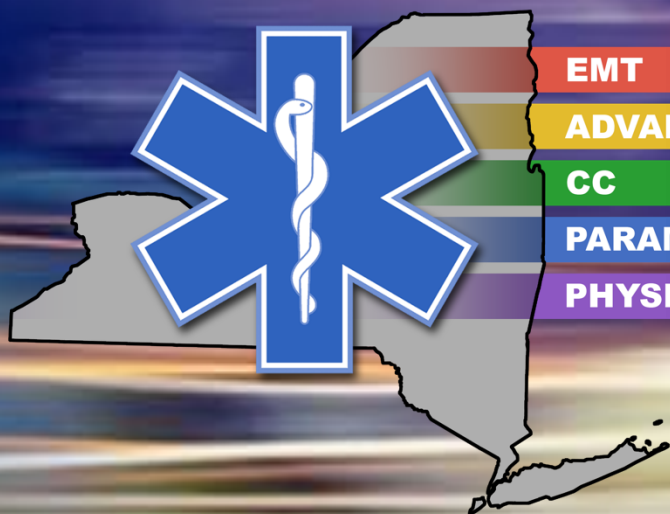




**Department  
of Health**

**Bureau of  
Emergency Medical Services  
and Trauma Systems**

# **Collaborative Advanced Life Support Adult and Pediatric Patient Care Protocols**



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## **Background**

These protocols are intended to guide and direct patient care by EMS. They reflect the current evidence-based practice and consensus of content experts. These protocols are not intended to be absolute treatment documents, rather, as principles and directives which are sufficiently flexible to accommodate the complexity of patient management.

No protocol can be written to cover every situation that a provider may encounter, nor are protocols a substitute for good judgment and experience. Providers are expected to utilize their best clinical judgment and deliver care and procedures according to what is reasonable and prudent for specific situations. However, it will be expected that any deviations from protocol shall be documented and reviewed, according to regional procedure.

**THESE PROTOCOLS ARE NOT A SUBSTITUTE  
FOR GOOD CLINICAL JUDGEMENT**

# Introduction

Pursuant to Article 3004-A, the Regional Emergency Medical Advisory Committee (REMAC) shall develop policies, procedures, and protocols for triage, treatment, and transport. On behalf of the REMACs of the participating regions, the Collaborative Protocols Committee members are proud to put forth these collaborative protocols.

These protocols have been updated to be consistent with the Statewide BLS Protocols. Advanced providers are also responsible for, and may implement, the standing orders indicated for BLS care. Protocols are listed for each provider level and “STOP” lines indicate the end of standing orders. Generally, BLS interventions should be completed before ALS interventions.

Bullets are used throughout this document. Many processes are not sequential, and tasks should be performed as most appropriate for patient care.

Regional procedures and policies may accompany these protocols.

The color-coded format of the protocols allows each EMS professional to easily follow the potential interventions that could be performed by level of certification.

The collaborative protocols have been developed to serve all the levels of certification within New York State. Each region will determine which levels will be credentialed to practice within their jurisdiction.

## Criteria

- Any specific information regarding the protocol in general

## CFR AND ALL PROVIDER LEVELS

- CFR standing orders
- These are also standing orders for all levels of credential above CFR



**CFR STOP**

## EMT

- EMT standing orders
- These are also standing orders for all levels of credential above EMT



**EMT STOP**

## ADVANCED

- AEMT standing orders
- These are also standing orders for all levels of credential above AEMT



**ADVANCED STOP**

## CC

- EMT-CC and paramedic standing orders

## **CC STOP**

### **PARAMEDIC**

- Paramedic standing orders
- EMT-CC medical control (non-standing order) options
  - There may be instances in which a particular medication or intervention is specific to the paramedic level / scope of practice only.

## **PARAMEDIC STOP**

### **MEDICAL CONTROL CONSIDERATIONS**

- Medical control may give any order within the scope of practice of the provider
- Options listed in this section are common considerations that medical control may choose to order as the situation warrants

### **Key Points/Considerations**

- Additional points specific to patients that fall within the protocol
- These protocols do not supplant regionally required equipment specifications or the items required under Public Health Law and Regulations
- These protocols should not serve as a demonstration of required equipment or training, as regional and agency variations will exist
  - The collaborative protocol formulary exists as a minimum guideline for all agencies operating within these protocols. REMACs may entertain substitutions, as needed, for drug shortages or local variations, but must share these with the group
- The Regions will continue to perform QI audits of patient care to develop training programs that will improve proficiency and the REMACs will continue to evaluate literature to update these protocols to optimize the outcomes of patients. Regions will determine the requisite training that providers must review prior to utilizing these protocols
- “\*if equipped and trained” is noted to indicate interventions that may be performed if an agency or region chooses to implement these variations. These are not required.

## **Pediatric Definition and Discussion**

The period of human development from childhood to adulthood is a continuum with the transition occurring during puberty. Since the completion of this transition is not sharply demarcated and varies among individuals, it is difficult to set a precise age when childhood ends and adulthood begins. It follows that use of such a definition to determine when a pediatric or an adult protocol is to be used is also problematic.

The medical control agreement contained within these protocol document states, “providers are expected to utilize their best clinical judgment and deliver care and procedures according to what is reasonable and prudent for specific situations.” The determination of when to utilize an adult or pediatric protocol shall be no different and subject to the same CQI review that is compulsory with any other aspect of prehospital emergency care.

As a *general guideline* for use with these protocols, the following definition has been established:

- **Pediatric protocols should be considered for patients who have not yet reached their 15<sup>th</sup> birthday**

In protocols requiring weight-based dosing guidelines, pediatric dosing should be calculated on a per-kilogram (kg) basis using the adult dose as the pediatric dose maximum. It is strongly recommended that length-based resuscitation tapes or similar weight calculation devices be used for all pediatric medication doses or treatments to confirm a patient’s weight.

We have one new protocol, Behavioral: Agitated Patient – Adolescent, that provides guidance for an individual in the transitional stage of physical and psychological development between puberty and adulthood. The was developed since neither the adult or pediatric protocol may provide sufficient direction in the care of these socially and medically complex patients, and our hope is that this protocol can assist. Please note the section on De-escalation techniques included in the Resources section.



## **Acknowledgements**

The State and Regional Emergency Medical Services Councils, State and Regional Emergency Medical Advisory Committees, State Emergency Medical Services for Children Advisory Committee, and Regional Program Agency staff of all that contributed to this and previous versions of these protocols.

The BLS Protocols Advisory and Writing Group

NYS DOH Bureau of EMS staff

Special thanks to Robin Snyder-Dailey for the protocol design.

## **(1.0) General Approach to Prehospital Care**

# General Approach to the EMS Call

## Applies to adult and pediatric patients

### CRITERIA

This general approach guidance document is intended to provide a standardized framework for approaching the scene. Follow common sense, apply good clinical judgment, and follow regionally approved polices and protocols.

### CFR AND ALL PROVIDER LEVELS

EMT

ADVANCED

CC

PARAMEDIC

Consider dispatch information while responding:

- Type of response (emergency/non)
- Prevailing weather
- Road conditions
- Time of day
- Location of call
- EMD determinant / mechanism of illness / injury
- Number of anticipated patients
- Need for additional resources

Survey the scene – do not approach the scene unless acceptably safe to do so. Stage proximate to the scene until scene is rendered acceptably safe:

- Environmental hazards
- CBRNE hazards
- Evidence of unknown powders/other unknown substances/sharps
- Indicators of a chemical suicide
- Mechanical hazards
- Violence / threat of violence
- Traffic hazards
- Number of actual patients
- Activate local MCI plan as necessary

Consider shelter-in-place or evacuation based on hazards; consider additional support resources:

- ALS intercept
- Additional ambulance
- Air medical services
- EMS physician
- Fire department / heavy rescue
- Law enforcement
- Utilities

Ongoing situational awareness and patient assessment

- Scene safety is not just a yes / no question; it is continual situational awareness
- Take note of the effect of patients and bystanders
- Don't get pinned into area
- Be aware of your egress routes

Ensure universal precautions / personal protective equipment appropriate to the task.

For situations in which EMS PPE would not sufficiently protect the provider, the provider should assist the other emergency responders in determining response objectives based on life safety, property preservation, and environmental protection.

Establish or participate in NIMS (e.g. unified command, ICS) structure, as appropriate.

For MCIs, establish a command structure as soon as possible.

# General Approach to the Patient

## Applies to adult and pediatric patients

### CRITERIA

This general approach guidance document is intended to provide a standardized framework for approaching the patient. Always follow common sense, apply good clinical judgment, and follow regionally approved policies and protocols.

### CFR AND ALL PROVIDER LEVELS

EMT

ADVANCED

CC

PARAMEDIC

### History of present illness and other subjective information

- What events led up to the EMS contact?
- Use SAMPLE, OPQRST or similar, to guide approach to events/illness/complaint
- Pertinent past medical history/medications/allergies
- Obtain additional pertinent medical information from the family and bystanders

### Physical exam

- Focused or complete exam directed by patient presentation, chief complaint, and mechanism of injury or illness
- Check for medical alert tags

### Primary Patient Assessment

#### Airway

- Identify and correct any existing or potential airway obstruction while protecting the cervical spine, if appropriate
  - Is the airway patent?
  - Will it stay open on its own?
  - Is intervention necessary (OPA, NPA, Suction)?

#### Breathing

- Apply oxygen and/or positive pressure ventilation as indicated
- See “Resources: Oxygen Administration and Airway Management” protocol
  - Is breathing present?
  - Is breathing too fast or too slow to sustain life?
  - Is the patient speaking effectively?

#### Circulation

- Control serious life-threatening hemorrhage
- Refer to the “Trauma: Bleeding / Hemorrhage Control” protocol
  - Is a pulse present?
  - Is the pulse too fast or too slow to sustain life?
  - Is the pulse regular or irregular?
  - What is the skin color, condition, and temperature?
  - Is there serious external hemorrhage?
  - Is there evidence of internal hemorrhage or signs of shock?

Continually reassess and correct any existing or potentially compromising threats to the ABCs

#### Disability

- Determine level of consciousness
  - Alert, Voice, Pain, Unresponsive (AVPU)
  - GCS
  - Pupils
  - Cincinnati Pre-Hospital Stroke Scale (and other regionally approved stroke scale, as applicable)

#### Expose

- Appropriately expose patient, as needed, to perform complete physical exam and perform necessary interventions
  - Are exposed patients sufficiently protected from public view?

#### Transport Decision

- See “General Approach: to Transportation” protocol

#### Secondary Patient Assessment

- Vital Signs (repeated frequently if abnormal or critical patient)
  - Pulse rate: and quality
  - Respiration: rate and quality
  - Blood pressure
    - Obtain BP by palpation only if necessary
  - Skin: color, condition, and temperature
- Blood glucose determination, if approved, equipped, and appropriate

Locate records including: MOLST, eMOLST, or DNR, as appropriate

#### MEDICAL CONTROL CONSIDERATIONS

- Medical control may give any order within the scope of practice of the provider
- Options listed in this section are common considerations that medical control may choose to order as the situation warrants

#### Key Points/Considerations

- If a patient chooses to refuse care or transportation, please refer to “Resources: Refusal of Medical Attention” protocol and regional policy

- Develop a prehospital patient impression by combining all information available in the history of present illness, past medical history, and physical exam
- Submit a verbal report to the responsible medical personnel upon arrival at the emergency department
- Label any items that were transported with the patient such as ECGs, paperwork from facilities, medications, or belongings
- Submit written documentation prior to leaving the emergency department in accordance with state, regional and agency policy
- Complete a patient care report in compliance with state, regional and agency policy

# General Approach to Safety Restraining Devices

## Applies to adult and pediatric patients

### CRITERIA

This general approach guidance document is intended to provide a standardized framework for patient transport. Follow common sense, apply good clinical judgment, and follow regionally approved policies and procedures.

### CFR AND ALL PROVIDER LEVELS

EMT

ADVANCED

CC

PARAMEDIC

All passengers including patients and EMS personnel should be restrained

- It is not permissible or safe to have a parent or caregiver hold a child in his/her arms or lap. The child and parent/caregiver should *each* be restrained appropriately
- All patients on the stretcher must be secured when the vehicle is in motion or the stretcher is being carried or moved; stretcher harness straps should always be used
- A child's own safety seat – when available and intact – can be used to restrain a child during transport. He/she should be placed in the device and the device should be belted to an ambulance seat. If the child is the patient, the seat should be secured onto the stretcher and the child belted in the child safety seat.
- If the ambulance service does not have an ambulance equipped with child safety seats or restraint, it is recommended that the agency purchase approved child safety seat(s) or restraint(s) for each ambulance. More than one size seat/restraint may be needed as location of the restraint (i.e., stretcher, or captain's chair) may not accommodate all size children.
- Agencies should routinely train EMS personnel in the use of various child safety seats/restraints available and have a policy for how injured or uninjured children will be transported
- As an agency considers the purchase of new vehicles, or is retrofitting current vehicles, design considerations, such as integrated child restraints, should be considered
- All safety seats/restraints should be used according to manufacturer's recommendations

### Key Points/Considerations

- If a patient chooses to refuse safety restraints, please refer to "Resources: Refusal of Medical Attention" protocol, as well as agency and regional policy



# General Approach to Transportation

## Applies to adult and pediatric patients

### CRITERIA

This general approach guidance document is intended to provide a standardized framework for patient transport. Follow common sense, apply good clinical judgment, and follow regionally approved policies and procedures.

#### CFR AND ALL PROVIDER LEVELS

EMT

ADVANCED

CC

PARAMEDIC

Consideration for ALS intercept and air medical services should be made based on agency and regional protocol, policy, patient needs, regional capabilities, and travel times. Do not delay transport waiting for ALS to arrive. The closest ALS may be at a hospital.

Transport to the closest appropriate receiving hospital in accordance with regional hospital destination policies for travel time, hospital capabilities, and NY State designation

- The closest appropriate hospital may not be the nearest hospital, even for patients in extremis such as those in cardiac or respiratory arrest
- Patient preference may influence the determination of the appropriate receiving hospital

Ensure ongoing patient assessment, check for improving / deteriorating patient condition, and respond accordingly. Check to ensure that previously initiated therapies remain functional.

Carefully consider use of appropriate emergency warning devices for transport:

Lights and siren use is a medical intervention – does the patient condition warrant the use?

Provide a brief pre-arrival report to receiving hospital in accordance with regional policy. Ensure early notification for serious trauma, STEMI, stroke, and sepsis.

### MEDICAL CONTROL CONSIDERATIONS

- Medical control may assist with questions of care especially in the setting of complex medical conditions
- Medical control may assist with the determining the most appropriate receiving facility

### Key Points/Considerations

- If a patient chooses to refuse care or transportation, please refer to “Resources: Refusal of Medical Attention” protocol, as well as agency and regional policy



## **(2.0) Extremis / Cardiac Arrest Protocols**

# Cardiac Arrest – Adult: General Approach

For pediatric see, “Cardiac Arrest – Pediatric: General Approach”

## CRITERIA

- For patients who are unresponsive without signs of life
- For patients that do not meet the criteria of the “Extremis: Obvious Death” protocol or otherwise excluded by a DNR/MOLST order, see also “Resources: Advance Directives/MOLST/DNR” protocol

## CFR AND ALL PROVIDER LEVELS

- CPR should be initiated prior to defibrillation unless the cardiac arrest is witnessed by the responding EMS provider
  - Perform compressions while awaiting the application of defibrillation pads
- Push hard and fast (100-120 compressions/min)
  - Metronome or feedback devices may be used
- Ensure full chest recoil
- Minimize interruptions in chest compressions
- Cycle of CPR = 30 compressions then 2 breaths
  - 5 cycles ≈ 2 minutes
  - Rotate compressors every two minutes with pulse checks, as resources allow
  - Minimize interruptions in chest compressions
- Continuous compressions with asynchronous ventilation (not stopping compressions while ventilating) is permitted to substitute for cycles of CPR that have pauses for ventilation even in non-intubated patients
- Avoid hyperventilation (breathing too quickly or deeply for the patient)
- Use of airway adjuncts and bag-valve-mask (BVM), as indicated, with BLS airway management, including suction (as needed), as available
  - A bag-valve-mask (BVM) should be connected to supplemental oxygen, if available
- Rhythm check or AED “check patient” every 5 cycles or two minutes of CPR
- Defibrillate as appropriate
  - Resume CPR immediately after defibrillation (do not check a pulse at this time)
  - Continue CPR for approximately 2 minutes cycles before doing a pulse check, or until the patient no longer appears to be in cardiac arrest



### CFR STOP

## EMT

- After 20 minutes without achieving ROSC, consider calling medical control for: termination of resuscitation, continuing efforts, or (only in extenuating circumstances) transportation



### EMT STOP

## ADVANCED

## CC

### PARAMEDIC

- Manage the airway and confirm placement of any advanced airway device utilized with waveform capnography
  - Waveform capnography may be used on any ventilated patient, regardless of the use of an airway adjunct
- Check heart rhythm every two minutes
- See also rhythm-specific protocols
- Refer to “Resources: Vascular Devices – Pre-Existing” protocol as needed
- After an advanced airway is placed, no longer deliver “cycles” of CPR
  - Give continuous chest compressions without pauses for breaths
  - Give 8-10 breaths/minute
- Search for and treat possible contributing factors that EMS can manage according to your level of certification:
  - **Hypoglycemia, Hypovolemia, Hypoxia, Hydrogen ion (acidosis), Hyperkalemia, Toxins, Tension pneumothorax, Trauma**
- For cardiac arrest associated with fire, see also “Smoke Inhalation / Cyanide Poisoning–Symptomatic” protocol
- For cardiac arrest associated with hypothermia:
  - If defibrillation is required, provide no more than three shocks
  - Limit administration of medication in cardiac arrest associated with hypothermia to one round
  - Rhythm changes may be treated with a single round of the appropriate drug
  - See also “General: Environmental: Cold Emergencies” protocol



### **ADVANCED, CC, AND PARAMEDIC STOP**

### MEDICAL CONTROL CONSIDERATIONS

- Termination of resuscitation in instances that are not covered by standing order criteria may be authorized by medical control

### Key Points/Considerations

- Do not interrupt compressions for placement of an advanced airway
- Minimize interruption in compressions for placement of a mechanical CPR device
- Do not delay beginning compressions to begin ventilations
- Do not delay ventilations to connect supplemental oxygen
- Adequate ventilation *may* require disabling the pop-off valve if the bag-valve-mask (BVM) if so equipped
- AED should be placed as soon as possible without interrupting compressions to do so
- If a patient has a medication patch, it may be removed (use appropriate PPE)
- Vibrations in a moving ambulance may compromise the effectiveness of the AED
- Compressions in moving ambulances pose a significant danger to providers, are less effective, and should be avoided
  - Consider mechanical CPR devices when available for provider safety if there is a need to do compressions in moving ambulances

