. If history of vomiting and/or diarrhea and normal vital signs and minimal evidence of dehydration, such as decreased tearing and dry mucous membranes, then transport and monitor vital signs.
  3. If dehydrated with signs of early shock such as tachycardia and cool/dry skin and delayed capillary refill:
    - a. Begin transport.

## PEDIATRIC HYPOPERFUSION (SHOCK)

b. Establish IV normal saline and administer 20 ml/kg bolus.

c. Continue fluids **per order of Medical Command**.



4. If signs of late (decompensated) shock such as low blood pressure, tachypnea, cool/clammy skin, agitation, and altered mental status:

a. Make one (1) attempt on-scene to establish IV/IO normal saline and administer 20 ml/kg bolus.

**NOTE:** IO requires **MCP order**

b. Transport.

c. If still evidence of shock, repeat 20 ml/kg normal saline bolus up to two (2) times for a maximum total of 60 ml/kg.

d. **Contact Medical Command** for further fluid management orders.



E. If distributive shock is suspected:

1. If anaphylaxis or allergic reaction, refer to **Allergic Reaction/Anaphylaxis Protocol 5501**.

2. Initial treatment same as hypovolemic shock above.

3. If hypotension, markedly increased heart rate, and mental status changes persist after administration of three 20 ml/kg normal saline boluses:

a. Reassess that shock is distributive and not from untreated hypovolemia.

b. **Contact Medical Command**



F. If cardiogenic shock is suspected:

1. Immediate transport.

2. Establish IV normal saline and administer fluid bolus of 10 ml/kg assessing for signs of fluid overload.

3. Reassess appearance, vital signs, and work of breathing.

4. If there is no rhythm disturbance and patient remains poorly perfused after

**PEDIATRIC HYPOPERFUSION (SHOCK)**

the initial fluid bolus:

a. Contact **Medical Command**



**Note:** Patients with distributive shock from infection may also have hypovolemia from vomiting, diarrhea, and poor fluid intake.

## PEDIATRIC SEIZURES

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Protect patient from injury and place on left side.
- C. Obtain history to help determine origin of seizure:
  - 1. Refer to appropriate protocol
  - 2. History of seizures in the past and is patient taking anti-seizure medications.
- D. If child is actively seizing:
  - 1. Protect airway, **DO NOT** attempt intubation during convulsion.
  - 2. Calm caregiver's fears.
  - 3. Obtain key information and prepare for transport.

4. If patient has been given prescription for **Diastat** and is still seizing, administer **Diastat** per rectum at prescribed dose per **MCP Order**.



5. Quickly assess serum glucose and attempt to establish IV normal saline KVO or saline lock.

6. If glucose level is < 60 mg/dl or cannot be determined:

a. **Patient 1 month of age or younger** – If blood glucose is < 60 mg/dl, administer 5.0–10.0 ml/kg **Dextrose 10%** IV/IO (**D10** is prepared by mixing 40 ml of NS with 10 ml of D50W).

**NOTE: IO placement requires MCP order**

b. **Patient older than 1 month but younger than 2 years old** – If blood glucose is < 60 mg/dl, administer 2 - 4 ml/kg of **D25** IV/IO; (**D25** is prepared by mixing 25 ml NS with 25 ml D50W).

c. **Patient 2 years of age or older** – If blood glucose is < 60 mg/dl, administer **D50W** 1–2 ml/kg IV/IO. Maximum dose is 25 grams.



7. If no IV administer **Glucagon** 1 mg IM per **Medical Command**.

**PEDIATRIC SEIZURES**

8. Expedite transport and contact **Medical Command**.

9. If seizure lasts longer than five (5) minutes **or** two (2) or more episodes of seizure activity occur between which the patient does not regain consciousness:

- a. Administer **Midazolam (Versed®)** IV/IO/IM 0.1 mg/kg **per MCP order**.
- b. If no IV access is available, administer **Midazolam (Versed®)** 0.2 mg/kg intranasal (IN) via atomizer **per MCP order**.

10. If seizure continues, further treatment as **ordered by Medical Command**.

E. If child is **Not** actively seizing:

1. Monitor vital signs closely and be alert for recurrence of seizure.
2. Transport.
3. Perform remaining assessment, as indicated.
4. Notify **Medical Command**.

**Note:** If child is administered their personal prescription of *Diastat* by EMS, the child must be transported to the hospital for further evaluation.

## PEDIATRIC SUSPECTED CHILD ABUSE / NEGLECT

Pediatric patients require the same skills and techniques as adult patients; however, unless you are calm and professional, the emotional reaction of the patient and others on the scene may become more intense. **Use extreme tact and professionalism. Do not let emotions or prejudices interfere with appropriate patient care.**

- A. Assure that scene is safe for both rescuers and patient.
- B. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- C. Provide appropriate emergency medical treatment for all injuries found (refer to appropriate trauma protocols).
- D. Obtain history from all available sources including child, parent/caregiver, and other witnesses.
- E. Alleged sexual abuse:
  - 1. Discourage patient from going to bathroom.
  - 2. Don't allow patient to change clothes or wash.
  - 3. Give nothing by mouth.
- F. Transport.
- G. Contact **Medical Command**.
- H. Upon arrival at the hospital, inform the receiving medical personnel of your findings and/or suspicions. Document the call carefully and thoroughly. Use the telephone to relay pertinent information to **Medical Command**.

**Note:** Current WV law sets forth that as mandated reporters of child abuse and neglect, EMS providers are required to report the circumstances of child abuse/neglect or cause a report to be made to the WV Department of Health and Human Resources (WVDHHR) within 48 hours after suspecting abuse. Additionally, they are required to report the circumstances to the person in charge of the receiving institution or a designated person thereof. That person is then required to make the report or cause a report to be made. While EMS providers may report the circumstances to WVDHHR themselves, they must always make a report to the person in charge of the receiving institution, or a designated person thereof, who then has a statutory duty to report.

## PEDIATRIC SUDDEN INFANT DEATH SYNDROME

Sudden Infant Death Syndrome (SIDS) is the unexpected, sudden death of a seemingly normal, healthy infant that occurs during sleep with no physical evidence of disease or injury.

- A. Begin resuscitation immediately unless rigor mortis, severe lividity, or tissue breakdown is evident. If any doubt, resuscitate. Refer to Pediatric Emergencies **Cardiac Arrest Protocol 5406**.
- B. Note the position and condition of the victim and the surroundings.
- C. Use extreme tact and professionalism. Do not let emotions or prejudices interfere with carrying out appropriate patient care or family support.
  1. Do not make judgments concerning the situation.
  2. Do not add to the parent's sense of guilt or helplessness.
  3. Remember, people react differently to stressful situations.
- D. If resuscitation is begun:
  1. Transport immediately.
  2. Continue treatment en route per appropriate protocol.
  3. Contact **Medical Command** for further orders.
- E. If resuscitation has **not begun**:
  1. **Contact Medical Command** immediately for confirmation of decision not to begin efforts **by direct MCP order** and follow **Death in the Field Protocol 9101**.



## PEDIATRIC CARDIAC ARREST

Cardiac arrest in infants and children is rarely a primary event. It is usually a result of deterioration of respiratory function resulting in decreased cardiac function. Cardiac arrest can be prevented if the symptoms of respiratory failure and/or shock are recognized and quickly treated.

### A. Ventricular Fibrillation/Pulseless V-tach:

1. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.

- a. Immediate defibrillation in witnessed arrest.

- b. IO placement requires **MCP Order**.

- c. Administer **Epinephrine** 1:10,000, 0.01 mg/kg IV/IO every 3 - 5 minutes (tracheal tube 0.1 mg/kg, 1:1000) per **MCP Order**.



- d. Confirm effectiveness of CPR during resuscitative effort.

2. Defibrillate at 2 joules/kg.

3. If no conversion after two (2) minutes of CPR:

- a. Defibrillate at 4 joules/kg and repeat two (2) minutes of CPR.

- b. If no conversion, defibrillate again at 4 joules/kg.

- c. If no conversion, establish airway and IV/IO access and administer **Epinephrine** (1:10,000) 0.01 mg/kg IV/IO, or **Epinephrine** (1:1000) 0.1 mg/kg down ET tube.

- d. If no conversion, within 30 - 60 seconds defibrillate at 4 joules/kg.

- e. If no conversion, continue **Epinephrine** every 3 - 5 minutes and administer **Lidocaine** 1 mg/kg IV/IO or **Amiodarone** 5 mg/kg IV/IO.



- f. If no conversion, defibrillate again at 4 joules/kg.

- g. If no conversion, repeat **Lidocaine** 1 mg/kg IV/IO or **Amiodarone** 5 mg/kg IV/IO.

- h. If no conversion, defibrillate at 4 joules/kg.

## PEDIATRIC CARDIAC ARREST

- i. If no conversion, continue to alternate drug therapy with defibrillation and contact **Medical Command**.
- j. Transport.
4. If conversion occurs:
  - a. Follow **ROSC Protocol 5214**.
  - b. Notify **Medical Command** and transport.

### B. Asystole:

1. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
2. Confirm true asystole:
  - a. Check lead and cable connections.
  - b. Check monitor power is “on” and gain is “up.”
  - c. Verify asystole in at least two (2) leads.

3. Administer **Epinephrine** (1:10,000) 0.01 mg/kg IV/IO, or **Epinephrine** (1:1000) 0.1 mg/kg down ET tube. Repeat every 3 - 5 minutes.



4. Notify **Medical Command** and transport.
5. Search for and treat reversible causes.

6. Further treatment as **ordered by MCP**.



7. If conversion occurs:
  - a. Follow **ROSC Protocol 5214**.
  - b. Notify **Medical Command** and transport.

### C. PEA (Pulseless Electrical Activity):

1. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.

## PEDIATRIC CARDIAC ARREST

2. Review potentially reversible causes.

3. Administer **Epinephrine** (1:10,000) 0.01 mg/kg IV/IO, or **Epinephrine** (1:1000) 0.1 mg/kg down ET tube. Repeat every 3 to 5 minutes.



4. Notify **Medical Command** and transport.

5. If conversion occurs:

a. Follow **ROSC Protocol 5214**.

b. Further treatment as **ordered by MCP**.



## PEDIATRIC CARDIAC DYSRHYTHMIAS

Cardiac dysrhythmias are rare in children. Bradycardia is almost always caused by hypoxia and is frequently a pre-arrest situation. Tachycardia may be SVT, VT, or sinus tachycardia. Tachycardia may be from hypoxia or pain, however, children may tolerate heart rates >200 without immediate serious consequences. Carefully assess the patient, and if they are essentially asymptomatic, then expedite transport and monitor closely.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Bradycardia (Heart Rate < 60): usually due to hypoxia. Always look for potentially reversible causes. Aggressively manage the airway.

1. If no pulse, treat per **Cardiac Arrest Protocol 5406**.
2. If pulse present but patient is hemodynamically unstable with low blood pressure, poor perfusion, and decreased level of consciousness:

a. Reassess airway and assist ventilations.

b. **Contact Medical Command** and administer **Epinephrine** (1:10,000) 0.01 mg/kg IV/IO, or **Epinephrine** (1:1000) 0.1 mg/kg down ET tube **per MCP order**. Repeat every 3 to 5 minutes **per MCP order**.



c. **If ordered by MCP**, administer **Atropine** 0.02 mg/kg IV/IO, or ET. Minimum dose: 0.1 mg. Maximum single dose: 0.5 mg for child; 1.0 mg for adolescent.

3. If child is essentially asymptomatic, monitor closely and expedite transport. Continually reassess airway and oxygenation.

- C. Narrow Complex with rate > 220 (probably SVT), with a pulse and no evidence of hemodynamic instability, shock, or decreased level of consciousness.

1. Vagal maneuvers.

2. If no conversion, administer **Adenosine** 0.1 mg/kg IV/IO followed by immediate 20 ml flush of normal saline **per order of MCP**. Maximum first dose of 6 mg.

3. If no conversion, may double and repeat dose once **per order of MCP**. Maximum second dose of 12 mg.



## PEDIATRIC CARDIAC DYSRHYTHMIAS

- D. Narrow complex with rate > 220 (probably SVT), with low blood pressure and other signs and symptoms of shock including decreased level of consciousness.

1. If vascular access is in place and **Adenosine** can be given within 90 seconds, then treat as in "C2 and C3" above **per order of MCP**.
2. If no conversion and still in shock, then synchronized cardioversion at 0.5 - 1.0 joules/kg **per order of MCP**.
3. If no conversion and still in shock, then synchronized cardioversion at 2.0 joules/kg **per order of MCP**.



- E. Wide complex with rate > 150 (probably VT).

1. If conscious, administer **Lidocaine** 1mg/kg IV/IO or **Amiodarone** 5 mg/kg over 20 – 60 minutes, **per order of MCP**.
2. If unconscious with signs of shock, deliver synchronized cardioversion as outlined in "D2 and D3" above **per order of MCP**.



## PEDIATRIC TRAUMA ASSESSMENT

In the trauma patient, time is critical. Only initial assessment and treatment of life-threatening injuries should be performed on scene. For severely injured patients, after appropriate airway management, “load and go” is more appropriate.

If dispatch information gives the responding ambulance reason to suspect the possibility of a significant accident situation (multiple vehicles, etc.), alert **Medical Command** prior to arrival at scene and consider aeromedical standby.

A. Scene evaluation:

1. Note potential hazard to rescuers and patient.
2. Identify number of patients and organize triage operations, if needed.
3. Observe patient position and surroundings.
4. Consider need for aeromedical evacuation.

B. Consider mechanism of injury:

1. Cause, precipitating factors, and weapons used.
2. Trajectories and forces involved to patient.
3. For vehicular trauma: condition of vehicle, windshield, steering wheel, compartment intrusion, car seat, type and use of seatbelts. Specific description of mechanism (i.e. auto vs pole, rollover, auto vs pedestrian, etc.).
4. Helmet use?

C. Patient assessment:

1. Determine responsiveness.
  - a. Establish and maintain airway.
  - b. Maintain C-spine.
  - c. Perform **Airway Management Protocol 5901**, as indicated.
2. Breathing:
  - a. If adequate, oxygen 15 LPM non-rebreather mask to maintain SpO<sub>2</sub> at 94 - 99 %.

## PEDIATRIC TRAUMA ASSESSMENT

- b. If inadequate, ventilate with 100% oxygen and perform **Airway Management Protocol 5901**, as indicated.
  3. Circulation:
    - a. Control bleeding.
    - b. Assess perfusion status.
  4. Neurological status:
    - a. Determine level of consciousness using AVPU or GCS.
    - b. Check pupils.
  5. Limit on-scene time. Unless unusual circumstances, the goal should be:
    - a. Not trapped: 10 minutes or less.
    - b. Entrapped: within 5 minutes of extrication.

6. In **consultation with Medical Command**, establish mode (ground vs. air) and destination of transport.



D. Treatment:

1. Immobilize patient on long spine board or as indicated in **Spinal Trauma Protocol 5103**.

**Note:** All multiple trauma patients are considered to have a significantly distracting, painful injury. Infants and toddlers with minor injuries or no apparent injury may be left in child safety seats and immobilized, provided the seat is undamaged. Pediatric patients 10 – 40 lbs, not in a viable car seat, shall be transported utilizing an approved method of securing the child.

2. Transport.
  3. Monitor vital signs, obtain ECG, and monitor pulse oximeter.
  4. If child has significant injuries or mechanism for significant injury, establish at least one IV line of normal saline with as large a catheter as possible up to a 14 gauge.

**PEDIATRIC TRAUMA ASSESSMENT**

- a. If any signs of shock such as tachycardia, tachypnea, cool/clammy skin, or low blood pressure, or high suspicion of major blood loss, administer 20 ml/kg normal saline IV bolus and refer to **Pediatric Shock Protocol 5402**.
- b. If patient has no signs or symptoms of shock, maintain normal saline IV at KVO.
5. Prevent heat loss.
6. Consider nasogastric tube placement if patient is intubated and has no facial trauma.
7. Refer to **Pain Management Protocol 5902**, if indicated.
8. Notify **Medical Command**.

## PEDIATRIC FEVER

Fever is defined as a measured temperature of 100.4° F (38° C) or greater. Fever is a sign of infection rather than a problem itself. Body temperature < 105° F is not harmful in and of itself. Emergency management of the febrile child involves an assessment to determine if any associated problems are present which require emergent treatment.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. If child appears acutely ill, do not delay transport to check temperature. Transport and treat associated problems per appropriate protocol.
- C. Check temperature. If temperature is > 102° F:
  1. Facilitate passive cooling by removing excess clothing and blankets.
  2. If child has not been given **Acetaminophen** in the last four (4) hours, administer **Acetaminophen** at 15 mg/kg with the assistance of the parent or legal guardian to calm child.
- D. If child has temperature > 105° F:
  3. Treat as in “C” above and also facilitate active cooling by applying wet towels with tepid water to trunk and head.
  4. **Do not** submerge in water or use ice or rubbing alcohol.
- E. Notify **Medical Command**.
- F. Transport.

## NEWBORN INFANT CARE

- A. Temperature Control: Whether infant is full term or premature, avoid “cold stress”.
1. Dry quickly.
  2. Keep the infant as warm as possible.
  3. Turn ambulance heater on high to reduce radiant heat loss.
  4. Cover head and body with dry blankets.
  5. Maintain axillary temperature at 97° F. Check temperature every 15 minutes.
- B. Airway and Breathing:
1. Position, supine with head in sniffing position, gently suction mouth, then nose with bulb syringe. If copious secretions are noted, place infant on his/her side with neck slightly extended, continue intermittent suctioning.
  2. Assess breathing rate (normal 30 - 60 per minute):
    - a. If adequate respirations, proceed to circulation.
    - b. If inadequate respirations, cyanosis, or gasping/grunting respirations, apply 100% oxygen via non-rebreather mask at 15 LPM held firmly on infant’s face. If no response/improvement after 5 - 10 seconds, begin positive pressure ventilations by bag valve mask with supplemental oxygen at rate of 40 - 60 per minute.
    - c. If prolonged ventilation by bag valve mask is needed, consider intubation.
- C. Circulation:
1. If heart rate within normal ranges (normal heart rate > 100 bpm at apical or umbilical sites), assess skin color, continue treatment, and transport as in “D” below.
  2. If heart rate is < 100 per minute, apply 100% oxygen by positive pressure ventilation with bag valve mask and ventilate at 40 - 60 per minute.
  3. Reassess after 30 seconds.