# Cardiac Arrest – Pediatric: General Approach

## CRITERIA

- For patients who are unresponsive without signs of life
- For patients that do not meet the criteria of the “Extremis: Obvious Death” protocol or otherwise excluded by a DNR/MOLST order, see also “Resources: Advance Directives/MOLST/DNR” protocol

## CFR AND ALL PROVIDER LEVELS

### EMT

- CPR should be initiated prior to defibrillation unless the cardiac arrest is witnessed by the responding EMS provider
  - Perform compressions while awaiting the application of defibrillation pads
- Push hard and fast (100-120 compressions/min)
  - Metronome or feedback devices may be used
- Ensure full chest recoil
- Minimize interruptions in chest compressions
- Cycle of CPR = 30 compressions then 2 breaths (single rescuer)  
15 compressions then 2 breaths (if two rescuers available)
  - 5 cycles ≈ 2 minutes (10 cycles ≈ 2 minutes for 2-rescuers)
  - Rotate compressors every two minutes with rhythm checks, as resources allow
  - Minimize interruptions in chest compressions
- Avoid hyperventilation
- Use of level-appropriate airway adjuncts and bag-valve-mask (BVM), as indicated, with BLS airway management, including suction (as needed), as available
  - A bag-valve-mask (BVM) should be connected to supplemental oxygen, if available
- Rhythm check or AED “check patient” every two minutes of CPR
- Defibrillate as appropriate (pediatric AED pads preferred for children with weight < 25 kg or age < 8 years, if available.) (CC/Paramedic may substitute manual defibrillation, as indicated)
  - Resume CPR immediately after defibrillation (do not check a pulse at this time)
  - Continue CPR for approximately 2 minutes cycles before doing a pulse check, or until the patient no longer appears to be in cardiac arrest



### CFR AND EMT STOP

## ADVANCED

### CC

- See also rhythm-specific protocols



### ADVANCED and CC STOP

## PARAMEDIC

- Consider intubation *only* if unable to effectively ventilate with a bag-valve-mask (BVM) and basic airway adjuncts



## **PARAMEDIC STOP**

### **MEDICAL CONTROL CONSIDERATIONS**

- Termination of resuscitation in instances that are not covered by standing order criteria may be authorized by medical control

### **Key Points/Considerations**

- Intubation is not necessary if oxygenating and ventilating patient well with BLS airway management
- Do not interrupt compressions for placement of an advanced airway
- Minimize interruption in compressions for placement of a mechanical CPR device
- Do not delay beginning compressions to begin ventilations
- Do not delay ventilations to connect supplemental oxygen
- Adequate ventilation *may* require disabling the pop-off valve if the bag-valve-mask (BVM) if so equipped
- AED should be placed as soon as possible without interrupting compressions to do so
- If a patient has a medication patch, it may be removed (use appropriate PPE)
- Artifact from vibrations in a moving ambulance may compromise the effectiveness of the AED
- Consider calling medical control for termination of resuscitation or initiation of transport after 20 minutes of CPR
- Compressions in moving ambulances pose a significant danger to providers, are less effective, and should be avoided
  - Consider mechanical CPR devices when available for provider safety, if there is a need to do compressions in moving ambulances
  - Note: The use of a particular mechanical CPR device may be contraindicated in the pediatric patient; refer to manufacturer's recommendation

# Cardiac Arrest – Adult: Asystole or Pulseless Electrical Activity (PEA)

For pediatric see, “Asystole or Pulseless Electrical Activity (PEA) – Pediatric”

## CFR AND ALL PROVIDER LEVELS

### EMT

- General cardiac arrest care, “Extremis: Cardiac Arrest- Adult: General Approach” protocol



### CFR AND EMT STOP

## ADVANCED

- Manage airway: Use of naso- and/or oropharyngeal airway and bag-valve-mask (BVM) is acceptable while deferring advanced airway until more urgent care is completed
- Vascular access; check glucose level
- Normal saline 500 mL bolus
- Epinephrine (1:10,000 / 0.1 mg/mL) 1 mg IV; repeat every 3-5 minutes



### ADVANCED STOP

## CC

Cardiac monitor



### CC STOP

## PARAMEDIC

- For suspected hyperkalemia or acidosis:
  - Sodium bicarbonate 50 mEq IV
  - Calcium chloride 1 gram IV



### PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Termination of resuscitation in instances that are not covered by standing order criteria may be authorized by medical control

## Key Points/Considerations

- Do not interrupt compressions for placement of an advanced airway
- Minimize interruption in compressions for placement of a mechanical CPR device
- If the cardiac monitor shows asystole, confirm in more than one lead
- A minimum of 50 mL of normal saline should be given between the bolus of calcium chloride and the bolus of sodium bicarbonate
- Refer to the “Extremis: Termination of Resuscitation” protocol, as indicated



- Search for and treat possible contributing factors that EMS can manage according to your level of certification:
  - **Hypoglycemia, Hypovolemia, Hypoxia, Hydrogen ion (acidosis), Hyperkalemia, Toxins, Tension pneumothorax, Trauma**
- Advanced and above: consider bilateral chest decompression in patients with an organized cardiac rhythm presenting in cardiac arrest thought to be secondary to trauma
  - Note that a pneumothorax may also occur spontaneously (without trauma)
- For cardiac arrest associated with fire, see also “Smoke Inhalation / Cyanide Poisoning – Symptomatic” protocol

# Cardiac Arrest – Pediatric: Asystole / Pulseless Electrical Activity (PEA)

## CFR AND ALL PROVIDER LEVELS

### EMT

- General pediatric cardiac arrest care, “Extremis: Cardiac Arrest: General Approach - Pediatric” protocol

### CFR AND EMT STOP

## ADVANCED

- Vascular access

### ADVANCED STOP

## CC

- Cardiac monitor
- Normal saline 20 mL/kg bolus (up to 500 mL bolus) rapid IV
- Epinephrine (1:10,000 / 0.1 mg/mL) 0.01 mg/kg IV
  - Repeat epinephrine every 3 – 5 minutes

### CC STOP

## PARAMEDIC

- Consider intubation *only* if unable to effectively ventilate with a bag-valve-mask (BVM) and basic airway adjuncts

### PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Sodium bicarbonate 1 mEq/kg IV

## Key Points/Considerations

- Intubation is not necessary if oxygenating and ventilating patient well with BLS airway management
- Do not interrupt compressions for placement of an advanced airway
- Confirm asystole in more than 1 lead
- Perform CPR for at least 3 minutes between medication doses
- Consider airway obstruction
- Search for and treat possible contributing factors that EMS can manage according to your level of certification:

- **Hypoglycemia, Hypovolemia, Hypoxia, Hydrogen ion (acidosis), Hyperkalemia, Toxins, Tension pneumothorax, Trauma**
- **Advanced and above: consider bilateral chest decompression in patients with an organized cardiac rhythm presenting in cardiac arrest thought to be secondary to trauma**
  - Note that a pneumothorax may also occur spontaneously (without trauma)
- **For cardiac arrest associated with fire, see also “Smoke Inhalation / Cyanide Poisoning - Symptomatic”**

# Cardiac Arrest – Adult: Return of Spontaneous Circulation (ROSC)

## CFR AND ALL PROVIDER LEVELS

### EMT

- Airway management and appropriate oxygen therapy



### CFR AND EMT STOP

## ADVANCED

- Vascular access, ideally at 2 sites (no more than one IO)
- If needed, administer normal saline to a total of 2 L to maintain MAP > 65 mmHg or SBP > 100 mmHg, provided there is no concern of pulmonary edema



### ADVANCED STOP

## CC

### PARAMEDIC

- Cardiac monitor with 12-lead ECG as soon as possible
- Treatment for appropriate presenting rhythm
  - Discuss antiarrhythmic treatment options with medical control if patient was in a shockable rhythm
    - If an AED shock was delivered for a rhythm that was not seen on a monitor, treat as ventricular fibrillation / ventricular tachycardia
- Maintain MAP > 65 mmHg or SBP > 100 mmHg
  - If needed, administer normal saline to a total of 2 L, provided there is no concern of pulmonary edema
  - Consider norepinephrine 2 mcg/min, titrated to 20 mcg/min, if needed, after fluid bolus infused, to maintain MAP > 65 mmHg or SBP > 100 mmHg



### CC AND PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Antiarrhythmic (additional amiodarone or lidocaine)
  - Amiodarone 150 mg in 100 mL normal saline over 10 min
  - Lidocaine 1.5 mg/kg bolus and/or infusion
- Management of hypertension SBP > 200 mmHg:
  - Metoprolol 5 mg IV over 5 minutes, up to four doses

## Key Points/Considerations

- Acquisition of a 12-lead ECG should be completed *before* transport
  - Appropriate patient assessment and stabilization should be completed as soon as possible following ROSC

- Voice communication with receiving facility must be completed as soon as possible after ROSC
- ALL patients with STEMI and ROSC should be transported to a receiving hospital capable of primary angioplasty, if feasible, within a transport time recommended per regional procedure
- Patients who are in recurrent cardiac arrest should be transported to the closest appropriate hospital unless otherwise authorized by medical control
- Documentation must include pupil exam, and initial GCS recorded by element (Eyes/4, Verbal/5, Motor/6), not as a total

# Cardiac Arrest – Adult: Ventricular Fibrillation or Pulseless V Tachycardia

For pediatric see, “Ventricular Fibrillation or Pulseless V Tachycardia - Pediatric”

## CFR AND ALL PROVIDER LEVELS

### EMT

- General cardiac arrest care
- AED defibrillation, as indicated (CC/Paramedic may substitute manual defibrillation as indicated below)

### CFR AND EMT STOP

## ADVANCED

- Manage airway: Initial use of naso- and/or oropharyngeal airway and bag-valve-mask (BVM) device is acceptable while deferring advanced airway until initial care is complete
- Vascular access; check glucose level
- Normal saline 500 mL IV bolus
- Epinephrine (1:10,000 / 0.1 mg/mL) 1 mg IV; repeat every 3-5 minutes

### ADVANCED STOP

## CC

- Cardiac monitor
- Defibrillate every 3-5 minutes
- Amiodarone 300 mg IV. May repeat 150 mg in 5 minutes if VT/VF persists
- If pulses return, refer to the “Extremis: Cardiac Arrest – Adult: Return of Spontaneous Circulation (ROSC)” protocol

### CC STOP

## PARAMEDIC

- Consider magnesium 2 grams IV if suspected hypomagnesemia or torsades de pointes
- For suspected hyperkalemia or acidosis:
  - Sodium bicarbonate 50 mEq IV
  - Calcium chloride 1 gram IV

### PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Lidocaine 1.5 mg/kg IV bolus and/or infusion
- Amiodarone 150 mg in 100 mL normal saline IV over 10 min

- Termination of resuscitation in instances that are not covered by standing order criteria may be authorized by medical control

### **Key Points/Considerations**

- Do not interrupt compressions for placement of an advanced airway
- Minimize interruption in compressions for placement of a mechanical CPR device
- A minimum of 50 mL of normal saline should be given between the bolus of calcium chloride and the bolus of sodium bicarbonate
- Consult medical control if patient has return of pulses (even transiently)
- Advanced and above: consider bilateral chest decompression in patients with an organized cardiac rhythm presenting in cardiac arrest thought to be secondary to trauma
  - Note that a pneumothorax may also occur spontaneously (without trauma)
- Refer to the “Extremis: Termination of Resuscitation” protocol as indicated
- For cardiac arrest associated with fire, see also “General: Smoke Inhalation / Cyanide Poisoning – Symptomatic” protocol

# Cardiac Arrest – Pediatric: Ventricular Fibrillation or Pulseless V Tachycardia

## CFR AND ALL PROVIDER LEVELS

### EMT

- General pediatric cardiac arrest care, “Extremis: Cardiac Arrest – Pediatric: General Approach” protocol

### CFR AND EMT STOP

## ADVANCED

- Vascular access
- Defibrillate as appropriate
  - Pediatric AED pads preferred for children with weight < 25 kg or age < 8 years
  - CC/Paramedic may substitute manual defibrillation as indicated

### ADVANCED STOP

## CC

- Cardiac monitor
- Normal saline 20 mL/kg bolus (up to 500 mL bolus) rapid IV
- Epinephrine (1:10,000 / 0.1 mg/mL) 0.01 mg/kg IV
  - Repeat epinephrine every 3 – 5 minutes
- Defibrillate at 4 J/kg between doses of medication
  - Higher doses of energy may be considered for refractory ventricular fibrillation not to exceed the lesser of 10 J/kg or the recommended adult maximum dose

### CC STOP

## PARAMEDIC

- Consider intubation *only* if unable to effectively ventilate with a bag-valve-mask (BVM) and basic airway adjuncts
- Amiodarone 5 mg/kg bolus IV (up to a maximum of 300 mg/dose)
  - Repeat once in 5 minutes (up to a maximum of 150 mg/dose)

### PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Additional amiodarone 5 mg/kg IV (up to 15 mg/kg total)
- Lidocaine 1 mg/kg IV



## Key Points/Considerations

- Intubation is not necessary if oxygenating and ventilating patient well with BLS airway management
- Do not interrupt compressions for placement of an advanced airway
- Use the small (pediatric) pads for patients weighing less than 10 kg
- Artifact from vibrations in a moving ambulance may compromise the effectiveness of the AED
- Consider toxic ingestions, including tricyclic antidepressants
- Search for and treat possible contributing factors that EMS can manage according to your level of certification:
  - **Hypoglycemia, Hypovolemia, Hypoxia, Hydrogen ion (acidosis), Hyperkalemia, Toxins, Tension pneumothorax, Trauma**
- For cardiac arrest associated with fire, see also “Smoke Inhalation / Cyanide Poisoning-Symptomatic”

# Foreign Body Obstructed Airway – Adult

For pediatric see, “Foreign Body Obstructed Airway - Pediatric”

## CRITERIA

- Patients with a partial or complete foreign body airway obstruction

## CFR AND ALL PROVIDER LEVELS

EMT

ADVANCED

CC

PARAMEDIC

- If the patient is **conscious** and **can** breathe, cough, or speak
  - Encourage the patient to cough
  - Transport in a sitting position or other position of comfort
  - Administer supplemental oxygen; refer to the “Resources: Oxygen Administration and Airway Management” protocol
  - Perform ongoing assessment and watch for progression to complete obstruction
- Facilitate transportation, ongoing assessment, and supportive care
  - Perform ongoing assessment and watch for progression to complete obstruction
- If the patient is **conscious** and **cannot** breathe, cough, or speak
  - Perform airway maneuvers according to current AHA/ARC/NSSC guidelines
- If the patient is **unconscious**
  - Remove any *visible* airway obstruction by hand
  - Perform level-appropriate airway maneuvers, as indicated
  - Perform CPR, refer to “Extremis: Cardiac Arrest – Adult: General Approach” protocol

 **CFR, EMT, ADVANCED, CC, AND PARAMEDIC STOP**

## Key Points/Considerations

# Foreign Body Obstructed Airway – Pediatric

## CRITERIA

- Pediatric patients with a partial or complete foreign body airway obstruction

## CFR AND ALL PROVIDER LEVELS

EMT

ADVANCED

CC

PARAMEDIC

- If the patient is **conscious** and **can** breathe, cough, or speak
  - Encourage the patient to cough
  - Transport in a sitting position or other position of comfort
  - Administer supplemental oxygen; refer to the “Resources: Oxygen Administration and Airway Management” protocol
  - Consider allowing parent to hold face mask with oxygen 6-8 inches from the child’s face as tolerated
- Facilitate transportation, ongoing assessment, and supportive care
  - Perform ongoing assessment and watch for progression to complete obstruction
- If the patient is **conscious** and **cannot** breathe, cough, or speak
  - Perform airway maneuvers according to current AHA/ARC/NSSC guidelines
    - In infants (< 1 yr old): perform 5 chest thrusts alternating with 5 back-blows. Do not use abdominal thrusts/Heimlich maneuvers
- If the patient is **unconscious**
  - Remove any *visible* airway obstruction by hand
  - Perform level-appropriate airway maneuvers
  - Perform CPR, refer to “Extremis: Cardiac Arrest – Pediatric: General Approach” protocol



**CFR, EMT, ADVANCED, CC, AND PARAMEDIC STOP**

## Key Points/Considerations

- Do not delay transport
- Agitating a child with a partial airway obstruction could cause a complete airway obstruction
- Limit interventions that may cause unnecessary agitation such as assessment of blood pressure in a child who can still breathe, cough, cry, or speak

# Obvious Death

Applies to adult and pediatric patients

<b>CFR AND ALL PROVIDER LEVELS</b>
<b>EMT</b>
<b>ADVANCED</b>
<b>CC</b>
<b>PARAMEDIC</b>

- CPR, ALS treatment, and transport to an emergency department may be withheld in an apneic and pulseless patient that meets **ANY** one of the following:
  - Presence of a valid MOLST, eMOLST, or DNR indicating that no resuscitative efforts are desired by the patient
  - Patient exhibiting signs of obvious death as defined by ANY of the following:
    - Body decomposition
    - Rigor mortis
    - Dependent lividity (livor mortis)
    - Injury not compatible with life (e.g. decapitation, burned beyond recognition, massive open or penetrating trauma to the head or chest with obvious organ destruction, etc.)
  - Patient who is pulseless and apneic with no organized cardiac activity on ECG (performed by an ALS provider) following significant blunt or penetrating traumatic injury
    - \*Cardiopulmonary arrest patients in whom the mechanism of injury does not correlate with clinical condition, suggesting a nontraumatic cause of the arrest, are excluded from this criterion
  - Patient who has been submerged for greater than one hour in any water temperature
- If a patient meets any of the aforementioned criteria, resuscitation efforts may be withheld, even if they have already been initiated. If any pads, patches, or other medical equipment have been applied, they should be left in place
- Notify law enforcement. The patient may be covered and, if allowed by law enforcement, may be moved to an adjacent private location. If there is any concern for suspicious activity, the patient should not be disturbed

## **CFR, EMT, ADVANCED, CC, AND PARAMEDIC STOP**

### **Key Points/Considerations**

- \*Significant blunt or penetrating trauma includes mechanism criteria such as those set forth in step two or three of the “Trauma: Trauma Patient Destination” protocol
- See also “Resources: Advance Directives / DNR / MOLST” protocol, as indicated
- If the above criteria is met, ALS is not required for the determination of obvious death

# Respiratory Arrest / Failure – Adult

For pediatric see, “Respiratory Arrest / Failure – Pediatric”

## CRITERIA

- Patients with absent or ineffective breathing
  - Possible signs of ineffective breathing include cyanosis, visible retractions, severe use of accessory muscles, altered mental status, respiratory rate less than 10 breaths per minute, signs of poor perfusion

## CFR AND ALL PROVIDER LEVELS

EMT

ADVANCED

CC

PARAMEDIC

- Open the airway using the head-tilt/chin-lift or modified jaw-thrust maneuver
- Remove any *visible* airway obstruction by hand
- Clear the airway of any accumulated secretions or fluids by suctioning
- Provide positive pressure ventilation using a bag-valve-mask (BVM)
  - If ventilations are not successful, refer immediately to the “Extremis: Foreign Body Obstructed Airway – Adult” protocol
- Level-appropriate airway management with use of airway adjuncts and bag-valve-mask (BVM), as indicated, including suction as needed, if available
  - Bag-valve-mask should be connected to supplemental oxygen, if available
- Ventilate every 5-6 seconds (adult patient)
- Each breath is given over 1 second and should cause visible chest rise



**CFR, EMT, ADVANCED, CC, AND PARAMEDIC STOP**

## Key Points/Considerations

- Do not delay ventilations to connect supplemental oxygen
- Ongoing assessment is required to assess:
  - The effectiveness of ventilations
  - The need for compressions should the patient lose his or her pulse (refer immediately to the “Extremis: Cardiac Arrest – Adult: General Approach” protocol)
- Adequate ventilation *may* require disabling the pop-off valve if the bag-valve-mask (BVM) is so equipped
- Do not delay transport

# Respiratory Arrest / Failure – Pediatric

## CRITERIA

- Patients with absent or ineffective breathing
  - Possible signs of ineffective breathing include cyanosis, visible retractions, severe use of accessory muscles, altered mental status, respiratory rate less than 12 breaths per minute

## CFR AND ALL PROVIDER LEVELS

EMT

ADVANCED

CC

PARAMEDIC

- Open the airway using the head-tilt/chin-lift or modified jaw-thrust maneuver
- Remove any *visible* airway obstruction by hand
- Clear the airway of any accumulated secretions or fluids by suctioning
- Provide positive pressure ventilation using an appropriate size bag-valve-mask (BVM)
  - If ventilations are not successful, refer immediately to the “Extremis: Foreign Body Obstructed Airway – Pediatric” protocol
- Use of level-appropriate airway adjuncts and bag-valve-mask (BVM), as indicated, with BLS airway management, including suction (as needed), as available
  - The bag-valve-mask (BVM) should be connected to supplemental oxygen, if available
- Ventilate every 3-5 seconds
- Each breath is given over 1 second and should cause visible chest rise
- Attach pulse oximeter if available and have a goal of oxygen saturation  $\geq 92\%$ 
  - See also, “Resources: Oxygen Administration and Airway Management” protocol



## CFR, EMT, ADVANCED, CC, AND PARAMEDIC STOP

### Key Points/Considerations

- Do not delay ventilations to connect to supplemental oxygen but add supplemental oxygen when available
- Ongoing assessment is required to assess:
  - The effectiveness of ventilations
  - The need for compressions should the patient lose his or her pulse (refer immediately to the “Extremis: Cardiac Arrest – Pediatric: General Approach” protocol)
- Adequate ventilation *may* require disabling the pop-off valve, if the bag-valve-mask (BVM) is so equipped
- Do not delay transport

# Termination of Resuscitation

Applies to adult and pediatric patients

## CFR AND ALL PROVIDER LEVELS

EMT

ADVANCED

- See “Extremis: Obvious Death” protocol



## CFR, EMT, AND ADVANCED STOP

CC

PARAMEDIC

- Patients who do not meet the “Extremis: Obvious Death” protocol, but are in cardiopulmonary arrest, must meet **ALL** of the following requirements for termination of resuscitative efforts to be considered without a medical control order:
  - Age 18 or older
  - Arrest not witnessed by a bystander or by EMS
  - No bystander-administered CPR
  - No automated external defibrillator or manual shock delivered
  - No return of spontaneous circulation up to the time termination is considered
  - At least 20 minutes of resuscitation has been provided



## CC AND PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Termination of resuscitation in instances that are not covered by standing order criteria may be authorized by medical control

## Key Points/Considerations

- See also “Resources: Advance Directives/MOLST/DNR” protocol, as indicated
- Patients that do not meet the above standing order termination of resuscitation may be considered for termination of resuscitation with medical control
- Consider the EtCO<sub>2</sub> when discussing termination with medical control
- If resuscitative efforts are terminated, contact law enforcement per regional or jurisdictional procedure. Do not remove endotracheal tubes, other airway management devices such as King<sup>®</sup> Airways, or IV/IO tubing. The patient may be covered and may be moved back onto a bed or sofa, if appropriate and approved by law enforcement
- Whenever possible, termination of resuscitation should be done when the patient is not in a public place
- If the family is present, appropriate emotional support by other family, neighbors, clergy, or police should be available when considering termination of resuscitation

## **(3.0) General Adult and Pediatric Medical Protocols**



# ALTE/BRUE – Pediatric

Applies to pediatric patients under 2 years of age

## CRITERIA

Apparent Life Threatening Event (ALTE) / Brief Resolved Unexplained Events (BRUE)

ALTE/BRUE is an episode in an infant or child less than 2 years old which is frightening to the observer, has now resolved and is characterized by one or more of the following:

- Apnea (central or obstructive)
- Skin color change: cyanosis, erythema (redness), pallor, plethora (fluid overload)
- Marked change in muscle tone
- Choking or gagging not associated with feeding or a witnessed foreign body aspiration
- Seizure-like activity

<b>CFR AND ALL PROVIDER LEVELS</b>
<b>EMT</b>
<b>ADVANCED</b>
<b>CC</b>
<b>PARAMEDIC</b>

- Airway management and appropriate oxygen therapy
- Check pupils and, if constricted, consider “General: Opioid (Narcotic) Overdose” protocol
- Check blood glucose level, if equipped
  - Refer to “General: Altered Mental Status” protocol, if necessary
- Ongoing assessment of the effectiveness of breathing
  - Refer to “Extremis: Respiratory Arrest / Failure - Pediatric” protocol, if necessary

 **CFR, EMT, ADVANCED, CC, AND PARAMEDIC STOP**

## Key Points/Considerations

NOTE: Most patients will appear stable and exhibit a normal physical exam. However, this episode may be a sign of underlying serious illness or injury and further evaluation by medical staff is strongly recommended. See “Resources: Refusal of Medical Attention” protocol if the caregiver wishes to refuse transportation.

# Altered Mental Status

Applies to adult and pediatric patients

## CRITERIA

- For the undifferentiated patient with altered mental status
  - Including, but not limited to, BLS management of hypoglycemia
- See also the following collaborative protocols, as indicated:
  - ALTE/BRUE – Pediatric
  - Behavioral Emergencies: Agitated Patient
  - Hypoglycemia – Adult
  - Hypoglycemia – Pediatric
  - Opioid (Narcotic) Overdose
  - Poisoning / Overdose: Undifferentiated – Adult
  - Poisoning / Overdose: Undifferentiated – Pediatric

## CFR AND ALL PROVIDER LEVELS

### EMT

- Airway management and appropriate oxygen therapy
- Check pupils and, if constricted, consider “General: Opioid (Narcotic) Overdose” protocol
- Check blood glucose level, if equipped and safe to do so
  - If blood glucose is known or suspected to be below 60 mg/dL and patient can self-administer and swallow on command:
    - Give one unit dose (15-24 grams) of oral glucose, or another available carbohydrate source (such as fruit juice or non-diet soda)
  - If the patient is unable to swallow on command, or mental status remains altered following administration of oral glucose:
    - Do not delay transport
- Ongoing assessment of the effectiveness of breathing
  - Refer to “Extremis: Respiratory Arrest / Failure – Adult” or “Extremis: Respiratory Arrest / Failure – Pediatric,” protocol, if necessary



### CFR AND EMT STOP

## ADVANCED

## CC

## PARAMEDIC

- See etiology-specific protocols cross referenced in the “CRITERIA” section above



### ADVANCED, CC, AND PARAMEDIC STOP

## Key Points/Considerations

- Assess the scene for safety and, if it is not, retreat to a safe location and obtain police assistance
- Consider closed head injury and non-accidental trauma, especially in children
- Consider drug ingestion, meningitis/encephalitis

# Anaphylaxis – Adult

For pediatric see, “Anaphylaxis – Pediatric”

## CRITERIA

Anaphylaxis is a rapidly progressing, life threatening allergic reaction, not simply a rash or hives

## CFR AND ALL PROVIDER LEVELS

- Allow the patient to maintain position of comfort
- Ongoing assessment of the effectiveness of breathing
  - Refer to the “Extremis: Respiratory Arrest / Failure – Adult” protocol, if necessary
- Airway management and appropriate oxygen therapy
- If SEVERE respiratory distress, facial or oral edema, and/or hypoperfusion:
  - Administer the epinephrine autoinjector (e.g. EpiPen<sup>®</sup>), as available and as trained
    - Adult autoinjector 0.3 mg IM (e.g. EpiPen<sup>®</sup>) if  $\geq 30$  kg\*
- If patient has *a history of anaphylaxis* and has an exposure to an allergen developing respiratory distress and/or hypoperfusion *and/or rash*:
  - Administer the epinephrine autoinjector (e.g. EpiPen<sup>®</sup>), as available and as trained
    - Adult autoinjector 0.3 mg IM (e.g. EpiPen<sup>®</sup>) if  $\geq 30$  kg\*
- If the patient does not improve within 5 minutes, you *may* repeat epinephrine once



## CFR STOP

## EMT

- The “Syringe Epinephrine Program for EMT” may be substituted for an autoinjector
- If the patient is wheezing, albuterol 2.5 mg in 3 mL (unit dose), via nebulizer; may repeat to a total of three doses



## EMT STOP

## ADVANCED

- Vascular access as appropriate
- Epinephrine (1:1,000 / 1mg/mL) 0.3 mg IM, **ONLY** if patient is hypotensive and/or is developing respiratory distress w/airway swelling, hoarseness, stridor, or wheezing. May repeat every 5 minutes if these symptoms persist
- Normal saline 500 mL bolus, if SBP < 100 mmHg or MAP < 65 mmHg; may repeat up to a total of 2 L if lung sounds remain clear
  - Goal SBP > 100 mmHg and MAP > 65 mmHg



## ADVANCED STOP

## CC

## PARAMEDIC

- Cardiac monitor
- Paramedics may substitute albuterol 2.5 mg in 3 mL (unit dose) & ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together, via nebulizer or ET tube nebulizer for albuterol only above; may repeat to a total of three doses of both medications for wheezing
- Diphenhydramine (Benadryl) 50 mg IV or IM
- Dexamethasone (Decadron) 10 mg PO, IM, or IV
- Consider norepinephrine 2 mcg/min titrated to 20 mcg/min, if needed after fluid bolus is complete to maintain MAP > 65 mmHg or SBP > 100 mmHg



## **CC AND PARAMEDIC STOP**

### **MEDICAL CONTROL CONSIDERATIONS**

- Additional albuterol
- Additional epinephrine for levels with limited standing orders (as available and as trained)
  - Adult 0.3 mg IM
- Additional IV fluid
- Epinephrine infusion (1 mg in 1000 mL normal saline), at 5 mcg/min

### **Key Points/Considerations**

- **Do not administer IV epinephrine without consulting online medical control**
- If epinephrine is administered by crew or patient self-administered epinephrine, regional procedure may require consulting medical control prior to honoring a request for refusal of medical care
- Though a previous history of anaphylaxis is an important indicator for treatment, providers should be aware that anaphylaxis may develop in patients with no prior history
- A combination unit dose (such as a DuoNeb<sup>®</sup>) may be substituted for Albuterol 2.5 mg in 3 mL (unit dose) & ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together
- Anaphylaxis may present with shock associated only with GI symptoms. In the setting of a known exposure to an allergen associated with shock, nausea, vomiting, abdominal pain, and/or diarrhea, consider anaphylaxis in consult with medical control.
- \*If equipped and trained

# Anaphylaxis – Pediatric

## CRITERIA

Anaphylaxis is a rapidly progressing, life threatening allergic reaction, not simply a rash or hives

## CFR AND ALL PROVIDER LEVELS

- Allow the patient to maintain position of comfort
  - Do not force the child to lie down
  - Do not agitate the child
- Ongoing assessment of the effectiveness of breathing
  - Refer to “Extremis: Respiratory Arrest / Failure – Pediatric” protocol, if necessary
- Airway management and appropriate oxygen therapy
- CC and paramedic may skip to CC section at this point
- If SEVERE respiratory distress, facial or oral edema, and/or hypoperfusion:
  - Administer the epinephrine autoinjector (e.g. EpiPen<sup>®</sup>), as available and as trained
    - Adult autoinjector 0.3 mg IM (e.g. EpiPen<sup>®</sup>) if  $\geq 30$  kg\*
    - Pediatric autoinjector 0.15 mg IM (e.g. EpiPen Jr<sup>®</sup>) if  $< 30$  kg\*
- If patient has **a history of true anaphylaxis\*** and has an exposure to an allergen developing respiratory distress and/or hypoperfusion **and/or rash**:
  - Administer the epinephrine autoinjector (e.g. EpiPen<sup>®</sup>), as available and as trained
    - Adult autoinjector 0.3 mg IM (e.g. EpiPen<sup>®</sup>) if  $\geq 30$  kg\*
    - Pediatric autoinjector 0.15 mg IM (e.g. EpiPen Jr<sup>®</sup>) if  $< 30$  kg\*
- If the patient does not improve within 5 minutes, you MAY repeat epinephrine once



## CFR STOP

## EMT

## ADVANCED

- The “Syringe Epinephrine Program for EMT,” utilizing the appropriate dose above, may be substituted for an autoinjector
- If the patient is wheezing, albuterol 2.5 mg in 3 mL (unit dose), via nebulizer; may repeat to a total of three doses



## EMT AND ADVANCED STOP

## CC

- Epinephrine (1:1,000 / 1 mg/mL) 0.01 mg/kg IM; max dose 0.3 mg. May repeat if the patient continues to display SEVERE respiratory distress, facial or oral edema, and/or hypotension
- Cardiac monitor
- Albuterol 2.5 mg in 3 mL (unit dose) + ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together, via nebulizer, for wheezing; repeat to a total of three doses
- Diphenhydramine (Benadryl) 1 mg/kg IM; max dose 50 mg



## CC STOP

### PARAMEDIC

- Vascular access, if indicated (Resources: Vascular Access)
- Diphenhydramine (Benadryl) 1 mg/kg IM/IV; max total dose 50 mg
- Dexamethasone (Decadron) 10 mg PO, IM, or IV for patients  $\geq 2$  years old
- Normal saline 20 mL/kg IV bolus



## PARAMEDIC STOP

### MEDICAL CONTROL CONSIDERATIONS

- CC vascular access
- Epinephrine (as available and as trained) for indications other than those above
- Additional albuterol
- Epinephrine 0.1-1.5 mcg/kg/minute IV drip
  - Start low (consider 0.1 mcg/kg/minute) and titrate gradually
  - Max 1.5 mcg/kg/minute
- Cardiovascular collapse: Epinephrine (1:10,000 / 0.1 mg/mL) 0.01 mg/kg IV
- Dexamethasone (Decadron) 0.6 mg/kg PO, IM, or IV for patients  $< 2$  years old

### Key Points/Considerations

- **Do not administer IV epinephrine without consulting online medical control**
- Though a previous history of anaphylaxis is an important indicator for treatment, providers should be aware that anaphylaxis may develop in patients with no prior history
- Infant auto-injector (0.1 mg IM) may be substituted for pediatric patients  $< 15$  kg, if available.
- If epinephrine is administered by crew or patient self-administered epinephrine, regional procedure may require consulting medical control prior to honoring a request for refusal of medical care
- A combination unit dose (such as a DuoNeb<sup>®</sup>) may be substituted for Albuterol 2.5 mg in 3 mL (unit dose) & ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together
- Refer to the “Dif Breathing – Pediatric : Stridor” protocol, as indicated
- Anaphylaxis may present with shock associated only with GI symptoms. In the setting of a known exposure to an allergen associated with shock, nausea, vomiting, abdominal pain, and/or diarrhea, consider anaphylaxis in consult with medical control
- \*If equipped and trained

# Behavioral: Agitated Patient – Adolescent

Applies to adolescent patients only

## Criteria

- This protocol is intended to be utilized to help outline the approach to an individual in the transitional stage of physical and psychological development between puberty and adulthood in instances in which the adult or pediatric protocol may not provide sufficient guidance
- This protocol is intended to be used to assist in safe provision of care with agitated adolescent patients requiring medical evaluation, treatment, and transportation
- This may include any patient who demonstrates potentially violent behavior, regardless of underlying etiology
- This protocol includes consideration for patients who are extremely combative and are at immediate risk of causing physical harm to emergency responders, the public, and/or themselves
- Pharmacologic management of behavioral emergencies is only to be utilized for situations in which environmental modification and verbal de-escalation (utilizing interpersonal communication skills) is not successful or not possible
- See Resources: De-escalation Techniques

## CFR AND ALL PROVIDER LEVELS

### EMT

### ADVANCED

- Call for law enforcement
- Airway management, vital signs, and appropriate oxygen therapy, if tolerated
- Verbal de-escalation (utilizing interpersonal communication skills)
- If verbal de-escalation is not successful or not possible, apply soft restraints, such as towels, triangular bandages, or commercial medical restraints, only if necessary to protect the patient and others from harm
- Check blood glucose level, if equipped, as soon as you are able to safely do so. If low, refer to the “General: Altered Mental Status / Hypoglycemia” protocol, as indicated

## CFR, EMT, AND ADVANCED STOP

## CC AND PARAMEDIC

- Midazolam (Versed) up to 5 mg IM or IV; may repeat up to 10 mg

## CC STOP

## PARAMEDIC



**ONLY** for patients who are extremely combative and are at immediate risk of causing physical harm to emergency responders, the public, and/or themselves who present with a clinical triad of psychomotor agitation, physiologic excitation, and **failure to respond to verbal and environmental de-escalation** in the setting of destructive, erratic, bizarre, or violent behavior.