## NEWBORN INFANT CARE

4. If no improvement and heart rate remains 80 - 100 per minute, continue ventilation.

**NOTE:** Neonates with heart rates < 80 bpm are in eminent danger of cardiac arrest.

5. CPR should be started if the heart rate drops below 60 or persists between 60 and 80 beats per minute despite adequate ventilation with 100% oxygen ventilation by bag valve mask.
6. Treat per **Pediatric Dysrhythmias Protocol 5407** or **Pediatric Cardiac Arrest Protocol 5406** as required.
7. Notify **Medical Command**.

D. Transportation:

1. Ensure infant remains warm.
2. Maintain airway and oxygenation.
3. Transport.

E. APGAR Score

THE APGAR SCORE			
Element	0	1	2
<b>Appearance</b> (Skin color)	Body and extremities blue, pale	Body pink, extremities blue	Completely pink
<b>Pulse rate</b>	Absent	Below 100/minute	100/minute or above
<b>Grimace</b> (Irritability)	No response	Grimace	Cough, sneeze, cry
<b>Activity</b> (Muscle tone)	Limp	Some flexion of extremities	Active motion
<b>Respiratory effort</b>	Absent	Slow and irregular	Strong cry
			<b>TOTAL SCORE =</b>

## PEDIATRIC DIABETIC EMERGENCIES

Diabetic patients may have various complaints and are at risk for a multitude of medical problems. Diabetic patients may also become ill from hyperglycemia which may lead to diabetic ketoacidosis.

- A. Perform **Initial Treatment / Universal Patient Care Protocol**.
- B. Assess level of consciousness and blood glucose level by glucometer.
- C. Draw blood sample (*if available*).
- D. Treatment:

1. **Patient 1 month of age or younger** – If blood glucose is < 60 mg/dl, administer 5 ml/kg **Dextrose 10%** IV/IO (**D10** is prepared by mixing 40 ml of NS with 10 ml of D50W).

**NOTE: IO placement requires MCP order**

2. **Patient older than 1 month but younger than 2 years old** – If blood glucose is < 60 mg/dl, administer 2 ml/kg of **D25** IV/IO; (**D25** is prepared by mixing 25 ml NS with 25 ml D50W).

3. **Patient 2 years of age or older** – If blood glucose is < 60 mg/dl, administer **D50W** 1 ml/kg IV/IO. Maximum dose is 25 grams.

4. If no IV is available, administer **Glucagon** 1 mg per **MCP order**.



- E. Hyperglycemia:
  - a. If blood glucose is > 300 mg/dl and patient has signs and symptoms of diabetic ketoacidosis such as Kussmal respirations, acetone smell on breath, and/or history of not taking insulin administer 20 mg/kg bolus of **Normal Saline**; may repeat once if glucose remains > 300 mg/dl.
  - b. After each bolus reassess patient for signs of fluid overload.

- F. Reassess mental status and blood glucose level.

- G. If blood glucose level remains < 60 mg/dl or > 300 mg/dl with associated signs and symptoms, contact **Medical Command** for additional treatment.



## PEDIATRIC ALLERGIC REACTION / ANAPHYLAXIS

Anaphylaxis is an acute allergic reaction characterized by varying degrees of respiratory distress, hypotension, wheezing, hives, non-traumatic edema, and tachycardia. It may be precipitated by a bite or sting or from exposure to certain drugs or allergens. Respiratory Distress is categorized as follows:

- **Minimal Distress:** A slight increase in work of breathing with no wheezing or stridor evident.
- **Moderate Distress:** A considerable increase in work of breathing with wheezing and/or abnormal breath sounds evident.
- **Severe Distress:** Extreme work of breathing (retractions) with a decreased LOC.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. If reaction is secondary to a sting, remove injection mechanism, if present.
- C. If patient is in mild distress with hives or itching but no or minimal respiratory distress (i.e. no wheezing or stridor):

1. Immediately administer **Epinephrine**, 1:1000:

a. 0.3 mg IM for patients > 30 kg

b. 0.15 mg IM for patients < 30 kg



2. Reassess for improvement or worsening of reaction.

3. Transport and notify **Medical Command**.

- D. If patient is in moderate distress with severe hives and/or moderate respiratory distress (i.e. wheezing):

1. Immediately administer **Epinephrine**, 1:1000:

a. 0.3 mg IM for patients > 30 kg

b. 0.15 mg IM for patients < 30 kg



2. Expedite transport if not already in transport.

4. If patient still wheezing, administer **Albuterol** 2.5 mg with oxygen 8 - 10 LPM.

## PEDIATRIC ALLERGIC REACTION / ANAPHYLAXIS

5. If patient is still in moderate distress, consider repeating **Epinephrine** one time **per MCP order**.



E. If patient is in severe distress with signs of shock such as low blood pressure and/or decreased level of consciousness, treat as in “D” above, and if no response, then as follows:

1. Administer normal saline IV bolus of 20 ml/kg.
2. **Contact Medical Command** for further treatment options.
3. Reassess and expedite transport.



## ALLERGIC REACTION / ANAPHYLAXIS

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- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. If reaction is secondary to a sting, remove injection mechanism, if present.
- C. If patient is in mild distress with hives or itching but no or minimal respiratory distress (i.e. no wheezing or stridor):

1. Immediately administer **Epinephrine**, 1:1000 0.3 mg IM. 

2. Reassess for improvement or worsening of reaction.

3. Transport and notify **Medical Command**.

- D. If patient is in moderate distress with severe hives and/or moderate respiratory distress (i.e. wheezing):

1. Immediately administer **Epinephrine**, 1:1000 0.3 mg IM. 

2. Expedite transport if not already in transport.

3. If patient still wheezing, administer **Albuterol** 2.5 mg combined with **Ipratropium Bromide (Atrovent®)** 0.5 mg (Combi-Vent / Duo-Neb) with oxygen 8 - 10 LPM. If **Ipratropium Bromide (Atrovent®)** is contraindicated or the patient is a pediatric, administer **Albuterol** only.

4. If patient is still in moderate distress, consider repeating **Epinephrine** one time **per MCP order**. 

## ALLERGIC REACTION / ANAPHYLAXIS

- E. If patient is in severe distress with signs of shock such as low blood pressure and/or decreased level of consciousness, treat as in “D” above and, if no response, then as follows:
1. Administer normal saline IV bolus of 20 ml/kg.
  2. **Contact Medical Command** and consider **Epinephrine** 1:10,000, 0.5 - 1.0 mg, slow IV **per order of MCP**. 
  3. Reassess and expedite transport.

**ENVIRONMENTAL EMERGENCIES - HEAT EXPOSURE**

Heat exposure can cause various types of heat illness. Heat cramps, heat exhaustion, and heat stroke are the most often encountered. Heat cramps are often associated with heat exhaustion. Initial treatment for all heat illness is similar. Secondary treatment may differ after the signs and symptoms are specifically identified. Heat stroke is a serious life-threatening condition requiring rapid treatment and transport.

A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.

1. Remove patient from hot environment and place in cool environment.
2. Loosen or remove clothing.

B. If patient has warm, moist skin, with general weakness, dizziness, nausea, or occasionally syncope (heat exhaustion):

1. If patient has normal level of consciousness and is not nauseated, encourage patient to drink oral fluids (cool water or an electrolyte replenisher).
2. If patient has decreased level of consciousness or is vomiting, administer normal saline IV 250 ml bolus, then run at 250 ml/hour.
3. Cool by fanning without chilling the patient. Watch for shivering.
4. If patient experiences muscle cramps, apply moist towels over cramped muscles.
5. Transport and notify **Medical Command**.

C. If patient has very hot, dry skin with rapid pulse, rapid shallow breathing, and/or altered mental status or unconsciousness (heat stroke):

1. Expedite transport.
2. Administer normal saline IV at 250 ml/hr initially.
3. If signs and symptoms of shock continue, treat **per Shock Protocol 5108**.

**Note:** Shock associated with heat stroke may be hypovolemic, distributive, or cardiogenic shock.

4. Cover patient with moist sheet.

**ENVIRONMENTAL EMERGENCIES - HEAT EXPOSURE**

5. Apply ice packs to axilla, neck, ankles, and wrists. Do not overcool and watch for shivering.
6. Monitor vital signs and temperature closely.
7. Notify **Medical Command**.
8. If no change in patient condition seek further treatment options **per order of Medical Command**.



## ENVIRONMENTAL EMERGENCIES – COLD EXPOSURE

When cold exposure affects the entire body: hypothermia or general cooling develops.  
When cold exposure affects a particular body part: local cooling, or frostbite occurs.  
Frostbite most commonly affects the ears, nose, face, hands, feet, and toes.

A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.

1. Place patient in warm environment.
2. Treat with warm, humidified oxygen and warmed IV fluids.
3. Remove all wet clothing.
4. Insulate core (head, neck, and trunk) with warm blankets.
5. Rapid smooth transport.

B. If patient is hypothermic, alert, and responding appropriately:

1. Keep the patient still and handle very gently.
2. Actively rewarm the patient by applying heat packs, hot water bottles, or electric heating pads to neck, chest, and abdomen.
3. Allow patient to slowly drink warm fluids, but do not allow patient to drink stimulants.

4. In **consultation with Medical Command**, establish mode (ground vs. air) and destination of transport.



5. Monitor vital signs closely during transport.

C. If patient is hypothermic, unconscious or not responding appropriately:

1. Handle patient as gently as possible and expedite transport.
2. Wrap patient in insulated blankets for passive rewarming only.
3. Give nothing by mouth.
4. Continue IV normal saline at KVO.
5. If patient has no pulse, perform CPR with the following cautions:

## ENVIRONMENTAL EMERGENCIES – COLD EXPOSURE

- a. Check pulse for at least 60 seconds.
  - b. Defibrillate VF/VT at **max joules**.
  - c. Withhold IV medications until patient is rewarmed to core temperature of > 86° F.
6. Expedite transport.

7. In **consultation with Medical Command**, establish mode (ground vs. air) and destination of transport.
8. Further treatment per **order of Medical Command**.



D. Frostbite:

1. Remove constrictive clothing and jewelry and cover with dry dressing.
2. **Do not** rub, massage area or break blisters. Do not apply direct heat, allow patient to use affected area, or re-expose to cold.
3. Transport and notify **Medical Command**.

## SNAKE BITE / ENVENOMATION

West Virginia has two native venomous snakes. These are the timber rattlesnake and copperhead. Both are hemotoxic. Not all venomous snakebites involve envenomation. Envenomed patients will have one or more fang marks with ecchymosis, progressive edema, severe burning pain, and/or non-clotted oozing blood.

- A. Upon arrival, make sure the patient and snake are not in close proximity. Retreat well beyond striking range. Persons are often bitten again while trying to capture or kill the snake.
- B. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- C. Keep patient calm. Movement can increase venom absorption.
- D. Remove all jewelry and constrictive clothing on affected extremity.
- E. Do not place IV in bitten extremity.
- F. Locate fang puncture(s) and mark progression of erythema (redness around bite mark) and swelling at the initial assessment and every five (5) minutes thereafter.
- G. Immobilize the extremity at the level of the heart. **Do not** apply ice.
- H. Transport and notify **Medical Command**.
- I. **Contact Medical Command** for further treatment orders and consider use of **Pain Management Protocol 5902** per **MCP order**.



### Note:

1. Do not bring a live snake to ER. If experienced personnel are available to properly kill and transport snake, then do so.
2. Patients previously envenomated are at risk of anaphylactic reaction. Be prepared to treat per **Anaphylaxis Protocol 5501**.

## NEAR DROWNING / DROWNING

With near-drowning or drowning, always look for associated problems such as airway obstruction, cardiac arrest, heart attack, hypothermia, or substance abuse. Also be alert to associated injuries especially to the head and neck. **Do not** attempt a rescue in which you must enter deep water or swim unless trained to do so.

- A. Remove patient from water as rapidly as possible while protecting C-spine.
- B. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- C. If cold water drowning (< 70° F at recovery depth), refer to **Cold Exposure Protocol 5503**.
- D. Expedite transport and notify **Medical Command**.

### Note:

- 1. If patient is unconscious, assume spinal injury and fully immobilize patient on long backboard.
- 2. If confirmed cold water drowning, **Cease-Efforts Protocol 9102** should not be instituted unless patient has been rewarmed as **per MCP order**.



## HYPOPERFUSION / SHOCK

Shock, or hypoperfusion, is decreased effective circulation causing inadequate delivery of oxygen to tissues. Signs of early (compensated) shock include tachycardia, poor skin color, cool/dry skin, and delayed capillary refill. Systolic blood pressure is normal in early shock. In late (decompensated) shock, perfusion is profoundly affected. Signs include low blood pressure, tachypnea, cool/clammy skin, agitation, and altered mental status.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Categories of Shock:
  1. Hypovolemic
  2. Distributive
  3. Cardiogenic
- C. Determine most likely cause of shock:
  1. Hypovolemic (loss of fluid) is **most common**. Usually from bleeding or vomiting and diarrhea.
  2. Distributive (loss of vascular tone) is usually from sepsis (infection). Other causes include anaphylaxis, toxic chemicals, or spinal cord injury.
  3. Cardiogenic (heart pump failure) - most common cause in adults is acute MI or CHF. Is rare in children.
- D. If hypovolemic shock is suspected (most common):
  1. Monitor vital signs, ECG, and pulse oximeter.
  2. Expedite transport.
  3. As soon as possible, and without delaying transport, establish two (2) IV lines of normal saline with as large a catheter as possible up to a 14 gauge.
  4. If systolic blood pressure < 90 or patient has other signs and symptoms of shock such as tachycardia, delayed capillary refill, cool/clammy skin, or altered mental status, then administer 20 ml/kg normal saline IV up to a maximum of 2 liters and reassess.

## HYPOPERFUSION / SHOCK

5. If on reassessment blood pressure is still  $< 90$  or other signs and symptoms of shock are still present, then contact **Medical Command** and reconsider causes.



E. If still felt to be hypovolemic shock:

1. Repeat 20 ml/kg normal saline IV **per order of MCP**.
2. Continue treatment **per MCP orders**.



F. If blood pressure is  $> 90$  systolic and patient has no other signs or symptoms of shock, administer 100 ml/hour normal saline IV and continue to monitor patient.

G. If distributive shock is suspected:

1. If anaphylaxis or allergic reaction, refer to **Allergic Reaction / Anaphylaxis Protocol 5501**.
2. Initial treatment same as hypovolemic shock above.

H. If cardiogenic shock is suspected:

1. Immediate transport.
2. Establish IV normal saline and administer fluid bolus of 250 ml assessing for signs of fluid overload.
3. Reassess appearance, vital signs, and signs and symptoms of shock.
4. If there is no rhythm disturbance and patient remains poorly perfused after the initial fluid bolus:

- a. Contact Medical Command and consider repeat 250 ml fluid bolus **per MCP order**.



**Note:** Patients with distributive shock from infection may also have hypovolemia from vomiting, diarrhea, and poor fluid intake.

## STROKE / TIA

A patient experiencing a Cerebrovascular Accident (CVA or stroke) may have a variety of presentations. Most commonly, the patient will experience a new onset of unilateral weakness (hemiparesis), paralysis (hemiplegia), difficulty speaking (aphasia), or a combination of these. The pre-hospital goal is to maintain stable vital signs, increase oxygen delivery, protect the patient's airway, and provide psychological support. Early recognition of stroke symptoms and early hospital notification is important.

- A. Perform **Initial Treatment / Universal Patient Care Protocol**.
- B. Determine exact time of symptom onset (last time patient seen normal).
- C. Assess patient for the following neurological deficits, **including time of onset of each of the symptoms** (determine *Cincinnati Pre-hospital Stroke Score*):
  - 1. Speech disturbances (abnormal speech).
  - 2. Facial weakness or paralysis (facial droop).
  - 3. Extremity weakness or paralysis (arm drift).
- D. Immediate transport with head elevated and on left side if decreased level of consciousness.
- E. Notify **Medical Command**.
- F. If decreased level of consciousness:
  - 1. Check serum glucose level with glucometer.
  - 2. If glucose level is < 60 mg/dl, administer D50W slow IV push titrated to a level > 90 or the patient's level of consciousness increases. (Avoid a rapid change in serum glucose levels.)
- G. Obtain 12 lead ECG, if available, and causes no delay in treatment or transport.
- H. Initiate a second IV 0.9% NS KVO or lock, if time permits.
- I. Establish Transport Mode (ground vs air) and destination in consultation with **Medical Command** if transport time is > 30 minutes.



**Note:** *If possible, transport a witness, family member, or caregiver with the patient to verify the time of onset of stroke symptoms.*

## SEIZURES

- A. Perform **Initial Treatment / Universal Patient Care Protocol**.
- B. Protect patient from injury. Place on left side if decreased level of consciousness.
- C. Obtain history to help determine origin of seizure:
1. Trauma
  2. Suspected overdose - refer to **Ingestion/Poisoning/Overdose Protocol 5606**.
  3. History of seizures and patient is taking anti-seizure medications.
- D. If patient is actively seizing:
1. Protect airway. **Do Not** attempt intubation during convulsions.
  2. Calm bystanders and family.
  3. Obtain key information and prepare for transport.
  4. Quickly assess serum glucose with a glucometer and attempt to establish IV normal saline KVO or saline lock.
  5. If glucose level is < 60 mg/dl:
    - a. Administer D50W, 25 gm IV.
    - b. If no IV available, administer **Glucagon** 1 mg IM.
  6. Expedite transport and contact **Medical Command**:
  7. If seizure lasts longer than five (5) minutes or two (2) or more episodes of seizure activity occur between which the patient does not regain consciousness, administer:
    - a. **Midazolam (Versed®)** 2 mg IV/IO/IM or 5 mg (IN) via atomizer.
  8. If seizure continues, further treatment as **ordered by MCP**.
- E. If patient is not actively seizing:
- a. Monitor vital signs closely and be alert for recurrence of seizure.



**SEIZURES**

- a. Transport.
- b. Perform remaining assessment as indicated.
- c. Notify **Medical Command**.

## DIABETIC EMERGENCIES

Diabetic patients may have various complaints and are at risk for a multitude of medical problems. Diabetic patients may also become ill from hyperglycemia which may lead to diabetic ketoacidosis.

- A. Perform **Initial Treatment / Universal Patient Care Protocol**.
- B. Assess level of consciousness and blood glucose level by glucometer.
- C. Cardiac monitor: Obtain a 12 lead EKG to evaluate the patient for hyperkalemia.
- D. Draw labs if time permits.
- E. Hypoglycemia Treatment:

1. If patient is malnourished, has HIV/AIDS, receives dialysis, is a known alcoholic, or has other grossly impaired nutritional status, administer: **Thiamine** 100 mg slow IVP over one (1) minute, prior to **Dextrose** administration, or **Thiamine** 100 mg IM prior to **Glucagon** administration
2. If blood glucose is < 60 mg/dl, **Dextrose 50%** in water (**D50W**) - 25 grams IVP may be repeated once after five (5) minutes if patient remains hypoglycemic.
3. If unable to initiate an IV, and blood glucose is < 60 mg/dl, administer **Glucagon** 1mg IM (if over 25 kg) or 0.5 mg IM (if < 25 kg).



- F. Hyperglycemia:
  1. If blood glucose is > 300 mg/dl and patient has signs and symptoms of diabetic ketoacidosis such as Kussmaul respirations, acetone smell on breath, and /or history of not taking insulin administer 1 Liter bolus of **Normal Saline**; may repeat once if glucose remains > 300 mg/dl.
    - a. Bolus gently with 250 ml at a time if patient has a history of end stage renal disease, is a dialysis patient, or has a history of congestive heart failure.
    - b. After each bolus reassess patient for signs of fluid overload.
- G. Reassess mental status and blood glucose level.

- H. If blood glucose level remains < 60 mg/dl or > 300 mg/dl with associated signs and symptoms contact **Medical Command** for additional treatment.



## UNCONSCIOUS / ALTERED MENTAL STATUS (NON-TRAUMA)

To use this protocol, a patient must have a current Glasgow coma scale total < 12. This protocol is intended to guide the management of patients with a decreased level of consciousness who have no history of trauma.

- A. Perform **Initial Treatment / Universal Patient Care Protocol**.
- B. Maintain airway with the following special considerations in patients with decreased level of consciousness.
  1. Reassess that there is no history of even remote trauma which could have resulted in a cervical spine injury. If in doubt, protect spine by performing **Spinal Trauma Protocol 5103**.
  2. If a readily treatable cause is suspected such as hypoglycemia or narcotic overdose, and ventilation can be maintained without intubation, consider assisting ventilation without intubation until treatment is administered and condition reassessed.
  3. Possible causes of unconsciousness or altered mental status (AEIOU-TIPS):
    - A** Acidosis, alcohol
    - E** Epilepsy
    - I** Infection
    - O** Overdose
    - U** Uremia (kidney failure)
    - T** Trauma, tumor
    - I** Insulin
    - P** Psychosis
    - S** Stroke
- C. Assess blood glucose level by glucometer and draw labs if available.
- D. If blood glucose level is  $\leq 60$  mg/dl, then:
  1. Treat per **Diabetic Emergencies Protocol 5604**.
- E. If blood glucose level is  $> 60$ , administer **Naloxone (Narcan®)** 2 mg IV titrated to restore the respiratory drive.  
If IV cannot be established, administer 2 mg intranasal (IN) via atomizer, or intramuscular (IM).
- F. Expedite transport and notify **Medical Command**.

## OVERDOSE / TOXIC INGESTION / POISONING

There are numerous agents and drugs which produce toxic effects in patients. This protocol is designed to provide the general guidelines for treatment. Specific treatments or antidote therapy may be appropriate as directed by the Medical Command Physician in consultation with the WV Poison Control Center. Providing as much information as possible to Medical Command will allow more accurate evaluation, treatment, and coordination of medical care.

- A. Perform **Initial Treatment / Universal Patient Care Protocol**.
- B. Routes:
  - 1. **Ingested Poisons:**
    - a. Protect airway.
    - b. Do not induce vomiting.
    - c. Transport the patient with all containers, bottles, and labels from the substance, if safe to do so.
  - 2. **Inhaled Poisons:**
    - a. Immediate removal from hazardous environment.
    - b. Maintain airway and support respirations.
    - c. Transport the patient with all containers, bottles, and labels from the substance, if safe to do so.
  - 3. **Absorbed Poisons:**
    - a. Remove the poison using procedures described in **Burn Protocol 5506**.
    - b. Transport the patient with all containers, bottles, and labels from the substance, if safe to do so.
  - 4. **Injected Poisons:**
    - a. See treatment guidelines for specific substance.
- C. After decontamination procedures have been completed, do not delay transport.

**Note:** Remember that a toxic exposure poses a significant risk to both the rescuer and patient; appropriate scene management and decontamination are critical.

**OVERDOSE / TOXIC INGESTION / POISONING**

D. Determine the following:

- a. What?
- b. When?
- c. How much?
- d. Over what period of time?
- e. Were any actions taken by bystanders, family members, and/or patient prior to EMS arrival?

E. Overdose / Toxic Ingestion / Poisoning Emergencies

1. **Alcohol:**

- a. Emergencies involving alcohol can range from acute intoxication to alcohol withdrawal and delirium tremens (DTs).
- b. Assess the patient and follow the proper protocol for medical management based on clinical presentation.
  - i. Consider hypoglycemia. Perform rapid glucose determination. If glucose < 60 mg/dL or clinical signs and symptoms indicate hypoglycemia, refer to the **Diabetic Emergencies Protocol 5604**.
  - ii. For signs and symptoms of hypovolemic shock or dehydration, follow the **Hypoperfusion Shock Protocol 5108**.
  - iii. For seizures due to alcohol withdrawal, refer to the **Seizure Protocol 5603**.

2. **Narcotics / Opiates:**

- a. Support respirations, as necessary, with a BVM and supplemental O<sub>2</sub>. Defer consideration of advanced airway management until after administration of Naloxone, if BVM ventilation is adequate based on SpO<sub>2</sub> at 94 - 99 %.

## OVERDOSE / TOXIC INGESTION / POISONING

- b. Consider hypoglycemia. Perform rapid glucose determination. If glucose is < 60 mg/dL or clinical signs and symptoms indicate hypoglycemia, refer to the **Diabetic Emergencies Protocol 5604**.
- c. For a suspected narcotic overdose complicated by respiratory depression:
  - i. Administer **Naloxone (Narcan®)** 2 mg IV titrated slowly at 0.4 mg/minute to restore the respiratory drive.
  - ii. If unable to obtain IV access, give **Naloxone (Narcan®)** 2 mg IN. Medication should be administered equally in each nostril.

### 3. Tricyclic Antidepressants:

- a. Support respirations, as necessary, with a BVM and supplemental O<sub>2</sub>.
- b. For serious signs and symptoms (altered mental status, sustained tachycardia < 120 bpm, widened QRS complex or hypotension):
  - i. Infuse a 20 mL/kg bolus NS. If no improvement after two 20 mL/kg boluses NS, assess for fluid overload during administration, then:

ii. Contact **Medical Command** for further treatment options. 

**Tricyclic Antidepressants include:** Amitriptyline (Elavil®), Doxepin (Sinequan®), Adepin®), Imipramine (Tofranil®).

### 4. Cholinergics:

- a. Support respirations, as necessary, with a BVM and supplemental O<sub>2</sub>.
- b. For serious signs and symptoms (respiratory distress, SLUDGE syndrome, seizures, or HR < 60 bpm): Administer **Atropine** 2 mg IV. 

Pesticides (Organophosphates, Carbamates) and nerve gas agents (Sarin, Soman) are the most common exposures.

**S** – Salivation  
**L** – Lacrimation  
**U** – Urination  
**D** – Defecation  
**G** – Gastrointestinal cramping  
**E** – Emesis

## OVERDOSE / TOXIC INGESTION / POISONING

### 5. Calcium Channel Blockers:

- a. Support respirations, as necessary, with a BVM and supplemental O<sub>2</sub>.
- b. For serious signs and symptoms (altered mental status, HR < 60 bpm, conduction delays, SBP < 90 mm Hg, slurred speech, nausea/vomiting):

- i. Administer **Atropine** 1 mg IV.
- ii. If no response to the initial **Atropine** dose contact **Medical Command** for further treatment.



### 6. Beta Blockers:

- a. Support respirations, as necessary, with a BVM and supplemental O<sub>2</sub>.
- b. For serious signs and symptoms (altered mental status, HR < 60 bpm, conduction delays, SBP < 90 mm Hg, slurred speech, nausea/vomiting):
  - i. Infuse a 20 mL/kg bolus NS. If no improvement after two (2) 20 mL/kg boluses NS, contact **Medical Command** for direction. If the patient develops signs and symptoms of fluid overload respiratory distress (dyspnea, crackles, rhonchi, decreasing SpO<sub>2</sub>), slow the IV to KVO.

- ii. Administer **Glucagon** 1 mg IV. If additional **Glucagon** is available, administer 2 mg IV as the initial dose repeated at 2 mg IV in 10 minutes.
- iii. If no response, consider transcutaneous pacing and contact **MCP**.



### 7. Stimulants:

- a. Assess the patient and follow the proper protocol for medical management based on clinical presentation.
- b. Support respirations, as necessary, with a BVM and supplemental O<sub>2</sub>.
- c. Serious signs and symptoms (seizures, tachydysrhythmias, etc.):

- i. For tachydysrhythmias with HR > 120 bpm, **Midazolam** (Versed®) 2 mg slow IV push, titrated to effect.



- ii. For patients that are severely agitated or combative, follow the **Behavioral Emergencies / Patient Restraint Protocol 5607**.

## BEHAVIORAL EMERGENCIES / PATIENT RESTRAINT

- A. Assure scene safety. Do not engage patient unless risk of harm is minimized by law enforcement.
- B. Implement **SAFER** mnemonic:
- Stabilize the situation by containing and lowering the stimuli.
  - Assess and acknowledge the crisis.
  - Facilitate the identification and activation of resources.
  - Encourage patient to use resources and take actions in his/her best interest.
  - Recovery or referral – leave patient in care of responsible person or professional.
- C. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- D. For altered mental status, perform rapid glucose determination.
- E. Control environmental factors; attempt to move patient to a private area free of family and bystanders. **MAINTAIN ESCAPE ROUTE.**
- F. Attempt de-escalation, utilize an empathetic approach. Ensure patient safety and comfort. **AVOID CONFRONTATION.**
- G. **Physical Restraint:** (Commercially available soft restraints are acceptable.)

1. Consider restraining patient, as needed, to protect life or prevent injury **per MCP order** with the following considerations:
  - a. Restrain patient in the supine position or left lateral recumbent position only.
  - b. Ensure method of restraint does not affect breathing or circulation.
  - c. Use the least restrictive or invasive method of restraint which will protect the patient and others. In many instances, full restraints will be appropriate to ensure patient and provider safety during transport.



2. Continually monitor the restrained patient's airway, circulatory, respiratory, and mental status frequently.

## BEHAVIORAL EMERGENCIES / PATIENT RESTRAINT

I. Transport as soon as possible.

J. If patient is medically stable, in **consultation with Medical Command**, consider transporting to a facility with advanced psychiatric care capability.



**OBSTETRICAL / GYNECOLOGIC EMERGENCIES**

Obtaining a detailed history can be very important in treating the pregnant or potentially pregnant patient. The following questions should be asked to the obstetric patient:

- Length of gestation?
  - Number of prior pregnancies (gravida)?
  - Number of prior pregnancies carried to term (para)?
  - Previous cesarean sections?
  - History of gynecologic or obstetric complications?
  - Is there pain or contractions?
  - Does patient feel the urge to push or have a bowel movement?
  - Is there vaginal bleeding or discharge?
  - Prenatal care?
  - Multiple births anticipated?
- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Transport pregnant patients on left side unless in active labor.
- C. If vaginal bleeding is present, attempt to determine amount.
- D. If patient is in late stages of pregnancy and shows signs of preeclampsia and/or eclampsia (toxemia) such as edema, hypertension, and hyper-reflexes:
1. Transport, as smoothly and quietly as possible, and monitor closely for signs of seizure activity.
  2. If seizures occur, treat per **Seizure Protocol 5603**.
- E. **Normal delivery:**
1. Determine timing and duration of contractions, and observe for crowning.
  2. Transport on left side, if time permits.
  3. If delivery is imminent, proceed with delivery:
    - a. Prevent explosive delivery by supporting head and perineum.
    - b. Suction baby's mouth, then nose as soon as head is delivered.
    - c. If cord is around neck and is loose, slip over head out of way. If cord is tight, place two clamps and cut in between and unwind.

**OBSTETRICAL / GYNECOLOGIC EMERGENCIES**

d. Hold and support infant during delivery. Refer to **Newborn Infant Care Protocol 5410**.

4. APGAR score at one (1) and five (5) minutes (see chart in "I").
5. When cord ceases pulsating, clamp at 6 and 8 inches from navel, cut cord between clamps.
6. Resume transport and continue treatment en route.
7. Notify Medical Command and prepare to deliver placenta.
8. Massage the fundus after placenta is delivered.

**F. Breech Delivery:**

1. Expedite transport and notify **Medical Command**.
2. Allow spontaneous delivery with support of presenting part at the perineum.
3. If head is not delivered within four (4) minutes, insert a gloved hand into the vagina to form a "V" airway around infant's nose and mouth.

**G. Prolapsed cord:**

1. Place mother in knee-chest position or on hands and knees with knees to chest.
2. Ask mother to pant during contractions and **NOT** bear down.
3. Insert gloved hand into vagina to push presenting part of baby off the cord to ensure continued circulation through the cord. Continue until relieved at hospital.
4. Expedite transport and notify **Medical Command**.

**H. Limb presentation:**

1. Rapid transport.
2. Notify **Medical Command**.

**OBSTETRICAL / GYNECOLOGIC EMERGENCIES**

I. APGAR Scoring Chart:

<b>THE APGAR SCORE</b>			
<b>Element</b>	<b>0</b>	<b>1</b>	<b>2</b>
<b>Appearance</b> (Skin color)	Body and extremities blue, pale	Body pink, extremities blue	Completely pink
<b>Pulse rate</b>	Absent	Below 100/minute	100/minute or above
<b>Grimace</b> (Irritability)	No response	Grimace	Cough, sneeze, cry
<b>Activity</b> (Muscle tone)	Limp	Some flexion of extremities	Active motion
<b>Respiratory effort</b>	Absent	Slow and irregular	Strong cry
			<b>TOTAL SCORE =</b>

**NAUSEA / VOMITING**

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Presentation:
  - 1. Gastrointestinal symptoms
  - 2. Respiratory infection
  - 3. Heat-related illness
  - 4. Diabetes
  - 5. Cardiac-related signs and symptoms
- C. Place patient in position of comfort.
- D. Assess and treat for shock, if indicated.
- E. Administer 20 ml/kg fluid bolus, as needed.
- F. Cardiac monitor (12 lead EKG as indicated.)
- G. Administer **Ondansetron Hydrochloride** (Zofran®) 4 mg ODT Tablet PO dissolved in mouth.

## CSHCN – GENERAL ASSESSMENT

Children with Special Health Care Needs (CSHCN) can present unique challenges for providers. **Listen to the caregiver and respect their guidance regarding the child's treatment.** The caregiver is your best source of information as they care for the child on a daily basis.

**Before leaving the scene, ask the caregiver if they have a “go bag” and carry it with you.** “Go Bags” or diaper bags contain supplies to use with the child's medical technologies and additional equipment such as extra tracheostomy tubes, adapters for feeding tubes, suction catheters, etc. are often maintained by the caregivers of special needs children. **Treat a CSHCN as you would any other patient – ABC's first.**

- A. Perform **Initial Assessment / Universal Patient Care Protocol** as you would any patient.
  1. General impression using **Pediatric Assessment Triangle (PAT)**. Appearance, work of breathing, and circulation of skin. (Appendix C)
  2. Hands on physical assessment using **Pediatric ABCDE's**. Airway, breathing, circulation, disability, and exposure.
  3. Suction through the nose, mouth, or tracheostomy tube, as needed.
  4. Obtain a complete medical history for the patient, including history of the present illnesses and past medical history.
- B. Bring all of the child's medical charts or medical forms that the caregiver may have, the child's “**go bag**” or other similar bag, and any supplies that the caregiver may have.
- C. Transport to the nearest appropriate facility as soon as possible.
- D. Perform additional assessment and treatments, as required, following general guidelines as outlined in the **Initial Treatment / Universal Patient Care Protocol** with the following special notes for the pediatric patient.
  1. Do not use nasal cannula in infants and small children. Use blow-by oxygen or mask to keep SpO<sub>2</sub> at 94 - 99 %.
  2. Perform focused history, more detailed physical exam, and ongoing assessment at the appropriate time before and during transport.

**CSHCN – GENERAL ASSESSMENT**

3. Advanced Life Support (ALS) personnel treating a critically ill child who is unconscious, if unable to establish IV, then establish intraosseous route.
- E. Reassess the child at least every 3 - 5 minutes, more frequently as necessary and possible.

## CSHCN – CENTRAL VENOUS LINE ACCESS

Central venous lines and implanted vascular access ports are frequently utilized in children with complex or complicated medical issues. The devices allow for continuous or intermittent vascular access in order to administer intravenous fluids or medications. Central venous catheter tips generally terminate in the Superior/Inferior Vena Cava or within the Right Atrium. Common types are the traditional Central Venous Line (CVL), Peripherally Inserted Central Catheter (PICC), and Vascular Access Port (VAP).

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Determine the need for vascular access in the pre-hospital environment.
  1. Assess the insertion site and inspect the central venous device for damage, signs of local infection, or edema.
- C. **ALL EMS PROVIDERS**
  1. If breathing is adequate, place the child in a position of comfort and administer high flow oxygen to maintain a SPO2 of 94 to 99 %.
  2. Monitor and maintain adequate airway and breathing during transport.
  3. Bring all of the child's medical charts or medical forms that the caregiver may have, the child's "**go bag**" or other similar bag, and any supplies that the caregiver may have.
  4. Transport to the nearest appropriate facility as soon as possible.
  5. Reassess the child at least every 3 - 5 minutes or more frequently as necessary and possible.