Common features include:

- Unusual strength
  - Lack of tiring
  - Unnatural pain tolerance
  - Tachypnea
  - Diaphoresis
  - Psychomotor agitation
  - Tactile hyperthermia
  - Altered mental status
- Ketamine\* 2 mg/kg up to 250 mg IM OR midazolam (Versed) 0.1 mg/kg up to 5 mg IM; may repeat midazolam (Versed) up to 10 mg
  - May administer ketamine\* 2 mg/kg up to 250 mg IM after 5 minutes (as a single repeat dose or as a single dose after midazolam [Versed]), should the patient remain uncontrolled



## **PARAMEDIC STOP**

### **MEDICAL CONTROL CONSIDERATIONS**

- Additional midazolam (Versed) IV, IM
- Haloperidol (Haldol) 2.5 to 5 mg IV or IM
- Ketamine\* 0.5-2 mg/kg IV or IM
  - Consider initial dose of ketamine 250 mg IM for the appropriate patient
  - Use caution ordering ketamine after midazolam (Versed) because apnea may occur

### **Key Points/Considerations**

- **\*Ketamine may be administered by paramedics only**
- **Patient must NOT be transported in a face-down position**
- Assess the scene for safety and, if it is not, retreat to a safe location and obtain police assistance
- Consider medical causes of abnormal behavior such as: hypoxia, hypoperfusion, hypoglycemia, head injury, intoxication, other drug ingestion, and traumatic
- Consider the possibility of a behavioral/developmental disorder such as autism spectrum disorder or mental health problems
- If the agitated patient goes into cardiac arrest, refer to the appropriate protocol, and consider the possibility of acidosis in that protocol
- A team approach should be attempted at all times for the safety of the patient and the providers
- Ketamine and haloperidol (Haldol) may not be available in all regions
- If the patient is in police custody and/or has handcuffs on, a police officer should accompany the patient in the ambulance to the hospital. EMS must have the ability to immediately remove any mechanical restraints that hinder patient care at all times
- All uses of this protocol may require Agency Medical Director review or regional QA, depending on regional procedure

## Behavioral: Agitated Patient – Adult

For pediatric and adolescent patients see, “Behavioral: Agitated Patient – Pediatric” or “Behavioral: Agitated Patient – Adolescent”

### Criteria

- This protocol is intended to be used with agitated patients requiring sedation for medical evaluation and treatment
- This may include any patient who demonstrates potentially violent behavior, regardless of underlying etiology
- Pharmacologic management of behavioral emergencies is only to be utilized for situations in which environmental modification and verbal de-escalation (utilizing interpersonal communication skills) is not successful or not possible
- This protocol includes consideration for patients who are extremely combative and are at immediate risk of causing physical harm to emergency responders, the public, and/or themselves

### CFR AND ALL PROVIDER LEVELS

#### EMT

#### ADVANCED

- Call for law enforcement
- Airway management, vital signs, and appropriate oxygen therapy, if tolerated
- Verbal de-escalation (utilizing interpersonal communication skills)
- If verbal de-escalation is not successful or not possible, apply soft restraints, such as towels, triangular bandages, or commercial medical restraints, only if necessary to protect the patient and others from harm
- Check blood glucose level, if equipped, as soon as you are able to safely do so. If low, refer to the “General: Altered Mental Status / Hypoglycemia” protocol, as indicated



### CFR, EMT, AND ADVANCED STOP

### CC AND PARAMEDIC

- Midazolam (Versed) up to 5 mg IM or IV; may repeat up to 10 mg



### CC STOP

### PARAMEDIC

For patients who are extremely combative and are at immediate risk of causing physical harm to emergency responders, the public, and/or themselves who present with a clinical triad of psychomotor agitation, physiologic excitation, and failure to respond to verbal and environmental de-escalation in the setting of destructive, erratic, bizarre, or violent behavior. Common features include:

- Unusual strength
- Lack of tiring
- Unnatural pain tolerance
- Tachypnea
- Diaphoresis
- Psychomotor agitation
- Tactile hyperthermia
- Altered mental status
- Ketamine\* 250 mg IM
- May administer ketamine\* 250 mg IM after 5 minutes (as a single repeat dose or as a single dose after midazolam [Versed]), should the patient remain uncontrolled



## **PARAMEDIC STOP**

### **MEDICAL CONTROL CONSIDERATIONS**

- Additional midazolam (Versed) IV, IM
- Haloperidol (Haldol) 2.5 to 5 mg IV or IM
- Ketamine\* 0.5-2 mg/kg IV or IM
  - Consider initial dose of ketamine 250 mg IM for the appropriate patient
  - Use caution ordering ketamine after midazolam (Versed) because apnea may occur

### **Key Points/Considerations**

- **\*Ketamine may be administered by paramedics only**
- **Patient must NOT be transported in a face-down position**
- Assess the scene for safety and, if it is not, retreat to a safe location and obtain police assistance
- Utilize caution and consider smaller doses in high-risk populations such as the elderly, small patients, or those with significant comorbidities
- Consider medical causes of abnormal behavior such as: hypoxia, hypoperfusion, hypoglycemia, head injury, intoxication, other drug ingestion, and traumatic
- Consider the possibility of a behavioral/developmental disorder such as autism spectrum disorder or mental health problems
- If the agitated patient goes into cardiac arrest, refer to the appropriate protocol, and consider the possibility of acidosis in that protocol
- A team approach should be attempted at all times for the safety of the patient and the providers
- Ketamine and haloperidol (Haldol) may not be available in all regions
- If the patient is in police custody and/or has handcuffs on, a police officer should accompany the patient in the ambulance to the hospital. EMS must have the ability to immediately remove any mechanical restraints that hinder patient care at all times
- All uses of this protocol may require Agency Medical Director review or regional QA, depending on regional procedure

# Behavioral: Agitated Patient – Pediatric

## Criteria

- This protocol is intended to be used with patients who are deemed to pose a danger to themselves or others

## CFR AND ALL PROVIDER LEVELS

- Call for law enforcement
- Airway management, vital signs, and appropriate oxygen therapy, if tolerated
- Verbal de-escalation (utilizing interpersonal communication skills)
- If verbal de-escalation is not successful or not possible, apply soft restraints, such as towels, triangular bandages, or commercial soft medical restraints, only if necessary to protect the patient and others from harm

 **CFR STOP**

**EMT**

**ADVANCED**

**CC**

**PARAMEDIC**

- Check blood glucose level, if equipped, as soon as you are able to safely do so. If abnormal, refer to the “General: Hypoglycemia – Pediatric” protocol, as indicated
- See also, “General: Altered Mental Status” protocol as indicated

 **EMT, ADVANCED, CC, AND PARAMEDIC STOP**

## MEDICAL CONTROL CONSIDERATIONS

- Midazolam (Versed) 0.1 mg/kg IV or IM
- Ketamine\* 0.5-2 mg/kg IV or IM

 **EMT STOP**

## Key Points/Considerations

- Assess the scene for safety and, if it is not, retreat to a safe location and obtain police assistance
- **\*Ketamine may be administered by paramedics only**
- **Patient must NOT be transported in a face-down position**
- Consider hypoxia, hypoperfusion, hypoglycemia, head injury, intoxication, other drug ingestion, and other medical/traumatic causes of abnormal behavior
- Consider the possibility of a behavioral/developmental disorder such as autism spectrum disorder or mental health problems
- A team approach should be attempted for the safety of the patient and the providers

- If the patient is in police custody and/or has handcuffs on, a police officer should accompany the patient in the ambulance to the hospital. The provider must have the ability to immediately remove any mechanical restraints that hinder patient care at all times

# Carbon Monoxide Exposure – Suspected

Applies to adult and pediatric patients

## Criteria

- For patients with smoke inhalation, patients for whom a carbon monoxide (CO) alarm has gone off in the residence, or any other potential exposure to CO
- See also “Smoke Inhalation / Cyanide Poisoning – Symptomatic” protocol, as indicated

## CFR AND ALL PROVIDER LEVELS

- Any patient with suspected carbon monoxide poisoning should receive high flow oxygen via non-rebreather mask (NRB)



## CFR STOP

EMT

ADVANCED

CC

PARAMEDIC

- An objective carbon monoxide evaluation tool may be used to guide therapy, if available
- Any pregnant (or potentially pregnant) woman should receive high flow oxygen and be transported to the hospital

**ASYMPTOMATIC** potentially exposed people:

- An asymptomatic patient with a known CO level >25% should receive high flow oxygen and be transported to the hospital
- An asymptomatic patient with a CO level 12-25% should receive high flow oxygen for 30 minutes and then should be reassessed, unless the patient requests transport to the hospital
  - Strongly encourage transport if CO levels are not decreasing

**SYMPTOMATIC** patients:

- Carbon monoxide poisoning does not have specific, clear cut symptoms; other medical conditions may present with dizziness, nausea, and/or confusion
- All symptomatic patients should be transported, regardless of CO level
- If there is no soot in the airway, consider CPAP\* 5-10 cm H<sub>2</sub>O (if the device delivers 100% oxygen)
  - For the adult patient
  - For older pediatric patients consider CPAP, as equipment size allows if available and trained

**MULTIPLE** patients:

- Consult medical control for guidance regarding transport location decisions and on-scene treatment and release when multiple patients are involved
- If there is potential for greater than 5 patients, consider requesting an EMS physician to the scene, if available

## EMT, ADVANCED, CC, AND PARAMEDIC STOP

### **Key Points/Considerations**

- The Masimo RAD 57<sup>®</sup> is an example of an objective carbon-monoxide evaluation tool
  - Consider contacting medical control to discuss appropriate hospital destination for patients with the following:
    - SpCO reading >25%
    - Loss of consciousness
    - Significant altered mental status or an abnormal neurologic exam
    - Pregnancy
  - Pediatrics: Assure your device is approved for pediatric use and, if so, that pediatric appropriate sensors are utilized
  - Pregnant women: The fetal SpCO may be 10-15% higher than maternal reading
  - Smokers: Heavy smokers may have baseline SpCO levels up to 10%
  - A misapplied or dislodged sensor may cause inaccurate readings
  - Do not use tape to secure the sensor
  - Do not place the sensor on the thumb or 5th digit
- There is no commercial endorsement implied by this protocol
- \*if equipped and trained

# Cardiac – Adult: Bradycardia / Heart Blocks – Symptomatic

For pediatric see, “Cardiac – Pediatric: Bradycardia”

## CFR AND ALL PROVIDER LEVELS

### EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

 **CFR AND EMT STOP**

### ADVANCED

- Vascular access

 **ADVANCED STOP**

### CC

- Cardiac monitor
- 12-lead ECG, when possible
- Atropine 1 mg IV every 3 min, up to a max of 3 mg
- If needed, administer normal saline to a total of 2 L, if there is no concern for pulmonary edema
- Transcutaneous pacing, consider sedation (General: Procedural Sedation – Adult)

 **CC STOP**

### PARAMEDIC

- Consider norepinephrine 2 mcg/min titrated to 20 mcg/min, if needed, after fluid bolus completed to maintain MAP > 65 mmHg or SBP > 100 mmHg

 **PARAMEDIC STOP**

### Key Points/Considerations

- Only treat bradycardia if the patient is symptomatic
- Symptomatic presentation includes chest pain, dyspnea, altered mental status, pulmonary edema, ischemia, infarction, or hypotension (systolic BP < 90 mmHg or MAP < 60 mmHg)
- Consider immediate transcutaneous pacing for patients with poor perfusion
  - May also consider in cases when atropine may have little or no effect, such as cardiac transplant patients
- Patients with high degree AV block (2<sup>nd</sup> degree type II and 3<sup>rd</sup> degree) may have limited response to atropine



# Cardiac – Pediatric: Bradycardia

## CFR AND ALL PROVIDER LEVELS

### EMT

### ADVANCED

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- If the heart rate is markedly bradycardic, and the patient’s mental status and respiratory rate are decreased, ventilate with a bag-valve-mask (BVM)

### **CFR, EMT, AND ADVANCED STOP**

### CC

- Cardiac monitor
- Consider a 12-lead ECG

### **CC STOP**

### PARAMEDIC

- Atropine 0.02 mg/kg, with a minimum dose of 0.1 mg IV and a maximum dose of 1 mg
- Repeat atropine once in 5 minutes, to a maximum total dose of 0.04 mg/kg
- Epinephrine (1:10,000 / 0.1 mg/mL) 0.01 mg/kg IV, maximum dose 0.3 mg
  - Repeat epinephrine every 3 – 5 minutes

### **PARAMEDIC STOP**

## MEDICAL CONTROL CONSIDERATIONS

- CC vascular access
- Transcutaneous pacing
- Epinephrine 0.1-1.5 mcg/kg/minute IV drip
  - Start low (consider 0.1 mcg/kg/minute) and titrate gradually
  - Max 1.5 mcg/kg/minute

## Key Points/Considerations

- Newborn/Infant bradycardic if pulse less than 60 bpm
- Altered mental status with mild bradycardia this for age group is likely not secondary to the bradycardia; consider alternate etiologies
- “Symptomatic” includes poor systemic perfusion, hypotension, respiratory difficulty, or altered level of consciousness
- If you suspect bradycardia is due to increased vagal tone, primary AV block, or organophosphate exposure, give atropine before giving epinephrine
- Do not treat asymptomatic bradycardia; contact medical control
- Alert receiving hospital as early as practical

# Cardiac – Adult: Tachycardia – Narrow Complex

For pediatric see, “Cardiac – Pediatric: Tachycardia”

## CFR AND ALL PROVIDER LEVELS

### EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy



### CFR AND EMT STOP

## ADVANCED

- Vascular access
- Consider normal saline if there is concern for a secondary tachycardia (secondary to dehydration / hypovolemia)
  - 500 mL bolus; recheck lung sounds and repeat bolus if necessary up to 2L provided lung sounds remain clear
- Vagal maneuver



### ADVANCED STOP

## CC

### PARAMEDIC

- Cardiac monitor
- **UNSTABLE** and if the rhythm is **REGULAR**:
  - Consider sedation (General: Procedural Sedation – Adult)
  - Synchronized cardioversion starting at 100 Joules or equivalent biphasic
  - 12-lead ECG, when possible
- **UNSTABLE** and if the rhythm is **IRREGULAR**:
  - Consider sedation (General: Procedural Sedation – Adult)
  - Synchronized cardioversion 200 Joules or equivalent biphasic
  - 12-lead ECG, when possible
- **STABLE** and if the rhythm is **REGULAR**:
  - Adenosine 6 mg IV with rapid NS flush, may repeat Adenosine 12 mg IV, if needed
  - 12-lead ECG, when possible
- **STABLE** and if the rhythm is **IRREGULAR**:
  - Diltiazem (Cardizem) 0.25 mg/kg (max 25 mg) IV infused over 2 minutes
    - Metoprolol 5mg IV infused over 2 minutes **instead of** diltiazem (Cardizem) if patient is on a prescribed beta-blocker
  - 12-lead ECG, when possible
- If the patient remains **STABLE** and rhythm remains uncontrolled or unconverted by diltiazem (Cardizem) after 15 minutes, adenosine, vagal maneuvers, or if SVT is recurrent:
  - Diltiazem (Cardizem) 0.35 mg/kg (max 35 mg) IV infused over 2 minutes

- Substitute metoprolol 5 mg IV infused over 2 minutes *instead of* diltiazem (Cardizem) if metoprolol was administered initially



## CC AND PARAMEDIC STOP

### MEDICAL CONTROL CONSIDERATIONS

- Additional adenosine
- Additional diltiazem (Cardizem) slow IV
- Additional Metoprolol 5 mg slow IV (or initial dose, if not covered under standing order)
- Amiodarone 150 mg in 100 mL normal saline, infused over 10 minutes (10 mL/min or 5 drops every 3 seconds using 10 drop/mL chamber)
- Synchronized cardioversion outside standing orders

### Key Points/Considerations

- Protocol generally applies to HR  $\geq$  150
- Do NOT use carotid sinus massage as a vagal maneuver
- **UNSTABLE** includes significant cardio-respiratory compromise, hypotension, or altered level of consciousness
- Combined use of IV metoprolol and diltiazem (Cardizem) may precipitate hypotension and may not be done on standing order

# Cardiac – Adult: Tachycardia – Wide Complex with a Pulse

For pediatric see, “Cardiac – Pediatric: Tachycardia”

## CFR AND ALL PROVIDER LEVELS

### EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy



### CFR AND EMT STOP

## ADVANCED

- Vascular access



### ADVANCED STOP

## CC

- Cardiac monitor
- If UNSTABLE, consider sedation (General: Procedural Sedation – Adult)
- Synchronized cardioversion starting at 100 Joules or the equivalent biphasic setting  
Repeated as needed, to a maximum of 3 times
  - If the rhythm is converted, discuss the administration of antiarrhythmics with medical control
  - If irregularly irregular, cardioversion may be initiated at 200 Joules
- 12-lead ECG, when possible



### CC STOP

## PARAMEDIC

- If STABLE, amiodarone 150 mg in 100 mL normal saline, over 10 minutes (10 mL/min or 5 drops every 3 seconds using 10 drop/mL chamber)



### PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Unsynchronized cardioversion or synchronized cardioversion outside standing orders
- Adenosine 6 mg or 12 mg IV with rapid normal saline flush
- Lidocaine 1.5 mg/kg IV
- If the rhythm is converted, consider amiodarone 150 mg in 100 mL normal saline, over 10 minutes
  - May consider repeat amiodarone 150 mg in 100 mL normal saline
- Magnesium 2 grams IV, over 10 minutes for STABLE patient; over 2 minutes for UNSTABLE patient

### **Key Points/Considerations**

- If no pulse, treat as ventricular fibrillation
- UNSTABLE includes significant cardio-respiratory compromise, hypotension, or altered level of consciousness
- Wide complex is defined as a QRS complex  $> 0.12$  sec / 120 msec / 3 small boxes

# Cardiac – Pediatric: Tachycardia

## CFR AND ALL PROVIDER LEVELS

### EMT

### ADVANCED

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

 **CFR, EMT, AND ADVANCED STOP**

### CC

- Cardiac monitor
- Consider a 12-lead ECG

 **CC STOP**

### PARAMEDIC

- Vascular access, if indicated (Resources: Vascular Access)
- Normal saline 20 mL/kg bolus IV; may repeat once

 **PARAMEDIC STOP**

## MEDICAL CONTROL CONSIDERATIONS

- CC vascular access
- UNSTABLE patient:
- Synchronized cardioversion 0.5 – 1 J/kg
  - Consider sedation, if vascular access is available (General: Procedural Sedation – Pediatric)
- STABLE patient, wide QRS:
- Amiodarone 5 mg/kg IV; over 20 minutes  
(Amiodarone 150 mg diluted in 100 mL, 1.5 mg/mL)
  - Lidocaine 1 mg/kg IV
- STABLE patient, narrow QRS:
- Vagal maneuvers
  - Adenosine 0.1 mg/kg IV (max 6 mg); may repeat at 0.2 mg/kg (max 12 mg)

## Key Points/Considerations

- Newborn/Infant SVT: if pulse > 220 bpm; child > 1 year of age SVT: if pulse > 180 bpm and has no discernible p-waves and regular R-R interval on PRINTED ECG strip
- The most common causes of sinus tachycardia in children are fever and dehydration, not cardiac etiology
- UNSTABLE includes significant cardio-respiratory compromise, hypotension, or altered level of consciousness
- Do not treat asymptomatic tachycardia. Contact medical control
- Alert the receiving hospital as early as practical

# Cardiac – Adult: ST Elevation MI (STEMI)

## CFR AND ALL PROVIDER LEVELS

- Airway management and appropriate oxygen therapy
- Aspirin 324 mg (4 x 81 mg tabs) chewed, only if able to chew\*

### **CFR STOP**

## EMT

- Acquire and transmit 12-lead ECG\*\*
  - For patients with a STEMI, confirmed by medical control, begin transport to a facility capable of primary angioplasty if estimated arrival to that facility is within 90 minutes of patient contact or if directed by medical control or regional procedure
- If the patient requests, assist patient with his or her prescribed nitroglycerin, up to 3 doses, 5 minutes apart, provided the patient's systolic BP is > 120 mmHg
- Additional nitroglycerin may be given by an EMT with a medical control order
- For patients with signs of hypoperfusion “General: Cardiogenic Shock”

### **EMT STOP**

## ADVANCED

- Vascular access
- Refer to the “General: Pain Management – Adult” protocol, as indicated

### **ADVANCED STOP**

## CC

## PARAMEDIC

- Cardiac monitor with 12-lead ECG
- Notify the receiving hospital ASAP for ST elevation myocardial infarction (STEMI)
- Strongly recommend transport to a facility capable of primary angioplasty, if transport time is less than 90 minutes, or as otherwise directed by medical control or regional procedure
- Notify the receiving hospital ASAP to discuss transport options, if the patient requests a facility not capable of primary angioplasty
- Nitroglycerin 0.4 mg SL per dose, as needed, 5 minutes apart, BP > 120 mmHg or MAP > 90 mmHg
- If systolic BP drops below 100 mmHg, place the patient in a supine position, if possible
  - Consider normal saline 500 mL bolus, if SBP < 100 mmHg or MAP < 65 mmHg; may repeat up to a total of 2 L if lung sounds remain clear
    - Goal SBP > 100 mmHg and MAP > 65 mmHg

### **CC AND PARAMEDIC STOP**

## MEDICAL CONTROL CONSIDERATIONS

- Additional nitroglycerin 0.4 mg SL every 5 minutes for EMTs
- Additional saline
- Metoprolol 5 mg slow IV, IF HR > 80 and BP > 120 mmHg or MAP > 90 mmHg to a total of 4 doses

### **Key Points/Considerations**

- Focus on maintaining ABCs, rapid identification, rapid notification, and rapid transport to an appropriate facility
- A 12-lead ECG should be transmitted to the receiving facility, if possible
- Vitals, including 12-lead ECG, should be frequently assessed during transport
- Use caution when administering nitroglycerin to a patient with an inferior wall MI. Monitor carefully for bradycardia and hypotension
- If the patient becomes hypotensive after nitroglycerin administration, place the patient in a supine position, if there is no contraindication to doing so such as severe pulmonary edema
  - An IV is not required for nitroglycerin administration, particularly in the absence of pulmonary edema because positioning is the primary intervention for nitroglycerin-induced hypotension
- Consider a right-sided ECG in the setting of a suspected inferior STEMI
- Aspirin should not be enteric coated
- The patient may have been advised to take aspirin prior to arrival by emergency medical dispatch. You may give an additional dose of aspirin (324 mg chewed) if there is any concern about the patient having received an effective dose prior to your arrival
- \*If equipped and trained for CFR level



# Cardiac – Adult: Total Artificial Heart (TAH)

## Criteria

- Any request for service that requires evaluation and transport of a patient with a total artificial heart (TAH).