## CSHCN – CSF SHUNT

CSF (Cerebrospinal fluid) shunt is a special catheter to drain cerebrospinal fluid from the brain. It runs under the skin from the skull to the chest or abdomen or any tissue with enough epithelial cells to absorb the incoming CSF.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Provide immediate resuscitation, as needed, and make immediate transport decision.
- C. Assess for signs and symptoms of shunt obstruction or shunt infection.
  - 1. Fever
  - 2. Bulging Fontanel
  - 3. Altered Glasgow Coma Scale
- D. Initiate cardiac monitoring. Treat dysrhythmias with the appropriate algorithm.
- E. Elevate the child's head keeping it in the midline position.
- F. Bring all of the child's medical charts or medical forms that the caregiver may have, the child's "**go bag**" or other similar bag, and any supplies that the caregiver may have.
- G. Transport to the nearest appropriate facility, as soon as possible.
- H. Reassess the child at least every 3 - 5 minutes, more frequently as necessary and possible.

## CSHCN – FEEDING TUBES

Feeding tubes are used in the home care setting to provide feedings for children usually due to impaired or insufficient oral intake. They can be placed in the stomach or jejunum (upper part of the small intestine) through the nose, mouth, or abdomen. These tubes may be positioned through the nasal orifice, mouth, or percutaneously.

**Note:** Caregivers are the best resource for tube care and troubleshooting malfunctions. Some percutaneous tubes continue on into the **jejunum**, therefore, **DO NOT TRY TO REPLACE OR REMOVE TUBE.**

There can be many reasons for leaking catheters such as balloon deflation, coughing, constipation, bowel obstruction, and seizures. Treat any medical problem according to the appropriate protocol.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Stabilize the tube in place.
- C. If there are fluids infusing through the feeding tube:
  1. Stop all infusing fluids.
  2. Have family members flush the tube with water.
  3. Clamp the tube.
- D. Initiate cardiac monitoring:
  1. Treat any arrhythmias with appropriate protocol.
- E. If signs and symptoms of shock, obtain IV access as age-appropriate and infuse a fluid bolus of 20 ml/kg of NS. If IV access cannot be readily accessed within 90 seconds or two (2) peripheral attempts an IO may be established per order of **Medical Command**.
  1. 20 ml/kg fluid bolus NS may be repeated per order of **MCP** as necessary.
  2. If peripheral perfusion is maintained, IV should be infused at a KVO rate.



**CSHCN – FEEDING TUBES**

- F. Transport child in semi-fowlers sitting position with head of cot in 30 - 45 degree elevated position unless contraindicated, i.e., trauma, etc.
  
- G. Bring all of the child's medical charts or medical forms that the caregiver may have, the child's "**go bag**" or other similar bag, and any supplies that the caregiver may have.

## CSHCN – APNEA MONITORS

- A. Perform **Initial Treatment / Universal Patient Care Protocol**
  - 1. Suction through the nose, mouth, or tracheostomy tube, as needed.
- B. Provide immediate resuscitation, as needed, and immediately make transport decision.
- C. Leave Apnea monitor on.
- D. Apnea monitors should be transported with the child to the hospital. Most monitors contain a computer chip that records information that can be downloaded into a computer at the home hospital to determine the origin of the monitor alarms (high or low heart rate, apnea, or artifact).
- E. Bring all of the child's medical charts or medical forms that the caregiver may have, the child's "**go bag**" or other similar bag, and any supplies that the caregiver may have.
- F. Transport to the nearest appropriate facility as soon as possible.
- G. Perform additional assessment and treatments as required following **Initial Treatment / Universal Patient Care Protocol**.

## CSHCN – INTERNAL PACEMAKER / DEFIBRILLATOR

An **internal pacemaker** is a medical device placed under the skin connected with wires to the heart to regulate the heart rate. An **internal defibrillator** is an electronic device implanted under the skin to monitor the heart rhythm and deliver shocks, as necessary, to treat extremely fast heart rates that originate in the ventricles.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Assess and maintain airway patency.
- C. Check pulse:
  - 1. If no pulse is present, begin chest compressions and follow the appropriate algorithm.
  - 2. Determine if the child has a pacemaker or defibrillator:
    - a. The internal pacemaker can easily be felt near the clavicle or in the abdomen in younger children.
  - 3. If defibrillation or pacing is needed, **DO NOT** place the treatment pads directly over the internal pacemaker or defibrillator generator.
- D. Establish IV/IO access:
  - 1. Treat shock, as indicated.
- E. Initiate cardiac monitoring.
- F. Try to determine if the cause of the emergency is related to a malfunction of the pacemaker or defibrillator.

G. Contact **Medical Command** for additional instructions.



- H. Bring all of the child's medical charts or medical forms that the caregiver may have, the child's "**go bag**" or other similar bag, and any supplies that the caregiver may have.

## CSHCN – VENTILATOR SUPPORT

Ventilators and BiPAP are medical devices designed to assist with ventilation of the special needs patient. Symptoms of failure of the ventilator or BiPAP machine may include: apnea and/or cyanosis, medication or environmental reactions, nasal flaring, and altered levels of consciousness. BiPAP machines are used to augment patient breathing and do not ventilate them.

Patients with home medical devices have caregivers that are well-educated as to their usage. If they are calling EMS, it is usually because they are in trouble and have tried everything to get things back to normal, or they are having a problem with the equipment but the child is sick and they need help transporting the equipment and the child to the hospital.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. If not breathing:
  1. Disconnect the ventilator tubing from the patient.
  2. Attach the bag-valve device to the patient and begin manual ventilation.
    - a. If chest rise is shallow, adjust the patient's airway position and check to see that the bag valve device is securely connected to the tracheostomy.
    - b. Assess the airway for obstruction. Follow tracheostomy protocol to open the airway.
    - c. Assess for equal chest rise and breath sounds bilaterally.
    - d. Assist caregiver in trouble-shooting the equipment to check for problems.
- C. Obtain a complete history of the present illness, past medical history, and interventions taken to correct the emergency before EMS arrival.

**MORGAN LENS - OPTIONAL**

A. Purpose:

1. Provide irrigation to one eye.

B. Application:

1. Administer **Tetracaine**, 2 drops per eye being irrigated.



2. Attach mixed saline bag to IV tubing.
3. Attach Morgan Lens to IV tubing.
4. Run fluid to check that attachments are working properly, then pause fluid.
5. Instruct patient to look towards patient's feet.
6. Retract upper eyelid and insert Morgan lens under upper lid.



7. Release upper lid and instruct patient to look up.
8. Retract lower lid and insert Morgan lens under lower lid.
9. Release lower lid.

**MORGAN LENS - OPTIONAL**

10. Tape tubing to patient's forehead to prevent accidental removal.
11. Irrigate eye(s).

**Note:** DO NOT RUN DRY; FLUIDS MUST ALWAYS BE RUNNING

C. Removal

1. Continue flow of fluids.
2. Instruct patient to look up and retract lower lid.



3. Slide Morgan lens out.



4. Terminate flow.

**NOTE:** Tetracaine is a single use medication. Repeated doses will predispose the cornea to ulceration and destruction of the superficial layer of the cornea.

## INTRASOSSEOUS PLACEMENT

Intraosseous placement is intended **only** for those patients needing immediate vascular access in those that peripheral access cannot be established. In rare cases, it may be considered **prior** to peripheral attempts, but only as outlined below. This procedure may only be used by personnel specifically trained and signed off by their agency's Squad Medical Director.

### A. Indications:

1. Immediate vascular access in life-threatening emergencies.

**Note: IO insertion shall NOT be performed just for prophylactic access and requires MCP Order.**



2. Intravenous fluids or medications are urgently needed and peripheral intravenous access cannot be established in a timely manner AND the patient exhibits one or more of the following:
  - a. Altered mental status (GCS  $\leq$  8).
  - b. Respiratory compromise (pulse oximeter  $\leq$  90% after appropriate O<sub>2</sub> therapy, or respiratory rate  $<$  10 or  $>$  40).
  - c. Hemodynamic instability (systolic BP  $<$  90).
3. Intraosseous may be considered **prior** to peripheral IV attempts where successful rapid peripheral IV placement is doubtful, as in the following situations:
  - a. Cardiac arrest (medical or trauma).
  - b. Profound hypovolemia with altered mental status.
  - c. Patient in extremis with immediate need for medication or intravenous fluids (patient in status epilepticus, impending arrest, etc.).

### B. Contraindications:

1. Fracture of the bone selected for IO infusion (*consider alternate side*).
2. Absence of anatomic landmarks at selected site.
3. Previous significant orthopedic procedure (prosthesis, recent surgery).

## INTRASOSSEOUS PLACEMENT

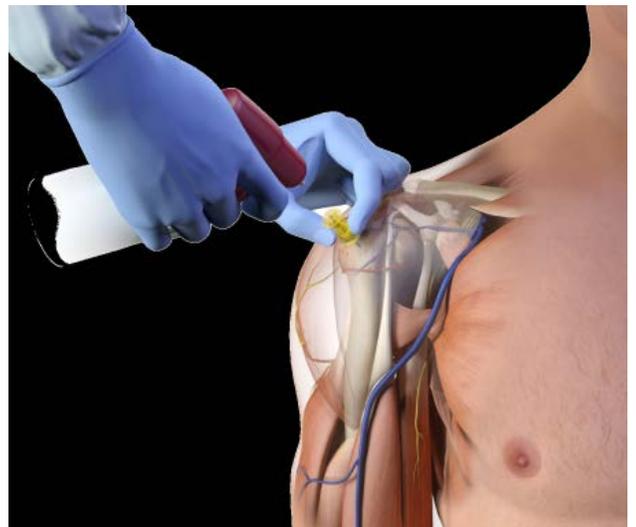
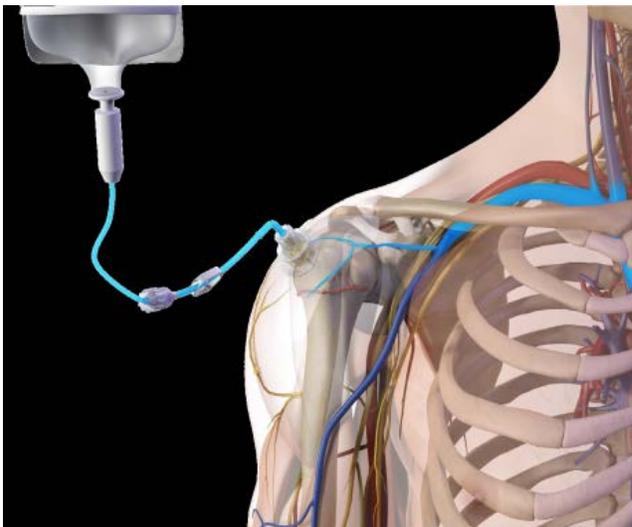
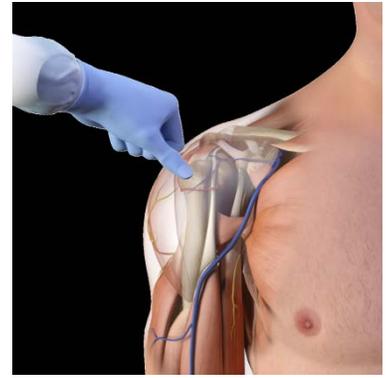
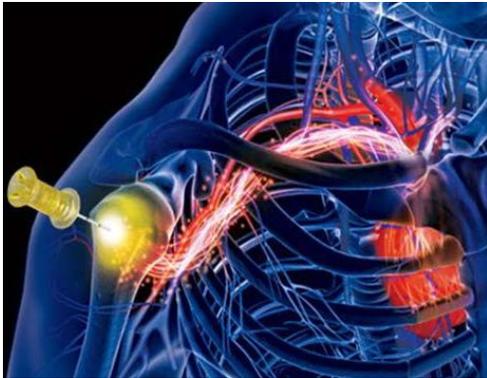
4. Infection at the selected site.

C. Procedure:

1. **ADULT:** Select insertion site in the following order, unless contraindicated: proximal humerus, proximal tibia, then distal tibia.
2. **PEDIATRIC:** Select insertion site in the following order, unless contraindicated: proximal tibia, distal tibia, then proximal humerus.

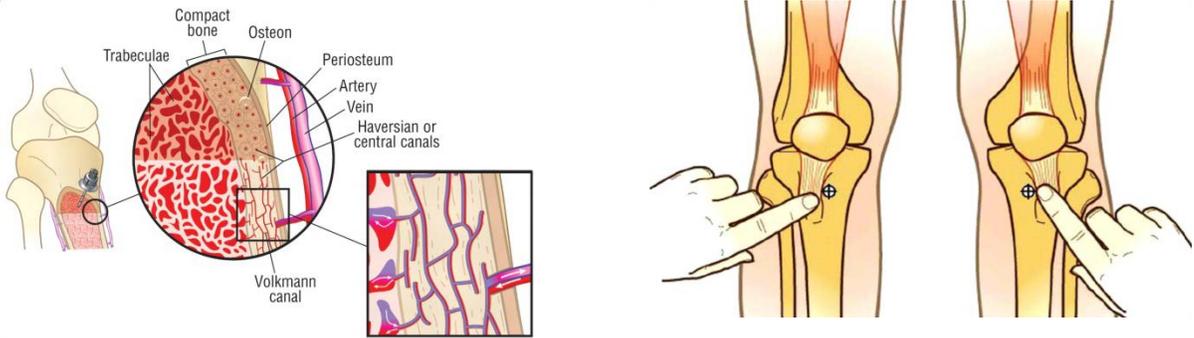
**Note:** Red arrows point to targeted insertion sites.

- a. Adult and Pediatric proximal humerus: greater tubercle just anterior to midline.

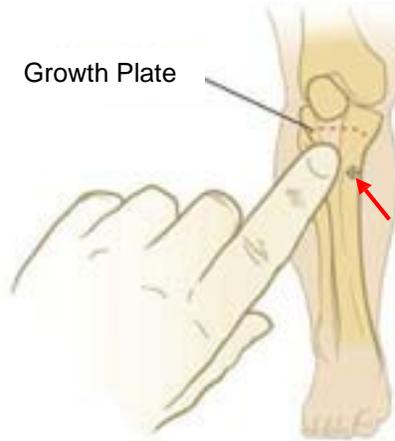


**INTRASOSSEOUS PLACEMENT**

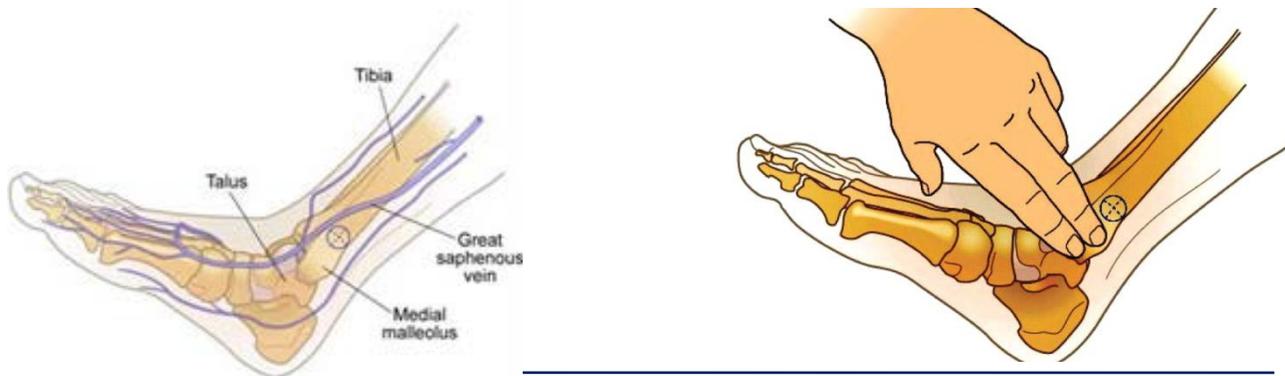
- b. Adult proximal tibia: Measure one (1) fingerbreadth *medial* to the tibial tuberosity, along the flat aspect of the medial tibia as shown below.



- c. Pediatric proximal tibia: one (1) finger width distal to tibial tuberosity OR if unable to palpate tibial tuberosity, two finger widths below the patella along the flat aspect of the medial tibia. Avoid growth plates.

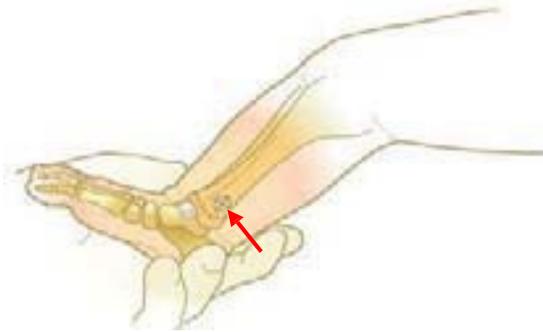


- d. Adult distal tibia: two (2) finger widths proximal to the medial malleolus and midline on the medial shaft.



## INTRASOSSEOUS PLACEMENT

- e. Pediatric distal tibia: one (1) finger width proximal to the medial malleolus along the flat aspect of the medial distal tibia.



3. Prepare the skin site with antiseptic.
4. Prepare IO drill and needle set, then load the appropriate sized needle onto the driver.
5. Hold the IO drill in one hand and stabilize the extremity near the insertion site with the opposite hand.
6. Position the drill at the insertion site with the needle at a 90 degree angle to the surface of the bone. Insert IO. Stabilize needle.
7. Analgesia. In the conscious/awake patient, slowly administer lidocaine 2% (**cardiac lidocaine 100mg/5ml [20mg/ml] - preservative free**) through the IO hub as follows. *Ensure that the patient has no allergy to lidocaine.*
  - a. Adults: Lidocaine 40 mg (2 ml) **slow** IO.
  - b. Pediatric: Lidocaine 0.5 mg/kg **slow** IO.

Allow the lidocaine to work from 30 – 60 seconds before giving the flush.

8. Flush: To ensure proper infusion, administer a **rapid syringe bolus flush** as follows and repeat if necessary:
  - a. Adults and Pediatric: 10 ml normal saline rapid IO bolus.
  - b. Include any pediatric flushes into totals for IV fluids given and record the

**INTRASOSSEOUS PLACEMENT**

amounts.

8. If no soft tissue infiltration is seen, attach IV line and infuse fluids and /or medications as usual; for adults, the IV bag will need to be under pressure. If the flow through the intraosseous line decreases after initial success, consider repeating the flush.
9. Monitor the area for signs of soft tissue infiltration and stop all infusions if infiltration is suspected.
10. Notify the receiving facility of the presence of the IO device prior to moving to the hospital stretcher.

*\* Permission to use the anatomic photos in this protocol was provided by Vidacare Corporation.*

## CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

### FOR USE ONLY IF SPECIFICALLY INCLUDED WITHIN THE APPROVED SCOPE OF PRACTICE OF THE PROVIDER

Continuous Positive Airway Pressure (CPAP) has been shown to rapidly improve vital signs, gas exchange, work of breathing, decrease the sense of dyspnea, and decrease the need for endotracheal intubation in certain patients who suffer respiratory distress from CHF, pulmonary edema, asthma, COPD, or pneumonia. In patients with CHF, CPAP can improve hemodynamics by reducing preload and afterload, however it may cause hypotension.

A. **INDICATIONS:** Any patient who is in respiratory distress and who has signs and symptoms consistent **with at least one of the following:** CHF, pulmonary edema, asthma, COPD, or pneumonia **AND must meet all five (5) of the following criteria:**

1. Is awake and oriented.
2. Is over 12 years old and is able to fit the CPAP mask.
3. Has the ability to maintain an open airway (GCS >10).
4. Has a systolic blood pressure > 90 mm Hg.
5. Has **at least two (2)** or more of the following:
  - a. Retractions or accessory muscle use.
  - b. Respiratory > 24 per minute.
  - c. SpO<sub>2</sub> at 94 - 99%.
  - d. Inability to speak in full sentences due to dyspnea.

B. **CONTRAINDICATIONS (Do not use if any are present):**

1. Respiratory arrest.
2. Hypotension (Blood pressure < 90 systolic).
3. Suspected pneumothorax.
4. Patient has a tracheostomy.
5. Foreign body airway obstruction.

## **CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)**

6. Facial deformity or trauma causing inability to achieve mask seal.
7. Actively vomiting.
8. Recent facial, neurological, or gastric surgery.
9. Chest, head, or face trauma.

### **C. COMPLICATIONS:**

1. Tension pneumothorax
2. Hypotension
3. Aspiration
4. Gastric distention
5. Severe anxiety / combativeness due to mask intolerance.

### **D. PROCEDURE:**

1. Explain the procedure to the patient.
2. Continuously monitor patient.
  - a. Check and document vital signs every five (5) minutes.
  - b. Observe for decrease in level of consciousness.
  - c. Observe for gastric distention.
3. Continuously monitor pulse oximeter.
4. Ensure adequate oxygen supply to the CPAP device.
5. Turn CPAP device on.
6. Have the patient sit up as much as possible.
7. Apply the device as per manufacturer's directions.

## CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

8. Initially assist the patient in holding the mask tightly to their face and evaluate their tolerance of the mask.
  9. Reevaluate patient's condition and tolerance of the mask:
    - a. Coach the patient to keep mask in place and readjust, as needed.
    - b. If respiratory status or level of consciousness deteriorates, remove device, assist ventilations, and utilize appropriate airway management modality as per protocol.
    - c. If patient tolerates mask and condition does not deteriorate, secure the mask with straps.
  10. Check for air leaks.
  11. Continue to monitor the patient during transport.
  12. Contact **Medical Command**, as early as possible, so the receiving hospital can be prepared for the patient.
- E. REMOVAL: CPAP should be continuous and should not be removed in the prehospital setting unless:
1. Patient cannot tolerate the mask.
  2. Patient begins to vomit.
  3. Patient's mental or respiratory status deteriorates.
  4. Patient becomes hypotensive (Systolic blood pressure < 90 or drops 20 mm/Hg).

### Notes:

1. CPAP should continue upon arrival at the emergency department until patient care is transferred to the emergency department staff. Do not remove CPAP until hospital emergency therapy is ready to be placed on the patient.
2. This procedure may be performed on a patient with a *Do Not Resuscitate order*.
3. CPAP pressure should be started at 3 - 5 cm of H<sub>2</sub>O. Most patients will only require 5 cm H<sub>2</sub>O. Pressure may be slowly titrated upward depending on

## CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

patient response, BUT NEVER ABOVE 10 cm H<sub>2</sub>O without MCP order.

4. CPAP should be used with caution with portable oxygen systems due to limited amounts of oxygen available to operate the device.
5. **DO NOT** delay other emergency interventions to establish CPAP. CPAP should be delivered as an adjunct to treatments indicated by the primary protocol.
6. Most patients will improve in 5 - 10 minutes. If no improvement within this time, consider additional treatment options per primary protocol.
7. **DO NOT** force CPAP use on patients who have failed at past attempts to utilize noninvasive ventilation techniques and request that it not be applied.

## CHEST DECOMPRESSION

### A. INDICATION:

1. Chest Decompression requires **MCP Order**. 
2. Patient with a suspected tension pneumothorax.
  - a. Closed or penetrating chest trauma with respiratory distress.
  - b. Absent breath sounds on the side of the injury.
  - c. SBP < 90 mm Hg in adults or SBP < 80 mm Hg in children, with signs of shock.

### B. PROCEDURE:

1. Midclavicular
  - a. Identify the second intercostal space on the side of the pneumothorax.
  - b. Place a finger on the clavicle at its midpoint.
  - c. Run this finger straight down the chest wall to locate the first palpable rib below the clavicle.
  - d. The second intercostal space lies just below this rib, midway between the clavicle and the nipple line.
  - e. Cleanse the area with an alcohol or Povidone-Iodine swab.
3. Select a 14 or 16 gauge, 3 ¼ inch IV catheter (Pediatric:16 gauge, 1 ¼ inch). Remove the flash chamber cap. Do not use needle-safe IV catheters.
4. Advance the needle into the second intercostal space above the third rib. Assure you enter the thoracic cavity by passing the needle just over the top of the rib to avoid interference with the blood vessels and nerves that run along the underside of the rib.
5. As you enter the pleural space, you will feel a pop and note a rush of air expelling.
6. Advance the catheter into the chest and then withdraw the needle. Be careful not to kink the catheter.
7. Attach a one-way flutter valve to the catheter:

**CHEST DECOMPRESSION**

- a. Asherman Chest Seal, or similar device, over the barrel of the catheter.
- b. Finger cut off of a latex or similar examination glove (secure to catheter hub prior to performing the chest decompression).
8. Secure the catheter in place with tape, being careful not to block the port or kink the catheter.
9. Monitor the patient's vital signs and breath sounds for a recurring tension pneumothorax.
10. If signs and symptoms are not relieved by the initial chest decompression, or signs and symptoms recur, decompress the chest again by placing additional catheters adjacent to the original catheter.

**C. CONSIDERATIONS:**

1. For an open pneumothorax, immediately cover the open area with a gloved hand. Once materials are available, cover the area with an occlusive dressing.
2. An open pneumothorax that has been sealed with an occlusive dressing may result in a tension pneumothorax. In that instance, the increase in pleural pressure may be relieved by briefly removing the dressing. If that air release does not occur or the patient's condition remains unchanged, gently spread the chest wound open with a gloved hand, allowing the trapped air to escape.

## STOMA / TRACHEOSTOMY SUCTION MANAGEMENT

The majority of adults and children with tracheostomies are dependent on the tube as their primary airway. Cardio-respiratory arrest most commonly results from tracheostomy obstructions. Obstruction may be due to thick secretions, mucous plug, blood clot, foreign body, or kinking or dislodgement of the tube. Work expeditiously and deliberately to reestablish airway patency and support oxygenation/ventilation.

Early warning signs of obstruction include tachypnea, tachycardia, and desaturation. Cyanosis, bradycardia, and apnea are late signs. **DO NOT** wait for these to develop before intervening.

A. Complications:

- Airway obstruction
- Aspiration
- Blocked tube
- Bleeding
- Tracheal trauma
- Pneumothorax
- Subcutaneous and mediastinal emphysema
- Respiratory and cardiovascular collapse
- Dislodged tube
- Tracheo-esophageal fistula
- Infection

B. Endotracheal Suctioning:

1. Endotracheal suctioning is necessary to remove mucus, maintain a patent airway, and avoid tracheostomy tube blockages. Indications for suctioning include:
  - a. Audible or visual signs of secretions in the tube.
  - b. Signs of respiratory distress.
  - c. Suspicion of blocked or partially blocked tube.
  - d. Inability to clear the tube by coughing out the secretions.
  - e. Increases in required ventilation pressures (in ventilated patients).
  - f. Request by patient.
2. Tracheal suctioning should be carried out regularly for patients with a tracheostomy. The frequency varies between patients and is based on

**STOMA / TRACHEOSTOMY SUCTION MANAGEMENT**

individual assessment.

3. Tracheal damage may be caused by suctioning. This can be minimized by using the appropriate sized suction catheter and only suctioning within the tracheostomy tube.

Tracheostomy tube size (in mm)	3.0 mm	3.5 mm	4.0 mm	4.5 mm	5.0 mm	6.0mm	7.0mm	7.5mm	8.0mm	9.0mm – 10mm
Recommended suction catheter size (Fr)	7	8	8	10	10	10-12	14	14-16	14-16	16

4. The suction depth is determined by the estimated length of the tracheostomy tube.
5. The depth of insertion of the suction catheter needs to be determined prior to suctioning to avoid trauma.
6. Using the patient’s spare tracheostomy tube of the same size (if available) to estimate needed depth of suctioning.
7. The pressure setting for tracheal suctioning (suction machine pressure for small children 50-100 mm/Hg; for older children/adults 100-120 mm/Hg) to avoid tracheal damage.
8. In most circumstances, it is best to limit the duration of suctioning (including passing the catheter and suctioning the tracheostomy tube) to 5 - 10 seconds.
9. Routine use of normal saline is not necessary although there is anecdotal evidence it may thin secretions. In situations where this may be of benefit, only 1 - 2 mL is usually needed.

**C. Tracheal Suctioning Procedure:**

1. Inform patient of intended action.
2. Maintain appropriate PPE throughout procedure.
3. Assemble needed suction equipment and power on suction device.
4. Instill small volume of sterile normal saline into the tracheostomy tube, if needed for thick or dry secretions. Excessive use of saline is not recommended. Use saline only if the mucus is very thick, hard to cough up, or difficult to suction.

## **STOMA / TRACHEOSTOMY SUCTION MANAGEMENT**

5. Gently insert catheter into the tracheal tube without applying suction, passing to the previously estimated needed depth.
6. Put thumb over opening in catheter to create suction and use a circular motion (twirl catheter between thumb and index finger) while withdrawing the catheter so that the mucus is removed well from all areas. Avoid suctioning longer than 10 seconds because of oxygen loss. Suction normal saline from a container if needed to clear catheter.
7. For tracheostomy tubes with cuffs, it may be necessary to deflate the cuff periodically for suctioning to prevent pooling of secretions above tracheal cuff.
8. Let patient rest and breathe, then repeat suction, if needed, until clear (trying to allow about 30 seconds between suctioning).
9. Oxygenate/ventilate, as needed.

## AIRWAY MANAGEMENT

Airway management is an essential part of the care of all patients. It is an ongoing process which requires assessment of many different signs and symptoms. Evaluating and recognizing respiratory distress, respiratory failure, and respiratory arrest are critical in determining what level of intervention is required to properly treat the patient. The key areas to be assessed include: general impression, patency of airway, presence or absence of protective reflexes, and adequacy of breathing.

- A. Assess airway for patency and protective reflexes.
- B. Determine adequacy of breathing by assessing the rate, depth, effort, and adequacy of ventilation by inspection and auscultation.
- C. If airway is patent and spontaneous breathing is adequate, and:
  - 1. No or mild to moderate distress: administer oxygen at 2 - 6 LPM nasal cannula to maintain SpO<sub>2</sub> at 94 - 99%.
  - 2. Severe distress: administer oxygen at 15 LPM non-rebreather mask to maintain SpO<sub>2</sub> at 94 - 99%.
- D. If airway is not patent, then:
  - 1. Attempt to open airway by using head tilt/chin lift if no spinal trauma is suspected, or modified jaw thrust if spinal trauma is suspected.
  - 2. If foreign body obstruction of airway is suspected, then refer to **Airway Obstruction Protocol 5305**.
  - 3. If anatomical obstruction is occurring and airway cannot be maintained with positioning and the patient is unconscious, consider placing an oropharyngeal or nasopharyngeal airway adjunct.
- E. If breathing is inadequate, ventilate with 100% oxygen.
- F. If airway cannot be maintained by the above means, including attempts at assisted ventilations, prolonged assisted ventilation is anticipated:
  - 1. Perform endotracheal intubation.
  - 2. Confirm endotracheal tube placement using clinical assessment and end-tidal CO<sub>2</sub> monitoring.

## AIRWAY MANAGEMENT

- G. If endotracheal intubation is not possible, insert supra-glottic airway and confirm placement.
- H. Continue ventilation with 100% oxygen.

J. Post Intubation Management:

- 1. If patient is intubated and shows evidence of need for sedation/pain management to facilitate tolerating the endotracheal tube, administer:
  - a. **Midazolam** (Versed®) 2 mg IV/IO. Hold for systolic BP < 90 mmHg.
  - AND/OR**
  - b. **Fentanyl** (*Sublimaze*®) 1 microgram/kilogram – up to 100 micrograms max single dose, slow IV.



**Note:** These medications may be given IM if IV/IO not available or becomes dislodged.

- K. If patient is still restless and/or combative, contact **Medical Command** for further treatment considerations.



**Note:**

- 1. Do not use nasal route for airway if maxillofacial trauma is present.
- 2. Any patient with suspected spinal trauma needs in-line stabilization with any airway procedure.
- 3. Consider gastric tube placement if patient is intubated.

## PATIENT COMFORT / PAIN MANAGEMENT

Pain management in the field may be indicated when there is isolated trauma to extremities, severe burns, or amputations. Occasionally, patients with severe musculoskeletal back, neck, or flank pain may require pain treatment in order to facilitate packaging and transport. Except in rare circumstances, pain medication should not be administered to multiple trauma patients with possible head, abdomen, or chest injuries. Nausea and/or vomiting can be a side-effect of narcotic pain medications or associated with many conditions including motion sickness while being transported.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
- B. Review patient's allergies, current medications, and past medical history.
- C. If severe pain:

1. Administer **Fentanyl** (*Sublimaze*®) 1 microgram/kilogram – up to 100 micrograms max single dose, slow IV.

**DO NOT** administer **Fentanyl** (*Sublimaze*®) to children less than 12 years old without **MCP order**. Pediatric dose is 1 microgram/kg max dose of 50 micrograms **per MCP order**.

-OR-

2. Administer **Morphine Sulfate** 2 mg slow IV.

- If systolic BP drops below 90 mm/Hg discontinue analgesic administration and administer IV fluid bolus 250 mL Normal Saline and contact **Medical Command**.

**DO NOT** administer **Morphine Sulfate** to children less than 12 years old without **MCP order**. Pediatric dose of **Morphine Sulfate** is 0.05 mg/kg **per MCP order**.



- D. If discomfort persists, **Contact Medical Command Physician** to discuss further treatment and/or to request additional Morphine Sulfate or Fentanyl. Monitor blood pressure and respiratory effort.



## DEATH IN THE FIELD

This protocol is designed to be used when EMS personnel encounter patients who are dead at the time of arrival in which resuscitation is medically inappropriate **or** for use immediately after the **Cease-Effort Protocol 9102** has been performed.

- A. Perform initial assessment as per any patient.
- B. Determine history.
- C. **Criteria:** The decision to not begin resuscitation may occur under the following circumstances if ordered in **consultation with MCP**.
  - 1. When there are changes to the body which indicate a prolonged postmortem interval (i.e. decomposition, rigor in normo-thermic body).
  - 2. Injuries incompatible with life such as decapitation or transection of torso.
  - 3. Pulseless, apneic patients in multiple casualty situations where available resources are required to maintain living patients.
  - 4. Proper “Do Not Resuscitate” documentation has been discovered or clarified by family, **Medical Command Electronic Registry (End of Life Registry)**, or power of attorney.
  - 5. Resuscitation efforts pose a danger to the health and/or safety of the rescuers.
- D. **Criteria:** The decision to not begin resuscitation may occur under the following circumstances by **order of MCP**.
  - 1. Victims of trauma who are pulseless and apneic at the time of arrival of first responders or EMS personnel.
  - 2. Blunt trauma patients, who become pulseless and apneic, cannot be extricated quickly, and the entrapment precludes medically effective resuscitation efforts.
  - 3. Circumstances where beginning or continuing resuscitation is not medically appropriate as determined by EMS personnel and direct contact with the **Medical Command Physician**.
  - 4. Proper “Do Not Resuscitate” documentation has been discovered or clarified by family, **Medical Command Electronic Registry (End of Life Registry)**, or power of attorney.

**DEATH IN THE FIELD**

E. Procedure:

1. Contact **Medical Command** immediately and **consult with MCP** as required in “C” and “D” above. Discuss situation and **obtain confirmation that no resuscitation is indicated.**
2. Contact the **WV Forensic Investigative Unit (304-558-6920) or (877-563-0426).** The F.I.U. will provide further instruction.
3. Notify the Forensic Investigative Unit on all out-of-hospital deaths including those registered with and receiving hospice care.
4. Check with your county dispatch to ensure that Law Enforcement has been notified.
5. If death does not meet criteria for investigation by the F.I.U., the F.I.U. will release the body.
6. EMS personnel are not required to transport the body, but may do so if instructed and this is standard practice as a courtesy to the local community.
7. EMS personnel should document carefully the signs, symptoms, and vital signs which confirmed and allowed the declaration of death. These facts should be recorded in the patient care record.
8. For Medical Examiner cases, the hospital copy of the patient care record should be completed and given to the F.I.U investigator if they are on-scene or left with the body at the morgue if transport is made.

# **WV Forensic Investigative Unit**

**(304) 558-6920  
(877) 563-0426**

## CEASE EFFORTS

This protocol is designed to be used when in **direct consultation with the Medical Command Physician (MCP)**, the medical decision is made to discontinue resuscitation efforts in the field and proceed to the **Death in the Field Protocol 9101**.