## CFR AND ALL PROVIDER LEVELS

### EMT

- Assess airway and breathing. Hypertension or volume overload can quickly cause pulmonary edema to develop
- Do **not** use an AED or cardiac monitor.
- Assess pulse and artificial heart function:
  - If no pulse present:
    - Consider early consult with TAH coordinator or medical control
    - Check for severed or kinked TAH driveline (address, if possible)
    - Check battery position and power status (replace, if possible)
    - Use the backup driver, or hand pump, if available
    - Do **not** perform chest compressions or place an AED
- Assess blood pressure: goal blood pressure is >90 mmHg and <150 mmHg
- Perform a secondary assessment and treat per protocol
  - If unresponsive with a pulse, evaluate for noncardiac etiologies
- **Notify the receiving hospital that your patient has a TAH while on scene or promptly after initiation of transport *regardless of patient's complaint***
- Assure that patient has both drivers (compressors), hand pump, all batteries, and power cords for transport
- Any trained support member should remain with patient



### CFR AND EMT STOP

## ADVANCED

### CC

### PARAMEDIC

- If blood pressure is >150 mmHg administer sublingual nitroglycerin 0.4mg
  - Repeat sublingual nitroglycerin 0.4mg every 5 minutes if BP>150 mmHg
- Assess for hypovolemia. If blood pressure <90mmHg, or evidence of distributive shock, blood loss, or dehydration:
  - IV 0.9% NS in 250mL boluses; may be repeated to one liter total if hypotension is persistent. Contact medical control for additional fluids beyond one liter
- Do **not** apply a cardiac monitor, or perform pacing or defibrillation and do **not** administer vasopressors or antiarrhythmics



### AEMT, CC, AND PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Termination of resuscitation
- Consultation with a TAH program provider

### Key Points/Considerations

- TAH patients have had their heart removed and replaced with a rigid device which pneumatically pumps blood throughout the body
- As these patients do not have a heart, there is no indication for an ECG or cardiac monitoring. A functioning TAH will not result in any measurable electrical activity
- TAH patients are on multi-agent anticoagulation and may have significant bleeding with minor injuries
- The TAH patient has normal pulse and blood pressure detectable by conventional methods and are highly preload and afterload sensitive:
  - Target Blood Pressure is <150 mmHg and > 90 mmHg
  - Pulse rate is set and regular, between 120-135 bpm

# Cardiac – Adult: Ventricular Assist Device (VAD)

## Criteria

- Evaluation and/or transport of a patient with a ventricular assist device (VAD)

## CFR AND ALL PROVIDER LEVELS

- Assess airway and breathing. Treat airway obstruction or respiratory distress per protocol. Treat medical or traumatic conditions per protocol
- Assess circulation:
  - Auscultate (listen with a stethoscope) over the precordial/epigastric (heart/upper stomach) area for a motorized “hum” and simultaneously visualize the controller for a green light or lit screen
  - Assess perfusion based on mental status, capillary refill, and skin color
  - In continuous flow VAD patients (HeartMate II<sup>®</sup>, Heartware<sup>®</sup>, or axial flow device), the absence of a palpable pulse is normal even in the setting of a normally functioning device. Patients may not have a readily measurable blood pressure
  - In pulsatile flow VAD patients with a HeartMate 3<sup>®</sup> centrifugal device, patients may have a palpable pulse (pulse is generally set to 30 BPM) in the setting of a normally functioning device, yet may not have a readily measurable blood pressure
  - Perform CPR **only** when there are no signs of flow or perfusion (the person is unresponsive, pulseless, and there is no evidence of the pump functioning [eg: no motor “hum”])
- Assess pump function:
  - Ascertain: pump model, installing institution, and institution VAD coordinator phone number from a tag located on the pocket controller. Patients may also have a medical bracelet, necklace, or wallet card with this information
- Perform a secondary assessment and treat per appropriate protocol
- **Notify the receiving facility promptly and consider early consultation with the VAD coordinator or medical control, regardless of the patient’s complaint**
- Assure that patient has the power unit, extra batteries, and backup controller for transport
- A trained support member should remain with patient

## CFR STOP

## EMT

- Unless otherwise directed by medical control, transport patient to a facility capable of managing VAD patients

## EMT STOP

## ADVANCED

## CC

## PARAMEDIC

- Apply cardiac monitor and obtain 12-lead ECG

- If hypotensive (poor perfusion based on mental status, capillary refill, or skin color):
  - Establish IV/IO access and administer a 500 mL NS bolus
  - Reassess and repeat up to 1000 mL total. Contact medical control for additional fluid boluses
- If inadequate perfusion or oxygenation, despite the device being on, treat with standard ACLS measures. Consider early medical control consultation as patients with a VAD often have dysrhythmias

## **ADVANCED, CC, AND PARAMEDIC STOP**

### **MEDICAL CONTROL CONSIDERATIONS**

- Termination of resuscitation
- Consider norepinephrine 2 mcg/min titrated to 20 mcg/min, if needed, after the fluid bolus is complete to maintain MAP > 65 mmHg or SBP >100 mmHg
- Consultation with a VAD program provider

### **Key Points/Considerations**

- Community patients with VADs are typically entirely mobile and independent
- Trained support members include family and caregivers who have extensive knowledge of the device, its function, and its battery units. They may act as a resource to the EMS provider when caring for a VAD patient
- One set of fully charged batteries provides 8-10 hours of power:
  - If the battery or power is low, the batteries need to be replaced immediately
  - Assist with the replacement of batteries if directed by patient/caregiver
  - **Never disconnect both batteries at once as this can cause complete loss of VAD power**
- Keep the device components dry
- The most common complication in VAD patients is infection. VAD patients are susceptible to systemic illness, sepsis, and septic shock due to their abdominal driveline as a conduit of infection
- Patients with a VAD are highly preload dependent and afterload sensitive. Low flow alarms are frequently due to MAP >90 mmHg. The devices are sensitive to alterations in volume status and careful volume resuscitation is often necessary
- VAD patients are heavily anticoagulated and susceptible to bleeding complications
- Patients may have VF/VT and be asymptomatic

### **Controller Device Normal Values:**

	Heartmate II <sup>®</sup>	Heartmate 3 <sup>®</sup>	HVAD <sup>®</sup>
Speed	8,000-10,000 RPM	5,000-6,000 RPM	2400-3200 RPM
Power	4-7 watts	3-7 watts	3-6 watts
Flow	4-8 L/min	3-6 L/min	3-6 L/min
Pulsatility Index (PI)	4-6	1-4	NA

# Cardiac Related Problem / Chest Pain – Adult

For pediatric see, “Cardiac Related Problem – Pediatric”

## CRITERIA

- For patients presenting with suspected cardiac chest pain; angina or an anginal equivalent
- For the patient with a confirmed STEMI see, “General: Cardiac – Adult: ST Elevation MI (STEMI)” protocol as soon as confirmed

## CFR AND ALL PROVIDER LEVELS

- Airway management and appropriate oxygen therapy
- Aspirin 324 mg (4 x 81 mg tabs) chewed, only if able to chew\*

## CFR STOP

## EMT

- Acquire and transmit 12-lead ECG\*\*
  - For patients with a STEMI, confirmed by medical control, begin transport to a facility capable of primary angioplasty if estimated arrival to that facility is within 90 minutes of patient contact or if directed by medical control or regional procedure
- If the patient requests, assist patient with his or her prescribed nitroglycerin, up to 3 doses, 5 minutes apart, provided the patient’s systolic BP is > 120 mmHg
- See also “General: Cardiogenic Shock – Adult” protocol for patients with signs of hypoperfusion

## EMT STOP

## ADVANCED

- Vascular access  
Refer to the “General: Pain Management - Adult” protocol, as indicated
- Nitroglycerin 0.4 mg SL per dose, as needed, 5 minutes apart, provided the patient’s systolic BP is > 120mmHg or MAP > 90 mmHg

## ADVANCED STOP

## CC

## PARAMEDIC

- Cardiac monitor with 12-lead ECG (if capable, transmit to hospital if there is any question or if there is a significant finding)
- If systolic BP drops below 100 mmHg, place patient in a supine position, if possible, and consider normal saline 500mL IV bolus

## CC AND PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Additional nitroglycerin 0.4 mg SL every 5 minutes for EMT
- Consider medical control consultation, as needed, for determination of most appropriate destination facility

### **Key Points/Considerations**

- Focus on maintaining ABCs, pain relief, rapid identification, rapid notification, and rapid transport to an appropriate facility
- Vitals, as well as 12-lead ECG, should be assessed frequently during transport
- If the patient does not have prescribed nitroglycerin, a 12-lead ECG should be obtained prior to administering any nitroglycerin
- If the patient becomes hypotensive after nitroglycerin administration, place the patient in a supine position, if there is no contraindication to doing so, such as severe pulmonary edema
- Aspirin should not be enteric coated
- The patient may have been advised to take aspirin prior to arrival by emergency medical dispatch. You may give an additional dose of aspirin (324 mg chewed) if there is any concern about the patient having received an effective dose prior to your arrival
- Consider 12-lead ECG for adults, with any one of the following: dyspnea, syncope, dizziness, fatigue, weakness, nausea, or vomiting
- \*If equipped and trained for CFR level
- \*\*If equipped, trained, and regionally approved

# Cardiac Related Problem – Pediatric

## CRITERIA

Pediatric patients who have known heart disease and/or have been operated on for congenital heart disease have medical emergencies that are different from adults with heart disease

Pediatric patients with congenital heart disease may:

- have baseline oxygen saturations between 65 and 85% rather than above 92% (ask care provider about patient's usual oxygen saturation level)
- develop sudden heart rhythm disturbances
- be fed by either a nasogastric tube (tube in nose) or by gastrostomy (tube through abdominal wall)
- not have a pulse or accurate blood pressure in an extremity after heart surgery
- have a pacemaker

## CFR AND ALL PROVIDER LEVELS

- ABCs and vital signs, including blood pressure
- Keep patient on continuous pulse oximeter monitoring, if available (will monitor both heart rate and SpO<sub>2</sub>)
- Ask parents if the patient has a heart condition and/or has been operated on (look for a scar in the middle or side of chest); ask what type of heart condition it is
- Keep the child in a somewhat upright position to enable optimal breathing, or allow child to be in position of comfort
- Ask parents what the child's usual oxygen saturation is and provide only sufficient oxygen to bring the SpO<sub>2</sub> to his/her usual baseline
- Ask parent if the patient has a pacemaker and/or internal defibrillator
- Do not give anything by mouth
- If patient has a fever, minimize the child's clothing and keep the ambulance at a comfortable temperature



## CFR STOP

**EMT**

**ADVANCED**

**CC**

**PARAMEDIC**

- Assess for signs of poor perfusion (such as prolonged capillary refill > 2 seconds, cool and dusky distal extremities, poor radial and dorsalis pedis pulses, and/or hypotension)

- If patient has a gastrostomy tube, suggest to parent/caregiver to open the tube to air or aspirate stomach contents to improve the child’s ability to breathe
- Obtain vital signs including blood pressure every 15 minutes
- If patient has altered mental status, obtain fingerstick blood glucose and refer to the “General: Hypoglycemia – Pediatric” and/or “General: Altered Mental Status” protocol, as indicated

**EMT, ADVANCED, CC, PARAMEDIC STOP**

**Key Points/Considerations**

- Chest pain in children is rarely a sign of a cardiac condition (it is more frequently related to conditions such as costochondritis or pleuritis)
- Notify the destination hospital ASAP and state that the patient has signs of cardiac failure or decompensation
- Infants with congenital heart disease may present with symptoms very similar to septic shock (poor perfusion, poor distal pulses, tachypnea, or dusky appearance)
- Pediatric patients with a congenital heart condition often have oxygen saturations in the 65-85% range. Too much oxygen may be detrimental and result in worsening circulation
- Pediatric patients with a cardiac condition may have sudden arrhythmias that require treatment, including SVT. Cardiac monitoring should be done by ALS
- Transport to hospital should not be delayed in ill pediatric cardiac patients

- |                         |                  |                  |                          |
|-------------------------|------------------|------------------|--------------------------|
|                         | <b>&lt; 1 mo</b> | <b>&lt; 1 yr</b> | <b>1 – 10 yr</b>         |
| • Systolic Hypotension: | < 60             | < 70             | (< 70 + 2 x age OR < 90) |



# Cardiogenic Shock – Adult

For pediatric see, “Sepsis / Shock / Hypoperfusion - Pediatric”

## Criteria

- This protocol is to be used with the “General: ST Elevation MI (STEMI) – CONFIRMED” or “General: Cardiac Related Problem / Chest Pain – Adult” protocols for patients who have signs of hypoperfusion

## CFR AND ALL PROVIDER LEVELS

- Airway management and appropriate oxygen therapy
- Aspirin 324 mg (4 x 81 mg tabs) chewed, only if able to chew\*



**CFR STOP**

## EMT

- ABCs and vital signs
- Acquire and transmit 12-lead ECG, if equipped and regionally approved
  - Hospital destination may be determined in consultation with medical control
- Place patient supine unless dyspnea is present



**EMT STOP**

## ADVANCED

- Vascular access
- Normal saline 500 mL bolus, if SBP < 100 mmHg or MAP < 65 mmHg; may repeat up to a total of 2 L if lung sounds remain clear
  - Goal SBP > 100 mmHg and MAP > 65 mmHg



**ADVANCED STOP**

## CC

- Cardiac monitor with 12-lead ECG
- Notify hospital AS SOON AS POSSIBLE for ST elevation myocardial infarction (STEMI)



**CC STOP**

## PARAMEDIC

- If UNSTABLE, or in pulmonary edema, norepinephrine 2 mcg/min, titrated to 20 mcg/min if needed after fluid bolus complete to maintain MAP > 65 mmHg or SBP > 100 mmHg



**PARAMEDIC STOP**

## MEDICAL CONTROL CONSIDERATIONS

- Additional normal saline

## Key Points/Considerations

- UNSTABLE includes significant cardio-respiratory compromise, hypotension, or altered level of consciousness
- Refer to appropriate dysrhythmia protocols, as needed
- \*If equipped and trained for CFR level

# Childbirth: Obstetrics

## CRITERIA

- Childbirth is a natural phenomenon and the type of delivery cannot be regulated by your level of certification – if an CFR is faced with anything but a normal delivery, please feel comfortable calling medical control for assistance

## CFR AND ALL PROVIDER LEVELS

- **Management of a normal delivery**
  - Support the baby's head over the perineum with gentle pressure
  - If the membranes cover the head after it emerges, tear the sac with your fingers or forceps to permit escape of the amniotic fluid
  - Gently guide the head downward until the shoulder appears
  - The other shoulder is delivered by gentle upward traction
  - The infant's face should be upward at this point
  - Maintain firm grasp on infant



## CFR STOP

EMT

ADVANCED

CC

PARAMEDIC

- **Management of Umbilical Cord Around Neck**
  - Umbilical cord around the neck is an emergency, as the baby is no longer getting any oxygen either through the cord or by breathing
  - If the cord is around the neck:
    - Unwrap the cord from around the neck, if possible
    - Clamp the umbilical cord with two clamps
    - Cut the cord between them
- **Management of a Breech Delivery**
  - Support the buttocks or extremities until the back appears
  - Grasp the baby's ILIAC WINGS and apply gentle downward traction. DO NOT pull on the legs or back, as this may cause spine dislocation or adrenal hemorrhage
  - Gently swing the infant's body in the direction of least resistance
  - By swinging anteriorly and posteriorly, both shoulders should deliver posteriorly
  - Splint the humerus bones with your two fingers; apply gentle traction with your fingers
  - Gentle downward compression of the uterus will assist in head delivery
  - Swing the legs upward until the body is in a vertical position. This will permit delivery of the head
- **Management of Prolapsed Cord or Limb Presentation**
  - Place the mother in a face-up position with hips elevated

- Place a gloved hand in the vagina; attempt to hold baby's head away from the cord and maintain an airway for the baby
- Keep the cord moist using a sterile dressing and sterile water
- Transport as soon as possible to closest appropriate facility