- A. Criteria: EMS personnel may request orders to cease resuscitation efforts on a patient in the field when any of the following are present:
1. Resuscitation initially started by first responders, family members, etc. is determined to have been medically inappropriate (i.e. terminal cancer or traumatic arrest).
  2. Full cycle of ALS treatment has been unsuccessful and patient has been confirmed pulseless and apneic by EMS for at least 20 minutes.
  3. Proper "Do Not Resuscitate" documentation has been discovered or clarified by family, **Medical Command Electronic Registry (End of Life Registry)**, or power of attorney.
  4. BLS resuscitation has proved unsuccessful and no ALS is available for an extended period of time. Patient has been confirmed pulseless and apneic by EMS for at least 20 minutes.
  5. Physical exhaustion of available providers to provide care.
  6. The scene environment is judged to be unsafe for rescuers to continue resuscitation.
  7. Extremely remote areas where evacuation may require hours or days.
- B. Procedure:
1. EMS personnel will contact **Medical Command** and speak **directly to the MCP**.
  2. Specific history and details of care will be discussed and **MCP will make final decision**, give final order to cease resuscitation, and note exact date and time.
  3. Proceed immediately to **Death in the Field Protocol 9101**.
- C. Exceptions: The following situations may necessitate transport of patients and continued resuscitation efforts **per direct MCP order**:

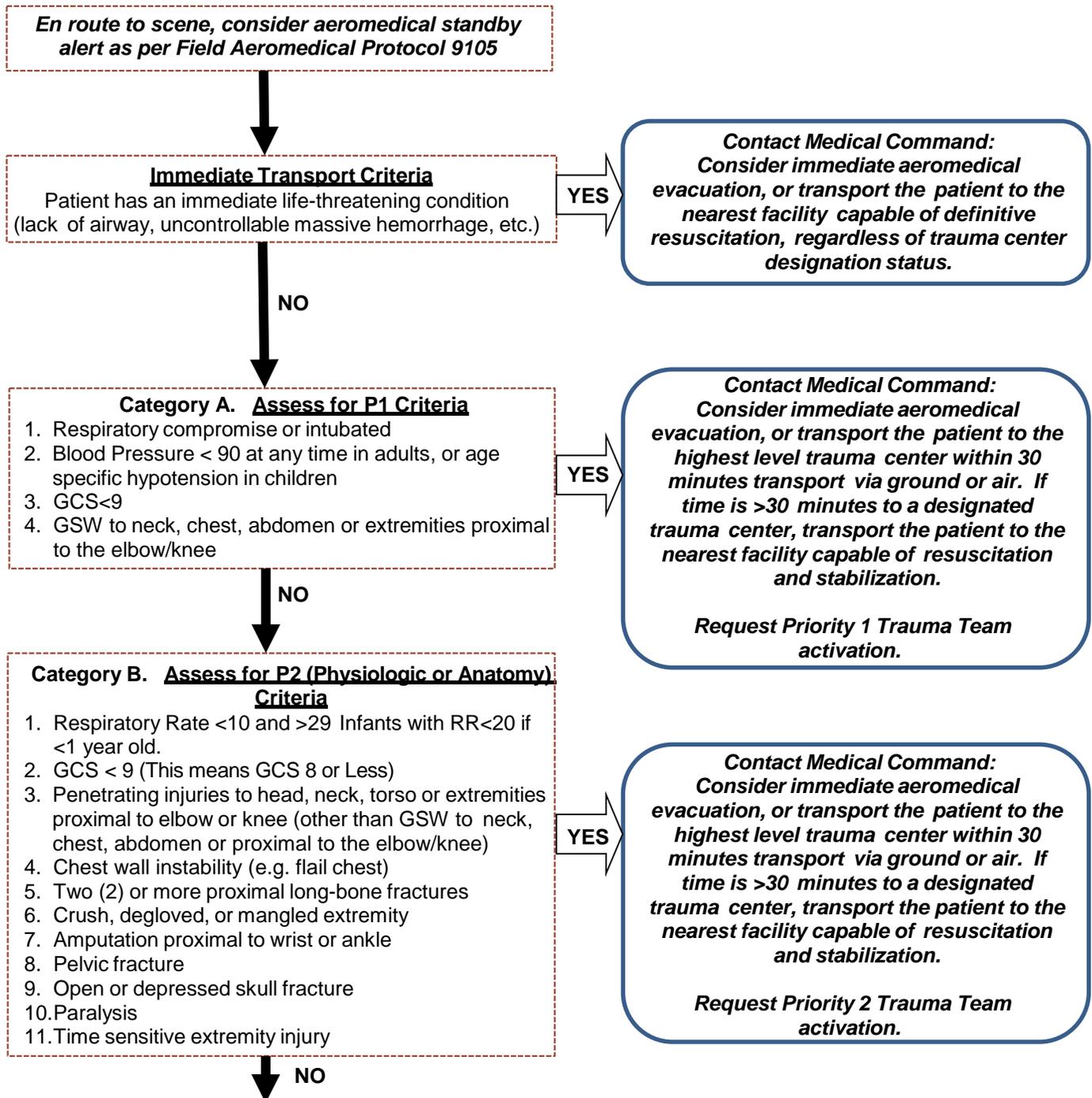
**CEASE EFFORTS**

1. Volatile or potentially dangerous situations where movement of the patient and exit from the scene is required for the safety of the rescuers.
2. Hypothermic patients: Treat per **Cold Exposure Protocol 4503**.
3. Pediatric patients less than 12 years of age.

**Note:** If patient is removed from scene and resuscitation continued, the resuscitation efforts should be continued until arrival at the hospital.

## FIELD TRAUMA TRIAGE

Field triage of critically injured trauma patients and their transport to an appropriate level trauma center is often vital to their survival. Recognition of these patients should be assisted by the Priority 1 (P1) and Priority 2 (P2) criteria recommended by the State Trauma and Emergency Medical System. Patients meeting P1 or P2 criteria should generally be transported to the highest level trauma center within 30 minutes transport time using the algorithm below:



## FIELD TRAUMA TRIAGE



### Category C. Assess for P2 (Mechanism) Criteria

1. Falls:  
Adults > 20 feet; Children >10 feet or 2-3 times the height of the child.
2. High Risk Auto Crash:  
Ejection  
Intrusion, including roof: >12 inches, occupant site >18 inches, any site  
Death in same passenger compartment  
Vehicle telemetry data (if available) consistent with high risk of injury
3. Auto vs. Pedestrian/Bicyclist thrown, run over, or with significant impact ( $\geq 20$  mph)
4. Motorcycle or ATV crash > 20 mph

YES

**Contact Medical Command:**  
**Transport the patient to the highest level trauma center within 30 minutes transport. If time is >30 minutes to a designated trauma center, transport the patient to the nearest facility capable of resuscitation and stabilization.**

**Request Priority 2 Trauma Team activation.**

## AMBULANCE DIVERSION POLICY

The purpose of this policy is to establish common, acceptable guidelines for Medical Command Centers, hospitals, and EMS personnel under which diversion of ground ambulances transporting patients from the field may occur. This policy **DOES NOT** supersede a hospital's or EMS personnel's obligation to provide care should a patient require emergency stabilization or in the event that a patient desires to be transported to and treated at a specific facility. Any unstable patient should be transported to the closest appropriate facility regardless of the facility's alert status. Additionally, ambulances should not bypass a hospital on red alert if transport time will be lengthened by more than 15 minutes.

### A. **Definitions of diversion alert status system:**

1. **Red Alert Status:** Notification from a hospital to **Medical Command** that said hospital has identified a strain in operational ability due to any two (2) of the criteria listed below and that such hospital is requesting that affected EMS personnel make the condition known to all patients and/or patients' families requesting transportation to said hospital.
2. **Yellow Alert Status:** Notification from a hospital to **Medical Command** that said hospital has identified a temporary lack of ability to provide a particular type of service or specialty support that they normally and routinely provide. Said hospital is requesting that affected EMS personnel make this condition known to all patients and/or patients' families requesting transport to said hospital. Yellow alert status may place the facility on red alert if criteria #1 is also met and, in consultation with **Medical Command**, it is determined with reasonable certainty that the patient in question may require the services affected by the yellow alert.
3. **Mini-Disaster Alert:** Notification from a hospital that a physical incapacitation of a necessary functional component of the hospital has occurred making further patient care untenable (i.e. fire, flood, gas leak, bomb scare, etc). The facility has, in effect, suspended operation and can receive absolutely no patients. Unless the situation is isolated to the Emergency Department, all other means of patient admissions must be halted prior to a mini-disaster alert being implemented.

### B. **Diversion Criteria:** The determination to place a hospital on red alert status and consider diversion of ambulances from any hospital emergency department can only be made when two (2) of the following criteria are met. **Criteria #1 must always be one of the two criteria prompting the red alert.**

1. The emergency department is overloaded (i.e. filled to capacity with patients whose conditions do not allow for extended delay in treatment); or, there is

## AMBULANCE DIVERSION POLICY

already an overwhelming number of critical patients and any additional critical patients would exceed the care capability of the facility.

2. There are no monitored beds available in the emergency department.
3. There are no monitored beds available in the entire facility.
4. The entire facility is full to capacity with no beds available.
5. A particular service is on yellow alert and **Medical Command** has determined with reasonable certainty that the particular patient in question may require that specific service on an urgent basis.

C. **Override:** A red alert will be automatically disregarded if any of the following conditions occur:

1. A patient is unstable and requires immediate stabilization as determined by EMS personnel in consultation with **Medical Command**.
2. The diversion of the patient would add an additional 15 minutes to the transport time. This may frequently occur in the more rural areas.
3. The patient or patient's family, after explanation of risks and consultation with the **MCP**, still insist on transport to the red alert facility, and the MCP has determined that this decision poses no immediate danger to the patient. Patient or legal guardian must sign refusal of appropriate care section of patient care record.

D. Each hospital will pre-determine a representative position which will be the sole communicator with **Medical Command**. The designated position must be provided in writing to **Medical Command**.

1. The designated hospital representative will notify **Medical Command** when requesting a particular diversion alert status. The representative will report to **Medical Command** the criteria met to qualify for the diversion alert status, first by phone and then by faxing the **Diversion Alert Status Form (Appendix B)** directly to **Medical Command**. The requesting hospital will maintain the information as contained in Section "F" below on file for one year following the request for diversion.
2. **Medical Command** will notify affected EMS agencies when a particular hospital is on a diversion alert. EMS personnel will inform the patient and/or patient's family of possible extensive delays in treatment at the hospital

**AMBULANCE DIVERSION POLICY**

which is on diversion status. **However, the patient or patient's family has the final destination decision unless there is a concern by the EMS personnel that the patient will be adversely affected by the requested destination. In the case of that concern, consultation with the Medical Command Physician should occur to determine the final destination of the patient.**

3. It is the designated hospital representative's responsibility to notify **Medical Command** when the diversion status changes. Red alert status will automatically terminate after two (2) hours unless the hospital notifies Medical Command and requests an additional 2 hour extension. If after four (4) hours the operational deficits have not been corrected, then the hospital may request an additional two (2) hour extension, but hospital administration must explain in writing within 24 hours what measures have been taken to assure that this situation does not reoccur. At no time may a facility be on red alert status for more than six (6) hours in a 24 hour period beginning at 12 midnight.
  4. In the event that all hospitals within a catchment area meet criteria for red alert status, then **Medical Command** will notify those hospitals that red alert status is automatically suspended and patients are transported to the usual closest appropriate facility.
  5. Yellow alert status must be updated by the hospital representative to **Medical Command** every six (6) hours.
- E. **Compliance Monitoring: Medical Command** will maintain the data base on all alert status diversions and report them to the regional medical director for review.
1. In the event that non-compliance with this policy is identified, the Regional Medical Director will notify the hospital in question and request in writing an explanation for the variance.
  2. If non-compliance continues to be an issue, then the Regional Medical Director will notify in writing the WVOEMS State EMS Medical Director for further action, including possible site visit by the Bureau for Public Health.

**\*\* Diversion Alert Status Form (Appendix B).**

## FIELD AEROMEDICAL

Field access to aeromedical transport may enhance the probability of survival of a select, small percentage of patients. The objective of a field response to the scene of injury by an EMS helicopter is to utilize the speed of the helicopter or the advanced skills of the medical crew to supplement patient care.

All requests for scene helicopter responses will come through **Medical Command**. Inappropriate requests for a helicopter subject the flight crew and the patient to needless risk. **Medical Command** shall deny inappropriate requests for a helicopter. EMS personnel considering the need for a helicopter are encouraged to discuss their situation with **Medical Command**. If the drive time to a designated Level I or II Trauma Center is less than 30 minutes and there is no extrication delay at the scene, aeromedical transport is rarely indicated. Appropriate requests for a helicopter include the following:

A. Trauma Criteria:

1. Patient meets **Field Trauma Triage Protocol 9103** Immediate Transport: **OR**
2. Patient meets **Field Trauma Triage Protocol 9103 A** (P1 Criteria); **OR**
3. Patient meets **Field Trauma Triage Protocol 9103 B** (P2 Criteria).

**Note:** Patients meeting only **Field Trauma Triage Protocol 9103 C**. P2 (Mechanism Criteria) **may** need a helicopter, but require that you discuss the details with **MCP** for approval.

B. Medical Criteria:

1. Some non-trauma patients with life-threatening medical conditions and far from definitive care, may benefit from air evacuation. Such circumstances may include:
  - a. Acute stroke patients within the window of opportunity for thrombolytic or endovascular intervention at an appropriate hospital.
  - b. Acute myocardial infarction patients needing thrombolytics or angioplasty.
  - c. Major overdose patients with coma.
  - d. Major burns > 20% TBSA (second or third degree) needing flown directly to a Burn Center.

C. Environmental Criteria:

1. Patients in remote locations inaccessible by ground EMS.

## FIELD AEROMEDICAL

2. Mass casualty incidents that totally overwhelm local agency capabilities (industrial accidents, multi-vehicle crashes, hazmat incidents, etc.)

D. Procedure:

1. **Contact Medical Command.** If radio communication or cell phone service is not available, contact your local dispatch or 911 communications center to contact **Medical Command**. Discuss clearly the need for the helicopter based on the above criteria with **Medical Command**. Saying “I need a helicopter” is inadequate.
2. Identify agency, unit number, incident location, description of incident, and any other information requested.
3. Request either response or standby alert. Request can be made for helicopter to be placed on standby alert even before arrival on scene, which may shorten the helicopter’s lift-off time if air transport is deemed necessary. Request response as soon as criteria is identified.
4. Give a brief description of incident and GPS coordinates if available, or an accurate location, including names of roadways, cross streets, and other pertinent landmarks. Names of nearby towns and your location in reference to them is helpful.
5. Advise **Medical Command** of the agency and radio frequency of the ground contact for the helicopter.
6. Remain in contact with **Medical Command** for information concerning availability of aircraft, estimated flight time, and/or other special landing zone or scene requirements.
7. **Medical Command** will coordinate dispatch of the closest appropriate helicopter based on location of incident and will coordinate destination notification.
8. Landing zone preparation:
  - a. Secure a level 100' X 100' area clear of power lines, trees, debris, and other obstructions.
  - b. Ensure all bystanders and personnel remain at least 100 feet from aircraft at all times.

## FIELD AEROMEDICAL

- c. At night, use of flashing blue, green, or amber lights is encouraged to mark the landing area since they interfere less with night vision technology. Red lights of an emergency vehicle may be used; but use only the red lights on the vehicle (**NO** white lights or flood lights). Do not shine any lights at the aircraft either on approach or while on the ground. High intensity light sticks may be used but **NO** flares.
  - d. After landing, do not approach the aircraft.
9. Communications:
- a. Designate one (1) individual to monitor ground contact radio frequency and communicate with the aircraft. Do not change frequency unless instructed to do so by aircraft or **Medical Command**.
  - b. Establish radio and visual contact with the aircraft and give a quick update of any LZ changes, hazards, and patient update information.
  - c. When aircraft is making final approach to land, keep radio traffic to a minimum so as not to distract the pilot. Alert pilot immediately if new hazard or situation develops. Follow directions given by pilot.

## MEDICAL COMMUNICATION POLICY

The West Virginia OEMS protocols are designed to allow EMS personnel the ability to provide a wide variety of treatments to many types of patients by utilizing off-line protocols. However, since protocols cannot cover all situations, on-line medical direction is essential to a quality EMS system.

EMS personnel are expected to contact **Medical Command** for on-line medical direction as outlined in the protocols or anytime additional consultation is needed by the provider. Additionally, EMS personnel should notify **Medical Command** on inter-facility transports being transferred to the emergency department not less than fifteen (15) minutes prior to arrival. All ALS treatment rendered, even by off-line protocol, requires notification of **Medical Command**. In order to provide for the most efficient and accurate communication between the provider and the **Medical Command** Operator, the following procedures will be used when communicating with **Medical Command**.

A. **Call-in Status Level:** In order to quickly and effectively identify the level of interaction required to properly manage the patient, the following terminology will be used:

1. **Status 3** - Provider has provided care to patient following off-line protocol and no further consultation or orders are required at this time. **Medical Command** is being notified to receive a report on the patient, to confirm the treatment given, to identify which protocol was used, and to allow notification of appropriate destination facility.

**Note:** Even if treatment was rendered fully by off-line protocol, notification and report are still required. **Medical Command** Operator will also confirm that proper protocol procedure was followed and request additional information as required.

2. **Status 2** - Provider has provided care to patient and has followed protocol to the point where contact with **Medical Command** is now required in order to proceed with additional off-line treatment or treatments found in the protocol. These treatments within the protocols will include the words... **“by order of Medical Command”** or **“in consultation with Medical Command”** or **“contact Medical Command.”** Status 2 consultation allows the provider and the Medical Command operator to confer and confirm that the next steps in treatment are appropriate by jointly interpreting that section of the protocol. If they both agree, then **Medical Command** will provide the necessary confirmation to proceed. If they do not agree, then consultation with the **Medical Command Physician (MCP)** is indicated.
3. **Status 1 Charlie** (“C” signifies “Consultation”): Provider has provided care to patient and has followed protocol to the point where consultation with **Medical Command Physician (MCP)** is now required in order to proceed with

## MEDICAL COMMUNICATION POLICY

additional treatment(s). These orders or treatments within the protocols will include the words....“by order of MCP” or “by MCP order” or “in consultation with MCP”. The **Medical Command Operator** is permitted to relay the consult information between the provider and the **MCP** and communicate the orders back to the provider from the **MCP**. If any uncertainty exists during this process, then the provider, operator, or **MCP** may upgrade the call to a Status 1 Delta.