## **EMT, ADVANCED, CC, PARAMEDIC STOP**

### **Key Points/Considerations**

- Obtain additional help for multiple births, as needed
- See “General: Childbirth – Newborn / Neonatal Care” protocol for subsequent instructions
- Determine the estimated date of expected birth, the number of previous pregnancies and number of live births
- Determine if the amniotic sac (bag of waters) has broken, if there is vaginal bleeding, mucous discharge, or the urge to bear down
- Determine the duration and frequency of uterine contractions
- Examine the patient for crowning:
  - If delivery is not imminent, transport as soon as possible
  - If delivery is imminent, prepare for an on-scene delivery
- If multiple births are anticipated, but the subsequent births do not occur within 10 minutes of the previous delivery, transport immediately
- After delivery of the placenta, massage the lower abdomen
- Take the placenta and any other tissue to the hospital for inspection
- Do not await the delivery of the placenta for transport
- If uterine inversion occurs (uterus turns inside out after delivery and extends through the cervix), treat for shock and transport immediately. If a single attempt to replace the uterus fails, cover the exposed uterus with moistened sterile towels

# Childbirth: Preterm Labor (24 – 37 weeks)

## CFR AND ALL PROVIDER LEVELS

### EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

 **CFR AND EMT STOP**

### ADVANCED

### CC

### PARAMEDIC

- Vascular access
- Normal saline 500 mL IV bolus

 **ADVANCED, CC, AND PARAMEDIC STOP**

## MEDICAL CONTROL CONSIDERATIONS

- Magnesium 4 grams in 100 mL IV over 20 minutes
- Additional normal saline

## Key Points/Considerations

- Transport to the closest appropriate hospital, if delivery is imminent or occurs on scene
  - Notify the destination hospital ASAP
  - If a patient is unwilling to go to the closest appropriate hospital, consult medical control for assistance in determining an appropriate destination

# Childbirth: Newborn / Neonatal Care

## CRITERIA

- For the evaluation and resuscitation of babies just delivered

## CFR AND ALL PROVIDER LEVELS

### EMT

### ADVANCED

### CC

#### Assess the infant's respiratory status, pulse, responsiveness, and general condition

- **If the infant is breathing spontaneously and crying vigorously, and has a pulse > 100/min:**
  - Clamp the umbilical cord with two clamps, three inches apart, and cut the cord between them at least 1 min after delivery. The first clamp should be 8 – 10 inches from the baby. Place the second clamp 3 inches from the first clamp toward the mother
  - Cover the infant's scalp with an appropriate warm covering
  - Wrap the infant in a dry, warm blanket or towels and a layer of foil or plastic wrap over the layer of blankets or towels or use a commercial-type infant swaddler, if one is provided with the OB kit. Do not use foil alone
  - Keep the infant warm and free from drafts. Continuously monitor the infant's respirations
- **If the infant is not breathing spontaneously or not crying vigorously:**
  - Gently rub the infant's lower back
  - Gently tap the bottom of the infant's feet
- **If the respirations remain absent, gasping, or become depressed (< 30/min) despite stimulation, if the airway is obstructed, or if the heart rate is < 100/min:**
  - Clear the infant's airway by suctioning the mouth and nose gently with a bulb syringe, and then ventilate the infant at a rate of 40 – 60 breaths/minute with an appropriate bag-valve-mask (BVM) as soon as possible, with a volume just enough to see chest rise. Start with room air. If no response after 30-60 seconds of effective ventilation add oxygen
  - Each ventilation should be given gently, over one second per respiratory cycle, assuring that the chest rises with each ventilation
  - Monitor the infant's pulse rate (by palpation at the base of the umbilical cord or by auscultation over the heart), and apply continuous pulse oximetry using (ideally the right) wrist or palm, \*if available and trained
- **If the pulse rate drops < 60 beats per minute at any time:**
  - Perform chest compressions with assisted ventilations at a 3:1 compression to ventilation ratio



**CFR, EMT, ADVANCED, AND CC STOP**

## PARAMEDIC

- Consider intubation
- If the heart rate < 60 seconds and there is no improvement in the heart rate within 60 seconds of chest compressions, administer epinephrine (1:10,000 / 0.1mg/mL) 0.01 mg/kg IV every 3 minutes until HR > 60
- Treat blood glucose < 40 mg/dL
  - Dextrose 10% 5 mL/kg IV via syringe **NOT** via drip



## PARAMEDIC STOP

### Key Points/Considerations

- Hypothermia and hypoglycemia may decrease the likelihood of successful resuscitation
- Begin transport to the closest appropriate hospital as soon as possible

## Dif Breathing – Adult: Asthma / COPD / Wheezing

For pediatric see, “Dif Breathing – Pediatric: Asthma / Wheezing” or “Dif Breathing – Pediatric: Stridor”

### CRITERIA

- Patients with effective but increased work of breathing with wheezing
  - Excludes traumatic causes of dyspnea
  - Excludes pneumothorax

### CFR AND ALL PROVIDER LEVELS

- Assess for foreign body airway obstruction
  - Refer immediately to the “Extremis: Foreign Body Obstructed Airway – Adult” protocol, if indicated
- Ongoing assessment of the effectiveness of breathing
  - Refer to the “Extremis: Respiratory Arrest / Failure – Adult” protocol, if necessary
- Administer supplemental oxygen; refer to the “Resources: Oxygen Administration and Airway Management” protocol
- Assist patient with his or her own medications, see “Resources: Prescribed Medication Assistance” protocol
- Facilitate transportation, ongoing assessment, and supportive care



### CFR STOP

### EMT

- If patient is wheezing:
  - Administer albuterol 2.5 mg in 3 mL (unit dose) via nebulizer\*
    - Oxygen powered nebulizer devices for use in accordance with manufacturer specifications (typically ~6-8 LPM)
  - May repeat to a total of three doses if symptoms persist
- Continuous Positive Airway Pressure (CPAP) 5-10 cm H<sub>2</sub>O, as needed\*
- If the patient is in severe distress, see medical control considerations for use of epinephrine



### EMT STOP

### ADVANCED

- Vascular access, if not improving with nebulizer treatment
- Epinephrine (1:1,000 / 1mg/mL) dose 0.3 mg IM for severe distress
  - If severe distress persists, may repeat in 5 minutes
- Albuterol 2.5 mg in 3 mL (unit dose), via nebulizer or ET tube nebulizer; may repeat to a total of three doses for wheezing



### ADVANCED STOP

### CC



## PARAMEDIC

- Paramedics and CC may substitute albuterol 2.5 mg in 3 mL (unit dose) & ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together, via nebulizer or ET tube nebulizer for albuterol-only above; may repeat to a total of three doses of both medications for wheezing
- Consider cardiac monitor and 12-lead ECG
- Dexamethasone (Decadron) 10 mg PO, IM, or IV
- ***For the patient with asthma***, if the patient is not responding to treatments above, administer magnesium 2 grams in 100 mL normal saline IV over 10 minutes



## CC AND PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Use of albuterol via nebulizer by EMT for indications other than asthma
- Use of epinephrine by EMT for critical asthma attack (EMT Syringe Epinephrine or autoinjector)
- Additional albuterol unit doses via nebulizer
- Epinephrine (1:1,000 / 1 mg/mL) 3 mg via nebulizer or racemic epinephrine (2.25%) 0.5 mL in 3 mL of normal saline via nebulizer
- Magnesium for COPD exacerbation
- Repeat magnesium

## Key Points/Considerations

- Wheezing does not always indicate asthma. Consider allergic reaction, airway obstruction, pulmonary edema
  - Allow the patient to maintain position of comfort when safe to do so
    - Do not force the patient to lie down
    - Do not agitate the patient
  - A combination unit dose (such as a DuoNeb<sup>®</sup>) may be substituted for Albuterol 2.5 mg in 3 mL (unit dose) & ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together
  - IM administration of epinephrine should be used if the patient is in severe distress and tidal volume is so small that nebulized medications will not work
  - If an ALS provider has administered any medications, regional procedure *may* require consultation with medical control prior to honoring a request for refusal of medical care or before sending the patient with BLS care
  - Observe airborne and/or droplet precautions in appropriate patients, such as those with suspected tuberculosis
  - Do not delay transport to complete medication administration
  - BiPAP may be used in place of CPAP, as training and equipment allow
- \*If equipped and trained

# Dif Breathing – Adult: Pulmonary Edema

## No Pediatric Protocol

### CFR AND ALL PROVIDER LEVELS

- ABCs and vital signs
- Sit patient upright, if possible
- Administer supplemental oxygen; refer to the “Oxygen Administration and Airway Management” protocol
- Facilitate transportation, ongoing assessment, and supportive care

### CFR STOP

### EMT

- Continuous Positive Airway Pressure (CPAP) 5-10 cm H<sub>2</sub>O as needed, if equipped and trained

### EMT STOP

### ADVANCED

- Vascular access

### ADVANCED STOP

### CC

### PARAMEDIC

- Cardiac monitor
- Aggressive nitroglycerin 0.4 mg SL or equivalent, as needed:
  - One dose/tablet every 5 minutes if the patient’s systolic BP 120 – 160 mmHg
  - Two doses/tablets every 5 minutes if the patient’s systolic BP 160 – 200 mmHg
  - Three doses/tablets every 5 minutes if the patient’s systolic BP > 200 mmHg
- Consider albuterol 2.5 mg in 3 mL (unit dose) + ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together, via nebulizer, only if wheezes are present
- 12-lead ECG

### CC AND PARAMEDIC STOP

### MEDICAL CONTROL CONSIDERATIONS

- Additional albuterol
- Nitroglycerin option for Advanced

### Key Points/Considerations

- All patients with rales do not have pulmonary edema; consider the possibility of pneumonia or chronic obstructive pulmonary disease (COPD) exacerbation
- A combination unit dose (such as a DuoNeb<sup>®</sup>) may be substituted for Albuterol 2.5 mg in 3 mL (unit dose) & ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together
- Monitor BP closely, particularly when administering nitroglycerin for pulmonary edema (may not be able to lay patient in a supine position if he or she becomes hypotensive)
- BiPAP may be used in place of CPAP as training and equipment allow

# Dif Breathing – Pediatric: Asthma / Wheezing

## CRITERIA

- Patients with increased work of breathing (retractions, grunting, nasal flaring) and prolonged expiration and/or poor air movement
  - Excludes traumatic causes of dyspnea
  - Excludes pneumothorax
  - Excludes stridor / croup (see “Difficulty Breathing: Stridor - Pediatric” protocol)

## CFR AND ALL PROVIDER LEVELS

- Assess for foreign body airway obstruction
  - Refer immediately to the “Extremis: Foreign Body Obstructed Airway – Pediatric” protocol, if indicated
- Ongoing assessment of the effectiveness of breathing
  - Refer to the “Extremis: Respiratory Arrest / Failure – Pediatric” protocol, if necessary
- Allow patient to determine position of comfort. If patient cannot do so, have patient sit upright or elevate the head of the stretcher
- Administer supplemental oxygen; refer to the “Resources: Oxygen Administration and Airway Management” protocol
- Assist patient with his or her own asthma medications (see “Resources: Prescribed Medication Assistance” protocol), as appropriate
- Facilitate transportation, ongoing assessment, and supportive care



### CFR STOP

## EMT

### ADVANCED

- Administer albuterol 2.5 mg in 3 mL (unit dose) via nebulizer\*
  - Oxygen powered nebulizer devices for use in accordance with manufacturer specifications (typically ~6-8 LPM)
  - May repeat to a total of three doses if symptoms persist
- If the patient is in severe distress, see medical control considerations for use of epinephrine
- For older pediatric patients consider CPAP for EMT, as equipment size allows, if available and trained



### EMT AND ADVANCED STOP

## CC

- Paramedics and CC may substitute albuterol 2.5 mg in 3 mL (unit dose) & ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together, via nebulizer for albuterol-only above; may repeat to a total of three doses of both medications for wheezing
- If patient is not improving:
  - Epinephrine (1:1,000 / 1mg/mL) 0.01 mg/kg IM, if patient is in severe distress; max 0.3 mg

- Cardiac monitor

## **CC STOP**

### **PARAMEDIC**

- Vascular access, if indicated (General: Vascular Access)
- Dexamethasone (Decadron) 10 mg PO, IM, or IV for patients  $\geq 2$  years old

## **PARAMEDIC STOP**

### **MEDICAL CONTROL CONSIDERATIONS**

- For the EMT and Advanced:
  - Additional albuterol
  - Epinephrine for critical asthma attack\* (EMT Syringe Epinephrine kits or autoinjector)
- CC vascular access
- Epinephrine (1:1,000 / 1 mg/mL) 0.01 mg/kg IM, max 0.3 mg (repeat doses)
- Epinephrine (1:1,000 / 1 mg/mL) 3 mg via nebulizer or racemic epinephrine (2.25%) 0.5 mL in 3 mL of normal saline via nebulizer
- Epinephrine 0.1-1.5 mcg/kg/minute IV drip
  - Start low (consider 0.1 mcg/kg/minute) and titrate gradually
  - Max 1.5 mcg/kg/minute
- Magnesium 50 mg/kg over 10 minutes IV, max 2 grams
- Continuous albuterol administration via nebulizer
- Dexamethasone (Decadron) 0.6 mg/kg PO, IM, or IV for patients  $< 2$  years old

### **Key Points/Considerations**

- Absence of breath sounds can be indicative of status asthmaticus. Be prepared for respiratory arrest
- A combination unit dose (such as a DuoNeb<sup>®</sup>) may be substituted for Albuterol 2.5 mg in 3 mL (unit dose) & ipratropium (Atrovent) 0.5 mg in 2.5 mL (unit dose) mixed together
- Expiratory wheezing does not always indicate asthma. Consider allergic reaction, airway obstruction, pulmonary edema
- In children under 2 yr old, bronchiolitis is the most common cause of wheezing. Bronchiolitis may not respond to albuterol. Gentle nasal suctioning is the primary treatment along with oxygen, particularly in infants.
- Allow the patient to maintain position of comfort when safe to do so
  - Do not force the patient to lie down
  - Do not agitate the patient
- Observe airborne and/or droplet precautions in appropriate patients, such as those with suspected pertussis (whooping cough)
- Do not delay transport to complete medication administration
- \*If equipped and trained

# Dif Breathing – Pediatric: Stridor

## CFR AND ALL PROVIDER LEVELS

### EMT

### ADVANCED

- Assess for foreign body airway obstruction
  - Refer immediately to the “Extremis: Foreign Body Obstructed Airway - Pediatric” protocol, if indicated
- Assess for anaphylaxis
  - Refer immediately to the “General: Anaphylaxis – Pediatric” protocol, if indicated
- Ongoing assessment of the effectiveness of breathing
  - Refer to the “Extremis: Respiratory Arrest / Failure – Pediatric” protocol, if necessary
- Administer supplemental oxygen; refer to the “Resources: Oxygen Administration and Airway Management” protocol
  - Consider high concentration, humidified, blow-by oxygen delivered by tubing or face mask held about 3-5 inches from face (as tolerated)
- Facilitate transportation, ongoing assessment, pulse oximeter, and supportive care

## CFR, EMT, AND ADVANCED STOP

### CC

- Cardiac monitor
- If the patient is unconscious and mechanical obstruction is suspected, attempt to remove the object with Magill Forceps

## CC STOP

### PARAMEDIC

- If SEVERE respiratory distress (severe stridor especially with drooling), epinephrine (1:1,000 / 1mg/mL) 3 mg via nebulizer or racemic epinephrine (2.25%) 0.5 mL in 3 mL of normal saline via nebulizer
- Dexamethasone (Decadron) 10 mg PO or IM for patients  $\geq 2$  years old (may give the IV formulation orally, if tolerated)

## PARAMEDIC STOP

### MEDICAL CONTROL CONSIDERATIONS

- Vascular access
- Dexamethasone (Decadron) 0.6 mg/kg up to 10 mg PO, IM, or IV
- Epinephrine (1:1,000 / 1 mg/mL) 3 mg, via nebulizer for CC or additional doses for CC or paramedic

### **Key Points/Considerations**

- If the patient has stridor (inspiratory), it is often an upper airway problem (physiologic or mechanical obstruction)
- Viral croup should be considered in children presenting with absent or low grade fever, barking cough, stridor, and/or sternal retractions
- Epiglottitis should be considered in children with a high fever, muffled voice, tripod position, and/or drooling
  - A vaccination history should be obtained because unvaccinated children are at higher risk of epiglottitis
- Agitating a child with croup or epiglottitis could cause a complete airway obstruction
- Limit interventions that may cause unnecessary agitation in a child with stridor such as assessment of blood pressure in a child who can still breathe, cough, cry, or speak

# Environmental: Cold Emergencies

Applies to adult and pediatric patients

## CRITERIA

- For patients presenting with localized cold injury or hypothermia

## CFR AND ALL PROVIDER LEVELS

- ABCs, vital signs
- Remove the patient from the cold environment
- For local cold injury:
  - Protect areas from pressure, trauma, and friction
  - Do not break blisters
  - Do not rub the injured area
  - Remove clothing and jewelry
- For generalized hypothermia:
  - Handle patient carefully to prevent cardiac dysrhythmias
  - Gently remove wet clothing and dry the patient
  - If oxygen is required, provide warm, humidified oxygen, if available
  - Place heat packs, if available, in the patient's groin area, lateral chest, and neck
  - Wrap the patient in dry blankets and maintain a warm environment
    - Especially for infants and young pediatric patients, cover the head with a cap or towel to decrease heat loss



## CFR STOP

EMT

ADVANCED

CC

PARAMEDIC

- Rewarm the extremity (if the means to do so are available) only if anticipated time to the hospital exceeds 60 minutes, the patient presents with early or superficial local cold injury only, and there is no concern that the extremity will freeze again:
  - Immerse the affected part in a warm water bath  $\leq 105$  °F; water should feel warm, but not hot
  - Frequently stir the water and assure it remains warm
  - Continue the immersion in warm water until the extremity is soft, and color and sensation return
  - Dress the area with dry, sterile dressings
    - If a hand or foot is involved, place sterile dressings between fingers or toes
- Prevent the warmed part from freezing again



## EMT, ADVANCED, CC, AND PARAMEDIC STOP



### **Key Points/Considerations**

- Patients with severe hypothermia may have very slow heart rates
- If defibrillation is required, provide no more than three shocks
- Limit administration of medication in cardiac arrest associated with hypothermia to one round
  - Rhythm changes may be treated with a single round of the appropriate drug
- Pulse oxygenation measurement may be inaccurate if the patient is hypothermic. If the patient is cyanotic and in apparent respiratory distress, administer oxygen

# Environmental: Heat Emergencies

Applies to adult and pediatric patients

## CFR AND ALL PROVIDER LEVELS

### EMT

- ABCs, vital signs
- Loosen or remove outer clothing
- For patients presenting with moist, pale, and normal to cool skin temperature:
  - If the patient is not nauseated and able to drink water without assistance, have the patient drink water\*
- For patients presenting with hot, flushed, and dry skin:
  - Apply cold packs to patient's neck, groin, and armpits
  - Keep the patient's skin wet by applying wet sponges or towels