4. **Status 1 Delta** (“D” signifies “Direct”): Provider has provided care to patient and has followed protocol to the point where direct voice communication with **Medical Command Physician (MCP)** is now required in order to proceed with additional treatment or treatments. These orders or treatments within the protocols will include the words....”by direct order of **MCP**” or “by direct **MCP** order” or “in direct consultation with **MCP**”. There are only a few situations where direct communication with **MCP** is required in the protocols (i.e. Cease-Efforts Protocol 9102 requires direct consultation with **MCP** to discontinue efforts in the field). Occasionally field providers will encounter patients who, in their opinion, require direct consultation with the **MCP** in order to formulate the proper care plan for the patient. Additionally, there may be situations which are so complex that direct consultation with the **MCP** is critical for proper resolution of the situation (i.e. discussion with family concerning a certain therapy, physician on the scene who wishes to take control of the patient, etc.). In these situations, field providers can request a **Status 1 Delta** to speak directly with the **MCP**. In addition, Medical Command Operators or MCPs can also upgrade any call to a **Status 1 Delta** if they feel the situation dictates.

B. **Communication Procedures:** When communicating with **Medical Command**, the provider should use the following designations:

1. Unit with an EMT-P level of ALS care should be designated as a “Medic” Unit. (For example: “Oakland County **Medic** 690 calling Charleston MedBase on Call 9”).
2. Unit with an EMSA-I level of ALS care should be designated as an “ALS” Unit. (For example: “Oakland County **Intermediate** 690 calling Charleston MedBase on Call 9”).
3. Unit with an EMT-B level of BLS care should be designated as an “EMT” Unit. (For example: “Oakland County **EMT** 690 calling Huntington MedCom on Call 9”).
4. Unit with a CCT-Paramedic or CCT-Nurse should be designated as a “CCT” Unit. (For example: “Oakland County **CCT** 690 calling WVU

## MEDICAL COMMUNICATION POLICY

*MedCom on 340").*

- C. Methods for contacting **Medical Command**: There are three (3) general methods for contacting Medical Command:
1. Telephone (landline): Should be used whenever the patient's location and condition permit. It offers the best quality communication available and keeps radio frequencies less congested. It also provides a greater amount of security for discussion of sensitive patient information. Providers may use the local phone number of the Medical Command Center or the toll free 800 number of the specific center.
  2. Cellular Phone: Cell phone is an acceptable method of contact if landline is not available and sensitive information needs to be given, however, when in a mobile unit, it is not a substitute for radio contact if the coverage is available.
  3. UHF or VHF Radio: Direct radio contact with **Medical Command** is the preferred method of contact while responding to a call, transporting a patient, or on the scene of an MVC or other non-residential incident. Depending on the area of the state, this may best be accomplished by either UHF or VHF frequencies.
- D. **Inability to contact Medical Command**: If the provider is unable to make contact with Medical Command by any of the above means, properly authorized EMS personnel may continue to follow the appropriate protocol(s) in the best interest of the patient. However, the provider must then:
1. Immediately upon arrival at the receiving facility, contact **Medical Command** by phone and provide a full patient report **and** the method, time, and location of the unsuccessful efforts to reach **Medical Command**.
  2. If this report is made prior to leaving the receiving facility, no further reporting is required by the provider.
  3. If **Medical Command** is not contacted prior to leaving the receiving facility, by law, the provider must submit a report (Appendix H) to the State Office of Emergency Medical Services on the appropriate form within 48 hours. Failure to do so may be grounds for suspension or even legal action.
- E. **Details of Call-in**: When contacting **Medical Command** the following specific procedures should be followed:

## MEDICAL COMMUNICATION POLICY

1. In establishing initial contact, EMS personnel shall identify their unit with the proper designation as above.
2. After **Medical Command** has answered, provide the following information:
  - Unit ID
  - EMSP last name and certification number
  - Age and sex of patient
  - Chief Complaint
  - Status of call
  - Destination
3. **Medical Command** will then determine priority of call if other calls are also occurring.
4. **If Status 1 Delta, Medical Command** will alert the **MCP** and establish contact between provider and MCP.
5. **If Status 1 Charlie, Medical Command** will take information and consult with **MCP** for further orders.
6. **If Status 2, Medical Command** will take information and either concur with further treatment by protocol or consult with **MCP** for further orders.
7. **If Status 3, Medical Command** will take information for report, clarify details, confirm protocol usage, and notify the receiving facility. If there is increased traffic during this time, the Medical Command Operator may ask the provider to continue transport and call by phone after arrival at the receiving facility, and give complete report at that time.
8. When **Medical Command** is prepared to receive the full report, the provider will give the following pertinent patient information:
  - Age and sex of patient
  - Chief complaint/mechanism of Injury
  - Brief history of present condition  
BREAK
  - Past medical history
  - Medications
  - Allergies
  - Vital signs, GCS, and ECG
  - Assessment

**MEDICAL COMMUNICATION POLICY**

BREAK

- Treatment given and in progress (include protocol # (s))
- Treatment and orders requested
- Updated ETA and destination

9. If the patient's condition changes or new complaints develop, **Medical Command** shall be recontacted with updated findings and treatment.

## PATIENT HANDOFF

The “hand-off” or transfer of patients, between EMS providers, (Emergency Medical Responders, EMT-Basic, and Paramedic) represents one of the most important elements of successful pre-hospital patient care.

Transferring patient care involves the transfer of patient rights and duty to provide care, from one person, or one team, to another. This transfer of care may be from a higher level provider to a lower level provider, from a lower level provider to a higher level, or between the same levels of provider. The term Provider, refers to the level of Certification. The importance of transferring patient information including history and plan of treatment cannot be overemphasized. The providers must communicate events, treatments, and ongoing plan of care during the “transfer of care” process. This provides a smooth transition for continued continuity of treatment.

This protocol addresses transfer of care involving any level of EMS provider.

A. Care involving Emergency Medical Responders (EMR):

1. Any provider with a higher level of certification may not transfer care (handoff) to an EMR.
2. An EMR shall provide a verbal transfer of care report when handing off a patient to a higher level provider.
3. An EMR may continue to assist in the care of the patient during transport to a medical facility, but may not function as the primary care provider in the patient compartment of an ambulance.
4. This protocol addresses, but is not limited to:
  - a. CCT Squad to CCT Aeromedical Unit.
  - b. ALS Squad to ALS or CCT Aeromedical Unit.
  - c. ALS Squad transferring care to a different ALS Squad.
  - d. Situations when ALS and BLS squads are on scene and it is determined the BLS Squad is appropriate to transport.
  - e. ALS Squad intercepts a BLS squad and determines the patient is appropriate for BLS transport.
  - f. An ALS crew consisting of an ALS level provider and EMT determine the patient is appropriate for BLS transport and the EMT

## PATIENT HANDOFF

serves as the primary attendant in the patient compartment.

- B. When a higher level provider (certification), transfers care to a lower level provider (certification), the following criteria must be met:
1. The lower level provider must agree to the transfer of care.
  2. In the event the higher level provider chooses to drive, there must be another EVOG certified crew member present on the vehicle to drive in case the higher level provider needs to resume patient care.
  3. The higher certified provider must evaluate and, if needed, provide initial treatment prior to handoff.
  4. Anticipated additional treatment may not exceed the scope of practice of the level of certification assuming the patient care, or the level of licensure of the EMS vehicle and EMS Agency.
  5. Prior to the transfer of care, a history and physical examination (H&P) must be performed by the higher level provider. This H&P must be documented and the higher level provider must affix their signature to the report. This H&P may be documented on the patient care record of the transporting unit, or on a separate PCR. If documented on a separate PCR, the H&P must be forwarded to the receiving medical facility.
  6. With any transfer of care, the provider transferring care must interface directly with the receiving provider and ensure all pertinent information is conveyed.
  7. Any transfer of care between EMS providers must be documented in the patient care record.
  8. Any level of provider accepting transfer of patient care must be continuously alert for changes in patient condition and be prepared to provide immediate medical intervention and potentially call for a higher level intercept.
- C. Transfer of care decision should be a joint decision reached by all involved providers. If transfer to lower provider (certification) the higher level provider will determine who remains in the patient compartment, drives, or allow a lower certified crew to transport the patient.

**PATIENT HANDOFF**

- D. If the Lower Certified provider is not comfortable accepting responsibility for primary care, and the providers cannot agree, contact Medical Command for further direction and resolution.



## NERVE AGENT - **OPTIONAL**

Nerve agents are very toxic organophosphorus compounds that have biological activity similar to that of many insecticides. They cause biological effects by inhibiting acetylcholinesterase and, thereby, allowing acetylcholine to accumulate. Initial effects from small amounts of a nerve agent differ, depending on the route of exposure. There is usually an asymptomatic interval of minutes after liquid exposure before these occur. Effects from vapor occur almost immediately.

- A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocols for medical management based on clinical presentation.
- B. The patient should be removed from the environment.
  1. Never attempt rescue unless trained, certified, and properly equipped.
  2. Never place yourself or your crew in danger.
- C. Mild to moderate signs and symptoms (including dyspnea and nausea/vomiting):
  1. Administer one (1) MARK I Kit IM or **Atropine** 2 mg IM or IV (Adult: 2 mg / Peds: 0.02mg/kg) and **Pralidoxime** 600 mg IM or IV (Peds 25 - 50 mg/kg). **Atropine** should be repeated every five (5) minutes until improvement is noted.
  2. Oxygen should be administered at 15 LPM via non-rebreather.
  3. Do not treat for isolated miosis (unless eye pain is severe) or rhinorrhea (unless severe).
- D. Severe signs and symptoms (including loss of consciousness, seizures, or apnea):
  1. Administer three (3) MARK I Kits IM or **Atropine** 6 mg IM or IV and **Pralidoxime** (if available) 1800 mg IM or 2 grams slow IV drip over 20 minutes. Repeat **Atropine** 2 mg IM or IV every five (5) minutes until:
    - a. secretions diminish; **or**
    - b. airway resistance is less or is normal.
  2. Secure airway. Refer to **Airway Management Protocol 4901**.
  3. In patients with seizure activity administer **Midazolam** 2 mg IV/IO/IM or 5 mg (IN) via atomizer.

**NERVE AGENT - OPTIONAL**

- E. Monitor patient via pulse oximeter and cardiac monitor.
- F. Decisions regarding the transportation of patients should be made in consultation with **Medical Command** and the on-scene incident management system.

**Note:** EMT-Bs may administer MARK I Kits [up to total of three (3) kits] to symptomatic public safety personnel or when directed to do so by an ALS provider based on signs and symptoms in a mass casualty incident (MCI) or on-site chemical testing, confirming nerve or organophosphate agent presence in a mass casualty incident. **Medical Command** consultation is not required in these situations.

## **LEFT VENTRICULAR ASSIST DEVICE (LVAD)**

A. Assessing and Treating an LVAD Patient:

1. Recognize that you have a patient with an LVAD.
2. Determine if your patient has an LVAD problem, an unrelated illness, or injury.
3. A completely stable patient may have **NO** palpable pulse or measurable blood pressure.
4. Mental status and skin color must be used to determine patient stability.
5. CPR should rarely be performed on an LVAD patient.
6. Patients with an LVAD should almost never be pronounced dead at the scene.
7. Call the Emergency Contact Number located on the LVAD control unit.

B. Overview of an LVAD:

The LVAD or Left Ventricular Assist Device is a mechanical device that takes over some or all of the pumping function of the heart's left ventricle. This device is used for patients of any age or gender with advanced heart failure who would not otherwise survive without this device.

Some LVAD patients will have an LVAD while they are waiting for a heart transplant (called Bridge-to-Transplant). Other LVAD patients, who are not eligible for a heart transplant for some reason, will live with the device for the rest of their lives (called Destination Therapy or Lifetime use).

1. How the Heart Works versus How LVADs Work:

The normal pumping function of the heart is achieved by the contraction of the left ventricular muscle which pushes a bolus of blood forward in the cardiovascular system with each contraction. This contraction is what we feel when checking a pulse, and what we hear when taking a blood pressure.

If the heart is not contracting, blood is not moving forward in the system, and we do not feel or hear a pulse. The LVAD, in contrast, flows constantly and, therefore, creates no "pulse" to feel or hear.

The LVAD is a tube that is about one (1) inch in diameter with a pump in the middle. One end of the tube (inflow) is surgically inserted into the left ventricle,

## LEFT VENTRICULAR ASSIST DEVICE (LVAD)

and the other end (outflow) is sewn into the aorta, just above where it exits the heart.

The pump on the LVAD spins constantly. The right side of the heart still pushes blood through the lungs and back to the left ventricle, but then the LVAD pump pulls the blood out of the left ventricle and pumps it out to the body, taking over most or all of the failed pumping action of the left ventricle.

**NOTE:** The important part to EMS providers is that the pump is a constant flow pump. There is no rhythmic pumping as there is with the ventricle, and therefore there is little to no pulse. This means you can have a perfectly stable and healthy looking person who has no palpable pulse and whom you may or may not be able to take a blood pressure.

### C. Assessing the LVAD Patient:

1. Recognize you have an LVAD patient.
  - a. The LVAD patient has a control unit attached to their waist or in a shoulder bag.
  - b. The control unit will be attached to batteries mounted to the belt, in shoulder holsters, or in a shoulder bag. At home, it could be attached to a long cord that connects to a large power unit.
2. Decide if you have a patient with an LVAD problem or a patient with a medical problem who just happens to have an LVAD. Patients with LVADS will have all the same illnesses and injuries as any other patient you see. Their LVAD may have nothing to do with the reason you were called.
3. LOOK:
  - a. Alarms on the control unit will most likely indicate an LVAD problem. Follow resource guides with the patient to trouble shoot.
  - b. Skin color and mental status are the most reliable indicators of patient stability for the LVAD patient.
4. LISTEN:
  - a. Listen over the LVAD pump location to make sure you can hear it running. This will be just to the left of the epigastrium, immediately below the base of the heart.

## LEFT VENTRICULAR ASSIST DEVICE (LVAD)

- b. The patient and their family are experts on this device. Listen to what they have to say about any problems with the LVAD.
5. FEEL:
- a. Feel the control unit. A hot control unit indicates the pump is working harder than it should and often indicates a pump problem such as a thrombosis (clot) in the pump.
  - b. The use of pulse and blood pressure to assess stability can be unreliable in an LVAD patient, even if they are very stable.
6. VITALS:
- a. Pulse: Generally you will be unable to feel a pulse.
  - b. Blood Pressure: You may or may not be able to obtain a BP. Standard readings are unreliable and may vary from attempt to attempt.
  - c. Pulse Oximetry: Readings seem to be fairly accurate and consistent, according to data, despite the manufacturer stating that pulse oximetry often does not work.
  - d. Quantitative Continuous Waveform Capnography: This should remain accurate as it relies on respiration, not pulse.
  - e. Temperature: Infection and sepsis are common. Check temperature!

**NOTE:** *LVAD patients can remain stable and experience a range of ECG rhythms that could be dangerous or fatal in another patient. Remember blood sugar and stroke assessment, particularly for an altered mental status.*

D. Treating the LVAD Patient:

- 1. Generally, treatments for an LVAD patient will follow the current WVOEMS Protocols. However, there are a few special considerations to keep in mind. Do not let the LVAD distract you from treating the patient!
- 2. The best medical resource available to you for LVAD related problems is the patient's VAD coordinator. The patient will have a contact sheet for the VAD coordinator with them at all times. **Contact the VAD coordinator as soon as possible.**

## **LEFT VENTRICULAR ASSIST DEVICE (LVAD)**

3. If you are assisting patient to change batteries or power source, **never** remove both batteries at the same time. This will cause the LVAD pump to immediately stop.
4. Sepsis and stroke are leading causes of death for LVAD patients.
5. Treating ECG changes:
  - a. Many LVAD patients already have an implanted defibrillator and/or a pacemaker in place.
  - b. The continuous flow of the LVAD means changes in ECG rhythms, including atrial fibrillation, SVT, ventricular tachycardia, and even ventricular fibrillation may have minimal to no short-term effect on the cardiac output and stability. Treat ECG changes according to protocol.
  - c. Use of external pacing or defibrillation is unchanged for LVAD patients.
  - d. Use of ACLS education is unchanged for LVAD patients. Follow standard AHA and protocol guidelines, as appropriate.
6. LVAD patients are always on anticoagulant medications. Even minor appearing chest or abdominal trauma, such as a seatbelt mark, could be hiding a very serious injury.
7. LVAD manufacturers currently recommend against CPR, especially if there is any evidence the pump is still functioning. There currently are no published studies or published consensus statements regarding whether and under what circumstances to perform CPR on a deceased LVAD patient. LVAD devices are not all the same and, if at all possible, clinical decisions regarding LVADs should be made in consultation with the patient's VAD coordinator. The decision to perform CPR should be made based upon best clinical judgment of the provider in consultation with the patient's family and the **VAD coordinators or Medical Command**. In any event, CPR should be initiated only where:
  - a. You have confirmed the pump has stopped (by listening for pump sounds) AND all trouble shooting efforts to restart it (connect wires, batteries, new control unit, etc.) have failed, AND;
  - b. The patient is unconscious, unresponsive, and has no detectable signs of life (no pulse, no blood pressure, no pulse oximetry reading or wave form capnography reading, AND;

**LEFT VENTRICULAR ASSIST DEVICE (LVAD)**

- c. The patient does not have a valid DNR in place.
- 8. Patients should not be pronounced dead if LVAD continues to function, unless they have obvious factors of death such as decapitation, rigor mortis, or dependent lividity.
- E. Transporting the LVAD Patient:
  - 1. Patients without an LVAD problem should be transported to the closest appropriate hospital for their condition.
  - 2. When in doubt, transport to the closest hospital to access more transport resources and support.
  - 3. Always bring the patient's resource bag with you. It should have spare batteries, possibly a spare control unit, contact sheets for the VAD coordinator, and directions for equipment and system alarms.
  - 4. Always bring spare batteries for the LVAD with the patient, even if it is not an LVAD problem. Fresh batteries generally last 3 - 5 hours. Dead batteries mean a dead patient.
  - 5. If you have a long transport or expect that the patient may be away from home for more than 4 - 5 hours, then try and bring the patient's power base unit.
  - 6. Use your patient and their family as a resource. They are experts about this device and can help you assist the patient.