### CFR AND EMT STOP

### ADVANCED

### CC

### PARAMEDIC

- Vascular access, as needed
- For adult patients only, consider normal saline 500 cc IV bolus; may repeat up to 2 liters as needed, if there are no signs of pulmonary edema and no concern for water intoxication\*

### ADVANCED, CC, AND PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Additional IV fluid hydration or IV fluid hydration in children

## Key Points/Considerations

- Stable patients with normal mental status and no signs of hot, dry skin may only require oral rehydration and cooling
- Do not delay transport to treat the patient on the scene; transport is suggested for all patients who present with a heat emergency
- \*Water intoxication occurs when patients ingest excessive water which causes potentially life-threatening electrolyte abnormalities
  - Suspect in long distance runners who consume large amounts of water and present with collapse or confusion
  - Cool the patient, as indicated, and contact medical control before administering any fluid to a patient with suspected water intoxication

# Epistaxis

## CFR AND ALL PROVIDER LEVELS

### EMT

### ADVANCED

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Unless other patient care precludes, position the patient upright with head leaning forward. Pinch the nose at the highest area of soft-tissue for at least 20 minutes. **DO NOT RELEASE TO RE-EVALUATE** during that time
- Have patient spit out any blood in the oropharynx
- Patient may be instructed on the personal use of suction for the oropharynx if able to assist

## **CFR, EMT and ADVANCED STOP**

### CC

### PARAMEDIC

If equipped with Oxymetolazone ONLY\*

- Have patient blow nose vigorously
- Two sprays of Oxymetolazone in each nare, and reapply pressure

## **ADVANCED, CC, AND PARAMEDIC STOP**

## MEDICAL CONTROL CONSIDERATIONS

### Key Points/Considerations

**If epistaxis is associated with trauma, then appropriate management of airway with cervical spine considerations must take precedent for positioning and care.**

- \*If equipped and trained

# Fever – Adult

For pediatric see, “Fever – Pediatric”

## CRITERIA

- Adult patient with the following:
  - Temperature  $> 100.4^{\circ}\text{F}$  ( $38^{\circ}\text{C}$ ) – **OR** –
  - Temperature  $\geq 2^{\circ}\text{F}$  ( $1^{\circ}\text{C}$ ) over baseline – **AND** –
  - Suspected infection – **OR** –
  - Recipient of a blood / blood product transfusion
- Patient has not had a total dose of  $>650$  mg of acetaminophen (either acetaminophen or an acetaminophen containing product) or  $> 400$  mg of ibuprofen within the last 4 hours

## EMT

- ABCs and vital signs, to include SpO<sub>2</sub> and temperature\*
- Airway management and appropriate oxygen therapy

 **EMT STOP**

## ADVANCED

- Large bore vascular access
- Normal saline 500 mL bolus; may repeat once, if lung sounds remain clear (no concerns for pulmonary edema)
- If able to tolerate oral fluid consider one of the following:
  - Acetaminophen 650 mg / 20.3 mL PO (2 – 325 mg / 10.15 mL PO unit doses)\*
  - Ibuprofen 400 mg / 20 mL PO (4 – 100 mg / 5 mL PO unit doses)\*

 **ADVANCED STOP**

## CC

### PARAMEDIC

- Consider cardiac monitor, continuous SpO<sub>2</sub>
- Consider a 12-lead ECG if appropriate

 **CC AND PARAMEDIC STOP**

## MEDICAL CONTROL CONSIDERATIONS

- Additional acetaminophen 325 mg / 10.15 mL PO (1 additional – 325 mg / 10.15 mL PO unit dose)
- Additional ibuprofen 100 mg / 5 mL PO (1 or 2 additional – 100 mg / 5 mL PO unit dose)

## Key Points/Considerations

- \*If equipped and trained

- Acetaminophen contraindications (unless medical control approved):
  - Hx of liver problems / acute liver failure
  - Acute liver inflammation due to hepatitis C virus
  - In the setting of shock or overdose (especially acetaminophen overdose)
- Ibuprofen contraindications (unless medical control approved):
  - Severe renal impairment (dialysis dependent)
  - In the setting of shock or overdose
  - Prescribed 'blood thinners' (i.e. warfarin / Coumadin)
  - Allergy to any NSAID / aspirin
  - Pregnancy (late)
- Administer oxygen therapy utilizing the appropriate delivery device and titration to maintain SpO<sub>2</sub> > 92%
- If fever is due to suspected viral or bacterial infection, refer to protocol "General: Severe Sepsis / Septic Shock" protocol and treat as indicated
- If fever is due to suspected reaction to blood / blood product transfusion, immediately stop the transfusion, replace all tubing (save for receiving hospital blood bank) and maintain IV access with new bag of 0.9% NaCl, contact medical control, and treat per appropriate protocol
  - Temperature monitoring, take initial and every 10 minutes
  - Cardiac monitor, continuous SpO<sub>2</sub> and continuous pCO<sub>2</sub> monitoring
  - Consider a 12-lead ECG, if appropriate

## Fever – Pediatric

### CRITERIA

- Pediatric patient with the following:
  - Temperature  $> 100.4^{\circ}\text{F}$  ( $38^{\circ}\text{C}$ ) – **OR** –
  - Temperature  $\geq 2^{\circ}\text{F}$  ( $1^{\circ}\text{C}$ ) over baseline – **AND** –
  - Suspected infection – **OR** –
  - Recipient of a blood / blood product transfusion
- Patient has not had a dose of acetaminophen (either acetaminophen or an acetaminophen containing product) or ibuprofen within the last 4 hours

### EMT

- ABCs and vital signs, to include SpO<sub>2</sub> and temperature\*
- Airway management and appropriate oxygen therapy
- Check blood glucose level, if equipped. If abnormal, refer to the “General: Hyperglycemia – Pediatric” or “General: Hypoglycemia – Pediatric” protocol, and treat as indicated



### EMT STOP

### ADVANCED

- If able to tolerate oral fluid consider one of the following:

Acetaminophen 15 mg / kg PO\* or:

Weight in Lbs	Weight in Kgs	mL of APAP	Concentration of APAP
< 6	< 2.7	Medical Control	325 mg / 10.15 mL
6 – 11	2.7 – 5.0	1.25	325 mg / 10.15 mL
12 – 17	5.1 – 7.7	2.5	325 mg / 10.15 mL
18 – 24	7.8 – 10.9	3.75	325 mg / 10.15 mL
25 – 49	11.0 – 22.3	5	325 mg / 10.15 mL
$\geq 50$	$\geq 22.3$	10.15	325 mg / 10.15 mL

Ibuprofen 10 mg/kg PO\* or:

Weight in Lbs	Weight in Kgs	mL of ibuprofen	Concentration of ibuprofen
< 6	< 2.7	Medical Control	100 mg / 5 mL
6 – 11	2.7 – 5.0	1.25	100 mg / 5 mL
12 – 17	5.1 – 7.7	2.5	100 mg / 5 mL
18 – 24	7.8 – 10.9	3.75	100 mg / 5 mL
25 – 49	11.0 – 22.3	5	100 mg / 5 mL
$\geq 50$	$\geq 22.3$	10	100 mg / 5 mL



### ADVANCED STOP

### CC

### PARAMEDIC

- Consider cardiac monitor, continuous SpO<sub>2</sub>
- If indications of hypoperfusion, refer to the “General: Sepsis / Shock / Hypoperfusion – Pediatric” protocol and treat as indicated



## **CC AND PARAMEDIC STOP**

### **MEDICAL CONTROL CONSIDERATIONS**

- Acetaminophen 10 - 15 mg / kg / dose if given Ibuprofen
- Ibuprofen 10 mg / kg / dose if given Acetaminophen

### **Key Points/Considerations**

- \*If equipped and trained
- Acetaminophen contraindications (unless medical control approved):
  - Hx of liver problems / acute liver failure
  - Acute liver inflammation due to hepatitis C virus
  - In the setting of shock or overdose (especially acetaminophen overdose)
- Ibuprofen contraindications (unless medical control approved):
  - Severe renal impairment (dialysis dependent)
  - In the setting of shock or overdose
  - Prescribed ‘blood thinners’ (i.e. warfarin / Coumadin)
  - Allergy to any NSAID / aspirin
  - Pregnancy (late)
- Administer oxygen therapy utilizing the appropriate delivery device and titration to maintain SpO<sub>2</sub> > 92%
- If fever is due to suspected viral or bacterial infection, refer to protocol “Shock – Pediatric: Sepsis / Shock / Hypoperfusion” and treat as appropriate
- Diagnostic indications for hypoperfusion include: cool / clammy or mottled skin, inability to recognize parents, restlessness, listlessness, tachycardia, tachypnea, systolic BP < 70 mmHg (2 years and older), or systolic BP < 60 mmHg (less than 2 years old)
- If fever is due to suspected reaction to blood / blood product transfusion, immediately stop the transfusion, replace all tubing (save for receiving hospital blood bank) and maintain IV access with new bag of 0.9% NaCl, contact medical control, and treat per appropriate protocol
  - Temperature monitoring, take initial and every 10 minutes
  - Cardiac monitor, continuous SpO<sub>2</sub> and continuous pCO<sub>2</sub> monitoring

# Hyperkalemia – Adult

Applies to adult patients only

## Criteria

- This protocol is intended to be used for the prevention of potentially fatal cardiac rhythm abnormalities in patients with known or suspected hyperkalemia including:
  - Patients with known elevated laboratory values
  - Patients with renal failure who should be receiving dialysis
  - Patients with suspected renal failure who are not yet receiving dialysis
  - For patients with crush injury refer to the “Trauma: Crush Injuries – Adult” protocol
- There are no standing orders for hyperkalemia *except* for paramedics in cases of cardiac arrest or rhythm change during rapid sequence intubation

## CFR AND ALL PROVIDER LEVELS

### EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

### CFR AND EMT STOP

## ADVANCED

- Vascular access
- Normal saline 500 mL bolus

### ADVANCED STOP

## CC

- Cardiac monitor
- 12-lead ECG

### CC STOP

## PARAMEDIC

- In cases of cardiac arrest or rhythm changes during rapid sequence intubation:
  - Sodium bicarbonate 50 mEq IV
  - Calcium chloride 1 gram IV if there is QTc prolongation or suspected QRS widening
- Contact medical control for treatment of other indications

### PARAMEDIC STOP



## MEDICAL CONTROL CONSIDERATIONS

- Albuterol 2.5 mg in 3 mL (unit dose), via nebulizer (without ipratropium) repeated every 10 minutes
- Sodium bicarbonate and calcium chloride in patients who do not meet standing order criteria

## Key Points/Considerations

- Significant QTc prolongation should be considered when QTc > 500 milliseconds
- Significant QRS widening should be considered when QRS >150 milliseconds
- Calcium chloride is not a benign medication and should only be given if there are dangerous ECG changes such as QTc prolongation or suspected QRS widening
- Calcium chloride *should* only be given through a large, proximal, easily flowing IV
- A minimum of 50 mL of normal saline should be given between the bolus of calcium chloride and the bolus of sodium bicarbonate
- Hyperkalemia is indicated by prolonged QTc or widened QRS complexes

# Hyperglycemia – Adult

For pediatric see, “Hyperglycemia – Pediatric”

## CFR AND ALL PROVIDER LEVELS

### EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Check blood glucose level, if equipped
- Call for ALS intercept, if patient has altered mental status
- If blood glucose is CONFIRMED by glucometer to be high, do not administer oral glucose



### CFR AND EMT STOP

### ADVANCED

### CC

### PARAMEDIC

- Vascular access
- If glucose level is above 400 mg/dL, administer normal saline 500 mL IV bolus if there is no concern for pulmonary edema
  - May repeat bolus x1 if no concern for pulmonary edema



### ADVANCED, CC, AND PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Additional normal saline IV bolus

# Hyperglycemia – Pediatric

## CFR AND ALL PROVIDER LEVELS

### EMT

### ADVANCED

- Airway management and appropriate oxygen therapy
- Check the blood glucose level, if equipped and trained

### **CFR, EMT, AND ADVANCED STOP**

### CC

### PARAMEDIC

- If blood glucose is above 400 and *ONLY* if signs of dehydration are present, fluid bolus:
  - Normal saline 20 mL/kg IV

### **CC AND PARAMEDIC STOP**

## MEDICAL CONTROL CONSIDERATIONS

- Additional fluid hydration

# Hypoglycemia – Adult

For pediatric see, “Hypoglycemia – Pediatric”

## CRITERIA

- For patients with known or suspected hypoglycemia
- See also, “General: Altered Mental Status” protocol, as required

## CFR AND ALL PROVIDER LEVELS

### EMT

- Airway management and appropriate oxygen therapy
- Check pupils and, if constricted, consider “General: Opioid (Narcotic) Overdose” protocol
- Check blood glucose level, if equipped and safe to do so
  - If blood glucose is known or suspected to be below 60 mg/dL and patient can self-administer and swallow on command:
    - Give one unit dose (15-24 grams) of oral glucose, or another available carbohydrate source (such as fruit juice or non-diet soda)
  - If the patient is unable to swallow on command, or mental status remains altered following administration of oral glucose:
    - Do not delay transport
- Ongoing assessment of the effectiveness of breathing
  - Refer to “Extremis: Respiratory Arrest / Failure – Adult” protocol, if necessary



### CFR AND EMT STOP

## ADVANCED

### CC

## PARAMEDIC

- Vascular access
- If glucose level is below 60 mg/dL and the patient cannot swallow on command, administer dextrose 10%, up to 25 grams (250 mL) IV; may redose if hypoglycemia reoccurs
- If unable to obtain vascular access, administer glucagon 1 mg IM



### ADVANCED, CC, AND PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Additional dextrose 10 %, if patient is hypoglycemic

## Key Points/Considerations

- Assess the scene for safety and, if it is not, retreat to a safe location and obtain police assistance

- If the patient wishes to refuse transportation to a hospital and you have administered any medications, including oral glucose, regional procedure may require you to contact medical control prior to leaving the patient or completing the refusal of care, particularly if you know or suspect the patient may be on oral glycemic medications, or for any other worrisome concerns. Patient should be instructed to eat a meal if they are refusing transport because simple sugars are quickly metabolized
- If the patient's blood glucose level is below 60 mg/dL and the patient is able to self-administer and swallow on command, administer oral glucose or equivalent, rather than establishing vascular access, if practical
- If the patient regains normal responsiveness prior to infusion of the complete dose of dextrose, stop the infusion and record amount infused
- Diabetic patients may exhibit signs of hypoglycemia with a blood sugar between 60-80 mg/dL. If you suspect the symptoms are hypoglycemia-induced, titrate dextrose 10 % using 5 grams (50 mL) aliquots for treatment and diagnosis

# Hypoglycemia – Pediatric

## CRITERIA

- For pediatric patients with known or suspected hypoglycemia
- See also, “General: Altered Mental Status” protocol, as required

## CFR AND ALL PROVIDER LEVELS

### EMT

- Airway management and appropriate oxygen therapy
- Check pupils and, if constricted, consider “General: Opioid (Narcotic) Overdose” protocol
- Check blood glucose level, if equipped and safe to do so
  - If blood glucose is known or suspected to be below 60 mg/dL and patient can self-administer and swallow on command:
    - Give one unit dose (15-24 grams) of oral glucose, or another available carbohydrate source (such as fruit juice or non-diet soda)
  - If the patient is unable to swallow on command, or mental status remains altered following administration of oral glucose:
    - Do not delay transport
- Ongoing assessment of the effectiveness of breathing
  - Refer to “Extremis: Respiratory Arrest / Failure – Pediatric,” protocol if necessary



### CFR AND EMT STOP

## ADVANCED

- If unable to obtain adequate results with oral glucose consider glucagon 0.5 mg IM if < 20 kg, otherwise, 1 mg IM\*, if needed



### ADVANCED STOP

## CC

### PARAMEDIC

If no response to oral glucose:

- IV access, and dextrose 10% 5 mL/kg IV via syringe (*NOT* via drip)
  - If vascular access is limited: glucagon 0.5 mg IM if < 20 kg, otherwise, 1 mg IM\*
  - **Consider IO access only if there is no response to glucagon**



### CC AND PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

### Key Points/Considerations

- If the patient's parent or guardian wishes to refuse medical care for the patient, and you have administered any medications, including oral glucose, regional procedure may require consultation with medical control prior to completing the refusal
- Do **NOT** hang a dextrose 10% drip on a pediatric patient
- \*Preschool aged children and infants may have limited response to glucagon

# Nausea and/or Vomiting – Adult

For pediatric see, “Nausea and/or Vomiting (> 2 y/o) – Pediatric”

## CFR AND ALL PROVIDER LEVELS

### EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy



### CFR AND EMT STOP

### ADVANCED

- Vascular access
- Normal saline 500 mL IV bolus; may repeat once, if lung sounds remain clear



### ADVANCED STOP

### CC

### PARAMEDIC

- Consider a 12-lead ECG and cardiac monitor
- Ondansetron (Zofran) 4 mg ODT/PO, IV, or IM, may repeat x 1 in 10 minutes
- Diphenhydramine (Benadryl) 25 mg IV or IM for motion sickness



### CC AND PARAMEDIC STOP

### MEDICAL CONTROL CONSIDERATIONS

- Midazolam (Versed) IV, IM, or intranasal

### Key Points/Considerations

- This protocol is intended for the prevention and treatment of nausea and/or vomiting
- Patients may be given an isopropyl alcohol pad for self-administered inhalation



## Nausea and/or Vomiting – Pediatric (> 2 y/o)

### CFR AND ALL PROVIDER LEVELS

#### EMT

#### ADVANCED

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

 **CFR, EMT, AND ADVANCED STOP**

#### CC

- Ondansetron (Zofran) 2 mg IM or 4 mg ODT/PO
- Consider use of a cardiac monitor

 **CC STOP**

#### PARAMEDIC

- Ondansetron (Zofran) 2 mg IM or 4 mg ODT/PO
- Vascular access, if indicated (General: Vascular Access)

 **PARAMEDIC STOP**

#### MEDICAL CONTROL CONSIDERATIONS

- CC vascular access

#### Key Points/Considerations

- This protocol does not apply to patients under the age of two years
- A single dose of ondansetron (Zofran) may be given to the pediatric patient prior to seeking consultation with medical control

# Opioid (Narcotic) Overdose

Applies to adult and pediatric patients

## CRITERIA

- **\*Only administer naloxone (Narcan®) to patients with suspected opioid overdose *with hypoventilation (slow/shallow or ineffective respirations)*.**
- **For provider and patient safety, do not administer without a medical control order if there are adequate ventilations**

## CFR AND ALL PROVIDER LEVELS

### EMT

- ABCs, vital signs
- Airway management and appropriate oxygen therapy
- Check blood glucose level, if equipped
  - Refer to the “General: Hypoglycemia – Adult” or “General: Hypoglycemia – Pediatric” protocol, as indicated
- Determine what and how much was taken, along with the time, if possible
- For suspected opioid overdose **and** hypoventilation\* or respiratory arrest, administer naloxone (Narcan®) 2 mg\*\* intranasal; 1 mg per nostril, may repeat once in 5 minutes, if no significant improvement occurs (higher-level providers may substitute titration directions and routes specified below)
  - In the pediatric patient, administer naloxone (Narcan®) 1 mg\*\* intranasal; ½ mg per nostril, may repeat once in 5 minutes, if no significant improvement occurs

## CFR AND EMT STOP

## ADVANCED

- Vascular access *ONLY* if necessary
- Titrate naloxone (Narcan) to max 2 mg per dose IV, IM, or intranasal, *ONLY* if hypoventilation or respiratory arrest. (Consider administering in  $\leq 0.5$  mg increments, if giving IV)

## ADVANCED STOP

## CC

## PARAMEDIC

- Cardiac monitor
- Consider a 12-lead ECG, especially if bradycardic or tachycardic. (Evaluate for QRS widening or long QTc)

## CC AND PARAMEDIC STOP

## Key Points/Considerations

- \*\*May substitute alternative FDA and SEMAC approved, commercially prepared 4mg nasal spray unit dose device
  - This device is approved for the full 4 mg dose in the adult or pediatric patient
  - Administer 4mg in 1 nostril as a single spray
- ALS providers may titrate the naloxone (Narcan<sup>®</sup>) dose to attain adequate spontaneous ventilation
- If high suspicion of opioid overdose, providers may administer naloxone (Narcan<sup>®</sup>) prior to checking a blood glucose level
- Do NOT give naloxone (Narcan<sup>®</sup>) to any intubated patient without a medical control order unless they are in cardiac arrest
- If suspected isolated opioid overdose, consider giving naloxone (Narcan<sup>®</sup>) intranasally, for provider and patient safety

# Opioid (Narcotic) Withdrawal

## (PILOT PROGRAM ONLY)

This protocol applies to adult patients only

### CRITERIA

Patients with opioid use disorder who have overdosed and required naloxone reversal are at increased risk for recurrent overdose and death and also present an opportunity for intervention. Buprenorphine, a partial opioid agonist, provides some relief from opioid withdrawal symptoms. It is safe and effective for paramedic administration.