Recommended Unit Resource: Print EMS Guide for Mechanical Circulatory Support and place in all ambulances (20 pages). This guide has excellent information and "trouble shooting" guidance for the five (5) LVAD devices that EMS providers may encounter. Access the resource guide at: <http://www.mylvad.com/assets/>

**FIBRINOLYTIC CHECK SHEET**

Cardiac Thrombolytic Therapy Screening:

Person filling out form: \_\_\_\_\_

Patient Name: \_\_\_\_\_ Age: \_\_\_\_\_

Duration of symptoms: \_\_\_\_/\_\_\_\_ hrs./mins. Yes    No

- |     |  |     |     |
|-----|--|-----|-----|
| 1.  | S-T segment elevated or depressed at least 0.1 mv?   | ___ | ___ |
| 2.  | History of bleeding problems, i.e. nose, gums, etc?  | ___ | ___ |
| 3.  | History of bleeding ulcers?  | ___ | ___ |
| 4.  | History of bleeding hemorrhoids?   | ___ | ___ |
| 5.  | Any surgery in last 6 months?  | ___ | ___ |
| 6.  | Any dental procedures in last 6 months?  | ___ | ___ |
| 7.  | History of stroke (including family)?  | ___ | ___ |
| 8.  | History of sudden/temporary weakness/numbness of face or extremities, dizziness or unsteadiness? | ___ | ___ |
| 9.  | History of difficulty with speech or visions?  | ___ | ___ |
| 10. | History of headaches or mental status changes?   | ___ | ___ |
| 11. | Any recent falls or injuries?  | ___ | ___ |
| 12. | History of high blood pressure?  | ___ | ___ |
| 13. | History of diabetes?   | ___ | ___ |
| 14. | History of hemorrhagic retinopathy?  | ___ | ___ |
| 15. | Pregnant?  | ___ | ___ |
| 16. | Receiving oral anticoagulants?   | ___ | ___ |
| 17. | CPR performed recently?  | ___ | ___ |
| 18. | IM injections recently?  | ___ | ___ |
| 19. | Known cardiac arrhythmias?   | ___ | ___ |
| 20. | Liver dysfunctions?  | ___ | ___ |

**DIVERSION ALERT STATUS FORM**

***Diversion Alert Status Form:** To be completed by designated hospital representative and faxed to Medical Command immediately after phone notification.*

Date:	Hospital:	
Time Initiated:		Time Cancelled:
Charge Physician:		Charge Nurse:
Representative Requesting Diversion:		
Alert Status Requested and Criteria: (i.e. Red Alert, Yellow Alert, Criteria 1-5)		
Medical Command Operator:		
Number of Patients in ED:		Number of Critical Patients:
Number of Monitor Beds in ED:		Number in Use:
Number of Monitor Beds In-House:		Number in Use:
Number of Beds In-House:		Number in Use:
Signature of Designated Representative:		

**PEDIATRIC REFERENCES**

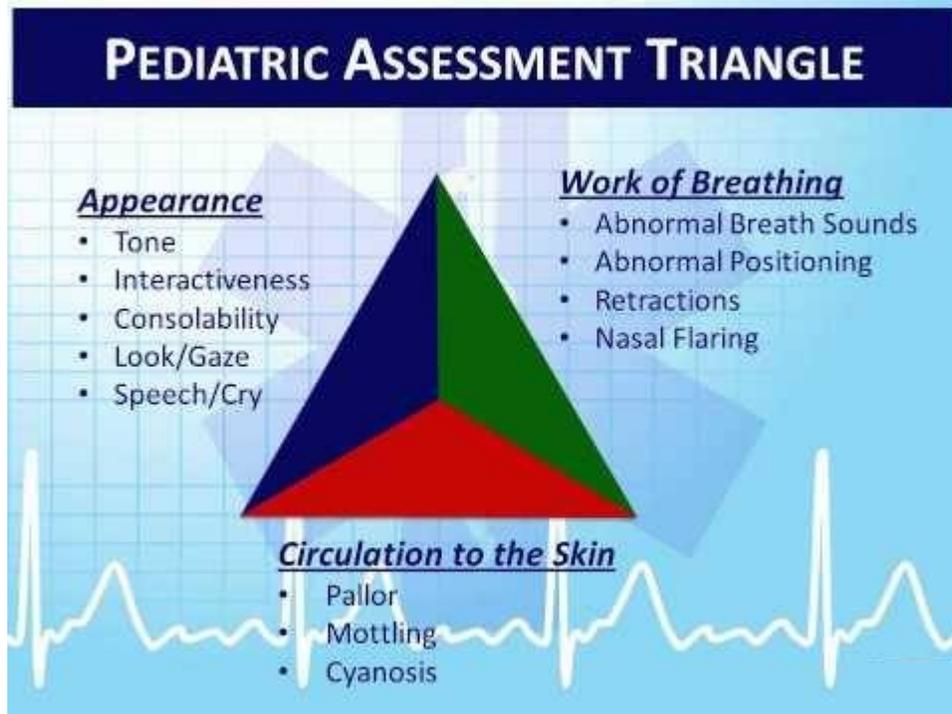
**Pediatric Vital Signs**

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

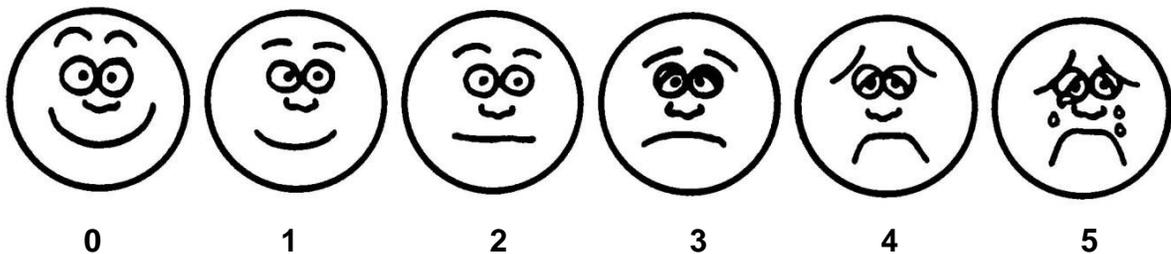
**Pediatric Airway Management Supplies**

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

**PEDIATRIC REFERENCES**



**Wong-Baker FACES Pain Rating Scale**



Explain to the person that each face is for a person who feels happy because he has no pain (hurt) or sad because he has some or a lot of pain. Face 0 is very happy because he doesn't hurt at all. Face 1 hurts just a little bit. Face 2 hurts a little more. Face 3 hurts even more. Face 4 hurts a whole lot. Face 5 hurts as much as you can imagine, although you don't have to be crying to feel this bad. Ask the person to choose the face that best describes how he is feeling.

**Rating scale is recommended for persons age 3 years and older.**

## ASSESSMENT MNEMONICS

### ENAME

*A checklist for first tasks on scene of a motor vehicle collision.*

- Environmental hazards
- Number of patients
- Additional resources
- Mechanism of injury
- Extrication?

### MIST

*A checklist for handover of a trauma patient.*

- Mechanism of injury - describe it
- Injuries - describe them
- Signs - vital signs, abnormal s/s
- Treatment - what have you done?

### SOAP

*This is the general order for treating a patient.*

- Subjective information (What is the patient telling you?)
- Objective information (What are your observations and tools telling you?)
- Assessment of the patient (What do you think is happening?)
- Plan of action (What are you going to do about it?)

### PENMAN

*A different checklist for first tasks at an MVC.*

- Personal Protective Equipment
- Equipment needed
- Number of injured
- Mechanism of injury
- Additional resources needed
- Need for immobilization?

### CHATT

*Elements of a Patient Contact/Care Report or Patient Report Form*

- Chief complaint
- History - recent & relevant long term
- Assessment - your conclusions
- Treatment - include patient reactions
- Transport - note changes en route

### CHEATED

*This is a summary of a patient contact, from start to finish.*

- Chief Complaint
- History
- Examination
- Assessment
- Treatment
- Evaluation (Did the treatment help?)
- Disposition (What was the final outcome?)

## ASSESSMENT MNEMONICS

### OPQRST

*Used to assess PAIN.*

- Onset (this event)
- Provoke, Palpation
- Quality
- Radiates (Does it spread out?)
- Severity
- Time (history)

### AVPU

*This is the mnemonic to establish level of responsiveness.*

- Alert
- Verbal (Instructions are mostly followed. Answers are delayed or inappropriate.)
- Pain (Sternal rub. Thumb web pinch.)
- Unresponsive

### START & RPM

*START is an acronym for a copyrighted system for triage. RPM is the list of specific actions taken in this system.*

- Simple
- Triage
- And
- Rapid
- Transport *and*
- Respirations
- Perfusion
- Mentation

### SAMPLE

*SAMPLE is the acronym covering the details we need to get about any patient.*

- Signs & Symptoms
- Allergies
- Medications
- Past pertinent history
- Last oral intake, liquid & solid
- Events leading to the incident

### PERRLA

*I can't believe I never included this list for evaluating the eyes during a field exam.*

- Pupils are
- Equal,
- Round, and
- Reactive to
- Light
- Accomodation

### SLUDGE

*These are the symptoms of excessive stimulation of body functions due to organophosphate poisoning.*

- Salivation (Drool)
- Lacrimation (Tears)
- Urination
- Defecation
- Gastric juices (Heartburn)
- Emesis (Vomiting)

**GLASGOW COMA SCALE**

Glasgow Coma Scale		
Response	Scale	Score
<b>Eye Opening Response</b>	Eyes open spontaneously	4 Points
	Eyes open to verbal command, speech, or shout	3 Points
	Eyes open to pain (not applied to face)	2 Points
	No eye opening	1 Point
<b>Verbal Response</b>	Oriented	5 Points
	Confused conversation, but able to answer questions	4 Points
	Inappropriate responses, words discernible	3 Points
	Incomprehensible sounds or speech	2 Points
	No verbal response	1 Point
<b>Motor Response</b>	Obeys commands for movement	6 Points
	Purposeful movement to painful stimulus	5 Points
	Withdraws from pain	4 Points
	Abnormal (spastic) flexion, decorticate posture	3 Points
	Extensor (rigid) response, decerebrate posture	2 Points
	No motor response	1 Point
<b>Minor Brain Injury = 13-15 points; Moderate Brain Injury = 9-12 points; Severe Brain Injury = 3-8 points</b>		

**APPROVED ABBREVIATIONS**

<b>ABBREVIATION</b>	<b>MEANING</b>
ā	before
Ab	abortion
abd	abdomen
adm	admission
AED	automatic external defibrillator
AIDS	acquired immune deficiency syndrome
AKA	above the knee amputation
ALOC	altered level of consciousness
ALS	advanced life support
am	morning
AMA	against medical advice
Amb	ambulation/ambulance
amt	amount
ant	anterior
a/o x3	alert and oriented to person, place, and time
approx	approximately
ASC	Approved Stroke Center
appt	appointment
ARDS	adult respiratory distress syndrome
ASA	aspirin
ASAP	as soon as possible
ASHD	atherosclerotic heart disease
BCP	birth control pills
BIB	brought in by
BKA	below the knee amputation
BLS	basic life support
BM	bowel movement
BOA	born out of asepsis
BOW	bag of waters
BP	blood pressure
BS	breath sounds
BSA	body surface area

**APPROVED ABBREVIATIONS**

<b>ABBREVIATION</b>	<b>MEANING</b>
̄	with
C	centigrade
CA	cancer
CAD	coronary artery disease
cc	cubic centimeter
CC or c/c	chief complaint
CHF	congestive heart failure
cm	centimeter
C/O	complains of
CO <sub>2</sub>	carbon dioxide
COA	condition on arrival
COPD	chronic obstructive pulmonary disease
CP	chest pain
CPAP	continuous positive airway pressure
CPR	cardiopulmonary resuscitation
CRF	chronic renal failure
CSF	cerebrospinal fluid
CSM	circulation, sensation, movement
CVA	cerebral vascular accident
CXR	chest x-ray
D&C	dilation and curettage
dc	discharge/discontinue
DM	diabetes mellitus
DNR	do not resuscitate
DOA	dead on arrival
DOB	date of birth
DOE	dyspnea on exertion
DT's	delirium tremors
DVT	deep vein thrombosis
DX	diagnosis
EBL	estimated blood loss
ECG	electrocardiogram
ED/ER	emergency dept. / emergency room
EDAP	emergency dept. approved for pediatrics

**APPROVED ABBREVIATIONS**

<b>ABBREVIATION</b>	<b>MEANING</b>
EMS	emergency medical services
EMT	emergency medical technician
EMT-P	emergency medical technician-paramedic
ET	endotracheal
ETA	estimated time of arrival
ETOH	ethanol (alcohol)
FB	foreign body
f/u	follow up
fx	fracture
G	gravida
GB	gallbladder
GI	gastrointestinal
gm	gram
GSW	gunshot wound
gtt	drop
GU	genitourinary
HMO	health maintenance organization
hosp	hospital
hr(s)	hour(s)
hs	at night
ht	height
HTN	hypertension
Hx	history
ICU	intensive care unit
IUD	intrauterine device
IUP	intrauterine pregnancy
IV	intravenous
IVP	Intravenous push
JVD	jugular vein distention
KCL	potassium chloride
kg	kilogram

**APPROVED ABBREVIATIONS**

<b>ABBREVIATION</b>	<b>MEANING</b>
KO	knocked out (loss of consciousness)
KVO	keep vein open
L	liter
lab	laboratory
lac	laceration
lb	pound
LLE	left lower extremity
LLL	left lower lobe (lung)
LLQ	left lower quadrant (abdomen)
LMP	last menstrual period
LOC	level of consciousness/loss of consciousness
LUE	left upper extremity
LUL	left upper lobe (lung)
LUQ	left upper quadrant
MAR	most accessible receiving facility
max	maximum
MCL	mid clavicular line
MD/PMD	medical doctor/private medical doctor
mEq	milliequivalent
mg	milligram
MI	myocardial infarction
MICN	mobile intensive care nurse
min	minutes/minimum
ml	milliliter
MS	multiple sclerosis/morphine sulfate
MVA	motor vehicle accident
NA	not applicable/not available
NAD	no apparent distress
narc	narcotic
NB	newborn
neg	negative

**APPROVED ABBREVIATIONS**

<b>ABBREVIATION</b>	<b>MEANING</b>
NKA	no known allergies
NP	nurse practitioner
npo	nothing per mouth
NSR	normal sinus rhythm
NTG	nitroglycerin
nv	nausea/vomiting
n/v/d	nausea/vomiting/diarrhea
O2	oxygen
O2 sat	oxygen saturation
OB/GYN	obstetrical/gynecological
OD	overdose/right eye
OS	left eye
OU	both eyes
̄p	after
P	para
PE	physical exam/pedal edema/pulmonary embolus
Peds	pediatric/pedestrians
perf	perforation
PERL	pupils equal, react to light
PIH	pregnancy induced hypertension
pm	evening
PMH	past medical history
po	by mouth
post	posterior/after
PPD	purified protein derivative (TB skin test)
pr	per rectum
prn	as needed
Psych	psychiatric
pt	patient
PTA	prior to arrival
PVC	premature ventricular contraction

**APPROVED ABBREVIATIONS**

<b>ABBREVIATION</b>	<b>MEANING</b>
q	every
rehab	rehabilitation
RLE	right lower extremity
RLL	right lower lobe (lung)
RLQ	right lower quadrant (abdomen)
RML	right middle lobe (lung)
RN	registered nurse
r/o	rule out
RUE	right upper extremity
RUL	right upper lobe (lung)
RUQ	right upper quadrant (abdomen)
Rx	prescription
̄s	without
SC	specialty center
sec	second
SIDS	sudden infant death syndrome
SL	saline lock/sublingual
SOB	shortness of breath
sq	square
SQ	subcutaneous
SRC	STEMI Receiving Center
TB	tuberculosis
TBC	total body check
Tbsp	tablespoon
TIA	transient ischemic attack
TKO	to keep open (IV rate)
TK	tourniquet
tsp	teaspoon
TV	tidal volume
UTI	urinary tract infection
vs	versus

**APPROVED ABBREVIATIONS**

<b>ABBREVIATION</b>	<b>MEANING</b>
VS	vital signs
wk	weak
WNL	within normal limits
wt	weight
y/o	year old
yr	year
@	at
↑	increase/positive
↓	decrease/negative
%	percent
2°	secondary to/ second degree
Δ	change
=	equal
♀	female
♂	male
#	number
>	greater than
<	less than
+	plus/positive
-	minus/negative

**CINCINNATI PREHOSPITAL STROKE SCALE**

**CINCINNATI PREHOSPITAL  
STROKE SCALE**

SIGN OF STROKE	PATIENT ACTIVITY	INTERPRETATION
<b>Facial Droop</b>	Have the patient look up at you, smile, and show his teeth	Normal: Symmetry to both sides.  Abnormal: One side of the face droops or does not move symmetrically.
<b>Arm Drift</b>	Have patient lift arms up and hold them out with eyes closed for 10 seconds	Normal: Symmetrical movement in both arms.  Abnormal: One arm drifts down or asymmetrical movement of the arms.
<b>Abnormal Speech</b>	Have the patient say, "You can't teach an old dog new tricks"	Normal: The correct words are used and no slurring of words is noted.  Abnormal: The words are slurred, the wrong words are used, the patient is aphasic.

**REPORT OF EMS PATIENT CARE WITHOUT  
TELECOMMUNICATIONS**



**Report of EMS Patient Care  
Without Telecommunications**

This report is for the purpose of documenting to the Medical Director of the Office of EMS the circumstances surrounding the administration of drugs or fluids or the application of advanced life support techniques to a patient or patients without direct voice contact with a medical command physician or designee or written order of a medical command physician or designee in accordance with Section 15, Article 4C, Chapter 16 of the Code of West Virginia as amended.

Date of Incident: \_\_\_\_\_

Pre-hospital Care Record Form Number (attach copy): \_\_\_\_\_

Patient Name(s): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

EMS services provided (use additional sheets if necessary): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Justification for providing services (radio failure, multiple patients, etc.- use additional sheets if necessary):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

EMS Agency: \_\_\_\_\_ County: \_\_\_\_\_

Person reporting incident: \_\_\_\_\_

(Last)

(First)

(MI)

EMSP Number: \_\_\_\_\_ Date of Expiration: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Return to:  
State EMS Medical Director  
Office of EMS  
350 Capitol Street, Room 425  
Charleston, WV 25301-3714