#### Inclusion Criteria

- Age 18 years or older
- Confirmed or suspected opioid overdose requiring naloxone administration
- Acute opioid withdrawal as a chief complaint

#### Exclusion Criteria

- Age < 18 years
- Known pregnancy (relative exclusion criteria – physician discretion)
- Methadone use in the last 48 hours
- Altered mental status (unable to consent)
- Unwilling to provide full name AND date of birth
- Received chest compressions/CPR prior to or after EMS arrival

### CFR AND ALL PROVIDER LEVELS

EMT

ADVANCED

CC

 **CFR, EMT, ADVANCED, CC STOP**

### PARAMEDIC

Perform the Clinical Opioid Withdrawal Scale (COWS). If the patient meets inclusion criteria and does not meet any exclusion criteria:

- If COWS > 7, counsel the patient on Buprenorphine & referral. Assess their desire for buprenorphine treatment.
  - If the patient is agreeable, contact Pilot Program Physician
- If COWS < 7
  - Give a medication-assisted treatment (MAT) brochure and offer transportation to the closest appropriate emergency department.

 **CC AND PARAMEDIC STOP**

## **PILOT PROGRAM PHYSICIAN MEDICAL CONTROL ORDERS**

- Administer Buprenorphine/Naloxone 16 mg sublingual (SL) film
- Ondansetron 4 mg orally disintegrating tablet (ODT) as needed
- Give a small sip of water to moisten mucous membranes
- Reassess after 10 minutes; if symptoms persist or worsen, administer additional Buprenorphine/Naloxone 8mg SL
- If symptoms improve after either the first or second dose of Buprenorphine, refer to clinic appointment, or transport to ED

### **Key Points/Considerations**

- Refusal of transportation must be through Pilot Program Physician for any patient that has received Buprenorphine prior to signing RMA
- Use Pilot Program resources and training for COWS calculation
- Only enrolled and trained agencies may participate:
  - Only these agencies may apply to add Buprenorphine/Naloxone to their controlled substance plan
- All Medical Direction for this program will be through Pilot Program Physician

# Organophosphate Exposure

Applies to adult and pediatric patients

## CFR AND ALL PROVIDER LEVELS

### EMT

- Decontamination as needed
- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Determine what and how much was taken, along with the time, if possible
- Check blood glucose level, if equipped
  - Refer to the “General: Hypoglycemia – Adult” or “General: Hypoglycemia – Pediatric” protocol, as indicated

### CFR AND EMT STOP

### ADVANCED

- Vascular access

### ADVANCED STOP

### CC

- Cardiac monitor
- Consider a 12-lead ECG, especially if bradycardic or tachycardic. (Evaluate for QRS widening or long QT)

### CC STOP

### PARAMEDIC

- For symptomatic patients with organophosphate poisoning:
  - Atropine 2 mg (per dose) IV, every 3-5 minutes until secretions dry in adults
  - For the pediatric patient:
    - Atropine 1 mg IV every 3-5 minutes, until secretions dry
  - For seizures:
    - For adult seizures see, “General: Seizures – Adult” protocol
    - For pediatric seizures see, “General: Seizures – Pediatric” protocol

### PARAMEDIC STOP

### Key Points/Considerations

- If suspected WMD, refer to the “Resource: Nerve Agent – Suspected” protocol
- For severe exposure or multiple patients, the atropine supply may quickly be exhausted. Diligent airway management, including suctioning and/or patient positioning, is imperative

# Pain Management – Adult

For pediatric see, “Pain Management – Pediatric”

## Criteria

- Contraindications to standing order pain management: altered mental status, hypoventilation, SBP < 100 mmHg
- Consider consultation with medical control prior to pain management in the third trimester pregnant women with pain complaints

## CFR AND ALL PROVIDER LEVELS

### EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

 **CFR AND EMT STOP**

## ADVANCED

- Vascular access
- Nitrous oxide by self-administered inhalation\*
- If able to tolerate oral fluid consider one of the following:
  - Acetaminophen 650 mg / 20.3 mL PO (2 – 325 mg / 10.15 mL PO unit doses)\*
  - Ibuprofen 400 mg / 20 mL PO (4 – 100 mg / 5 mL PO unit doses)\*

 **ADVANCED STOP**

## CC

### PARAMEDIC

- May choose one\*\*\*
  - Morphine 0.05 mg/kg IV or 0.1 mg/kg IM
    - Morphine may be repeated after 5 minutes; maximum total dose of 10 mg
  - Fentanyl 1-1.5 mcg/kg IV, IM, or intranasal
    - Fentanyl may be repeated after 5 minutes; maximum total dose of 200 mcg
  - Ketorolac\*\* (Toradol) 15 mg IV or 30 mg IM
- For nausea or vomiting see “General: Nausea and/or Vomiting – Adult” protocol

 **CC AND PARAMEDIC STOP**

## MEDICAL CONTROL CONSIDERATIONS

- Additional morphine IV or IM
- Additional fentanyl IV, IM, or intranasal
- Ketamine<sup>+</sup> 25 mg IV over 5 minutes or 50 mg IM

- May consider weight-based dosing ketamine 0.1-0.3 mg/kg IV
- Use caution when ordering >250 mg IM of ketamine after midazolam (Versed) because apnea may occur
- Additional acetaminophen or ibuprofen PO\*
- Midazolam (Versed) IV, IM, or intranasal

### Key Points/Considerations

- \*If equipped and trained
- **+Ketamine may be administered by paramedics only**
- **\*\*Ketorolac (Toradol)** should not be administered in renal failure, to dialysis patients, to patients > 60 years of age, in pregnancy, or in patients for whom active bleeding is a concern
- **\*\*\*ONE** non-oral pain medication may be given under standing orders. For dosing that exceeds the standing order maximum, or to switch to another agent, you must consult medical control
- Acetaminophen contraindications (unless medical control approved):
  - Hx of liver problems / acute liver failure
  - Acute liver inflammation due to hepatitis C virus
  - In the setting of shock or overdose (especially acetaminophen overdose)
- Ibuprofen contraindications (unless medical control approved):
  - Severe renal impairment (dialysis dependent)
  - In the setting of shock or overdose
  - Prescribed “blood thinners” (i.e. warfarin / Coumadin)
  - Allergy to any NSAID / aspirin
  - Pregnancy (late)
- For ease of administration, if clinically appropriate: consider approximating the dose of fentanyl to the nearest 50 mcg; consider approximating the dose of morphine to the nearest 5 mg
- Morphine or fentanyl up to the maximum dose may be given via standing orders
- **Nitrous oxide, ketamine, and ketorolac (Toradol) are not required formulary items**
- Contraindications to nitrous oxide include: suspected bowel obstruction, pneumothorax, hypoxia, or the inability to self-administer
- Fentanyl should be considered if there is an allergy to morphine or potential hemodynamic instability
- Morphine often produces a normal localized histamine reaction which manifests as urticaria (hives) immediately surrounding the IV site, and is not considered a sign of allergy. More extensive involvement of urticaria or other signs of allergic reaction should be treated (See: the “General: Anaphylaxis – Adult” protocol)
- Fentanyl must be pushed *slowly*



# Pain Management – Pediatric

## CFR AND ALL PROVIDER LEVELS

### EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

### CFR AND EMT STOP

### ADVANCED

- Nitrous oxide by self-administered inhalation\*
- If able to tolerate oral fluid consider one of the following:

Acetaminophen 15 mg / kg PO\* or:

Weight in Lbs	Weight in Kgs	mL of APAP	Concentration of APAP
< 6	< 2.7	Medical Control	325 mg / 10.15 mL
6 – 11	2.7 – 5.0	1.25	325 mg / 10.15 mL
12 – 17	5.1 – 7.7	2.5	325 mg / 10.15 mL
18 – 24	7.8 – 10.9	3.75	325 mg / 10.15 mL
25 – 49	11.0 – 22.3	5	325 mg / 10.15 mL
≥ 50	≥ 22.3	10.15	325 mg / 10.15 mL

Ibuprofen 10 mg/kg PO\* or:

Weight in Lbs	Weight in Kgs	mL of ibuprofen	Concentration of ibuprofen
< 6	< 2.7	Medical Control	100 mg / 5 mL
6 – 11	2.7 – 5.0	1.25	100 mg / 5 mL
12 – 17	5.1 – 7.7	2.5	100 mg / 5 mL
18 – 24	7.8 – 10.9	3.75	100 mg / 5 mL
25 – 49	11.0 – 22.3	5	100 mg / 5 mL
≥ 50	≥ 22.3	10	100 mg / 5 mL

### ADVANCED STOP

### CC

- Cardiac monitor
- Morphine 0.1 mg/kg IM
  - Morphine may be repeated after 5 minutes; maximum total dose of 10 mg
- Fentanyl 1-1.5 mcg/kg intranasal
  - Fentanyl may be repeated after 5 minutes once; maximum total dose of 100 mcg

### CC STOP

### PARAMEDIC

- Vascular access, if indicated. See “Resources: Vascular Access” protocol
- May choose one:
  - Morphine 0.05 mg/kg IV or 0.1 mg/kg IM
    - Morphine may be repeated after 5 minutes; maximum total dose of 10 mg\*\*

- Fentanyl 1-1.5 mcg/kg IV or IM
  - Fentanyl may be repeated after 5 minutes; maximum total dose of 100 mcg\*\*



## PARAMEDIC STOP

### MEDICAL CONTROL CONSIDERATIONS

- CC vascular access
- Additional Fentanyl IV, IM, or intranasal
- Additional Morphine IV or IM

### Key Points/Considerations

- \*If equipped and trained
- \*\*Morphine or fentanyl, up to the maximum dose, may be given via standing orders
- **ONE** non-oral pain medication may be given under standing orders. For dosing that exceeds the standing order maximum, or to switch to another agent, you must consult medical control
- Contraindications to standing order pain management: altered mental status, hypoventilation, and/or hypoperfusion
- Acetaminophen contraindications (unless medical control approved):
  - Hx of liver problems / acute liver failure
  - Acute liver inflammation due to hepatitis C virus
  - In the setting of shock or overdose (especially acetaminophen overdose)
- Ibuprofen contraindications (unless medical control approved):
  - Severe renal impairment (dialysis dependent)
  - In the setting of shock or overdose
  - Prescribed ‘blood thinners’ (i.e. warfarin / Coumadin)
  - Allergy to any NSAID / aspirin
  - Pregnancy (late)
- Fentanyl should be used if there is concern for potential hemodynamic instability
- For ease of administration, if clinically appropriate: consider approximating the dose of fentanyl and administer either 25 or 50 mcg; consider approximating the dose of morphine and administer either 2.5 or 5 mg
- **Nitrous oxide is not a required formulary item**
- Contraindications to nitrous oxide include: suspected bowel obstruction, pneumothorax, hypoxia, or the inability to self-administer
- Refer to the “General: Nausea and/or Vomiting (>2 y/o) – Pediatric” protocol, if needed

# Poisoning / Overdose – Adult: Undifferentiated

For pediatric see, “Poisoning / Overdose – Pediatric: Undifferentiated”

## Criteria

- This protocol is intended for the undifferentiated toxic exposure
  - For a suspected carbon monoxide exposure, see the “General: Carbon Monoxide Exposure – Suspected” protocol
  - For an opioid overdose, see the “General: Opioid (Narcotic) Overdose” protocol
  - For an organophosphate exposure, see “General: Organophosphate Exposure” protocol
  - For smoke inhalation, see “General: Smoke Inhalation / Cyanide Poisoning – Symptomatic” protocol
  - For altered mental status, see “General: Altered Mental Status” protocol
  - If suspected WMD nerve agent, refer to the “Resource: Nerve Agent – Suspected” protocol

## CFR AND ALL PROVIDER LEVELS

### EMT

- Decontamination, as needed
- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Determine what and how much was taken, along with the time, if possible
- Check blood glucose level, if equipped
  - Refer to the “General: Hypoglycemia – Adult” protocol, as indicated
- For contamination of the skin or eyes, refer to the “Trauma: Burns” protocol



**CFR, EMT STOP**

### ADVANCED

- Vascular access



**ADVANCED STOP**

### CC

- Cardiac monitor
- Consider a 12-lead ECG, especially if the patient is bradycardic or tachycardic. (Evaluate for QRS widening or long QT)
- Sympathomimetic OD (cocaine/amphetamines):
  - Consider midazolam (Versed) 2.5mg IV or 5mg IM or intranasal; may repeat x 1 in 5 minutes



**CC STOP**

### PARAMEDIC

**For symptomatic patients with:**

- Organophosphate poisoning: See the “General: Organophosphate Exposure” protocol
- Dystonic reaction:
  - Diphenhydramine (Benadryl) 50 mg IV or IM
- Tricyclic antidepressant OD (if tachycardic and wide complex QRS)
  - Sodium bicarbonate 1 mEq/kg IV every 5 minutes until QRS complex normalizes (< 0.12 sec / 120 milliseconds / 3 small boxes)



**PARAMEDIC STOP**

**MEDICAL CONTROL CONSIDERATIONS**

- Calcium channel blocker OD:
  - Calcium chloride 1 gram IV slow push over 10 minutes

**Key Points/Considerations**

- Dystonic reaction is a reaction to medication resulting in uncontrolled muscle contractions of the face, neck, or tongue. Extrapyramidal side effects may also include extreme restlessness and may be treated as a dystonic reaction
- Take precautions to assure providers do not get exposed
- For inhalation exposures, assure patient is moved to fresh air
- May approximate sodium bicarbonate doses to the nearest 50 mEq

# Poisoning / Overdose – Pediatric: Undifferentiated

## CRITERIA

- This protocol is intended for the undifferentiated toxic exposure of the pediatric patient
  - For a suspected carbon monoxide exposure, see the “General: Carbon Monoxide Exposure – Suspected” protocol
  - For an opioid overdose, see the “General: Opioid (Narcotic) Overdose” protocol
  - For an organophosphate exposure, see “General: Organophosphate Exposure” protocol
  - For smoke inhalation, see “General: Smoke Inhalation / Cyanide Poisoning – Symptomatic” protocol
  - For altered mental status, see “General: Altered Mental Status” protocol
  - If suspected WMD nerve agent, refer to the “Resource: Nerve Agent – Suspected” protocol

## CFR AND ALL PROVIDER LEVELS

### EMT

### ADVANCED

- Decontamination, as needed
- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Determine what was taken, when and how much, if possible
- Check blood glucose level, if equipped
  - Refer to the “General: Hypoglycemia – Pediatric” protocol, as indicated
- For contamination of the skin or eyes, refer to the “Trauma: Burns” protocol

## CFR, EMT, AND ADVANCED STOP

### CC

- Cardiac monitor

## CC STOP

### PARAMEDIC

- Vascular access, if indicated (General: Vascular Access)

## PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- CC vascular access

For a symptomatic patient with:

- Dystonic reaction:
  - Diphenhydramine (Benadryl) 1 mg/kg IV or IM
- Sympathomimetic ingestion (cocaine/amphetamine):

- Midazolam (Versed) 0.1 mg/kg IV, IM, or intranasal
- Calcium channel blocker OD:
  - Calcium chloride 20 mg/kg IV

### **Key Points/Considerations**

- Advise the receiving hospital as soon as possible
- This protocol includes patients who are unconscious/unresponsive without suspected trauma or other causes
- Dystonic reaction is a reaction to medication resulting in uncontrolled muscle contractions of the face, neck, or tongue. Extraparasympathetic side effects may also include extreme restlessness and may be treated as a dystonic reaction
- Take precautions to assure providers do not get exposed
- For inhalation exposures, assure patient is moved to fresh air

# Post Intubation Management – Adult

**No pediatric protocol – refer to “General: Procedural Sedation – Pediatric”**

## INDICATION

- For use on standing order, unless otherwise specified, by critical care or paramedic providers (regardless of RSI credentialing) in patients who have been intubated

## PROCEDURE

- Elevate the head of the bed when possible to decrease risk of aspiration
- Continuously monitor capnography and ventilate with a target EtCO<sub>2</sub> of 35-45 mmHg
- Administer continual analgesia and, if necessary, sedation:
  - Fentanyl 100 mcg IV once, and then 50 mcg IV every 5 minutes, as needed
  - Midazolam (Versed) up to 5mg IV every 10 minutes, as needed
    - May substitute ketamine\* up to 100 mg every 5 minutes, as needed
- Ongoing paralysis is a standing order **ONLY for air medical services**
  - Consider vecuronium up to 10 mg every 30 minutes, as needed, if necessary for patient or crew safety
    - Paralytics are not substitutes for adequate sedation and pain management
    - Use of paralytics requires ongoing sedation and pain management
- Continuously monitor ETT placement, including effectiveness of oxygenation and ventilation
- Consider placement of an orogastric (OG) tube, if equipped and regionally approved
- Refer to “Resource: Automatic Transport Ventilator,” as indicated

## MEDICAL CONTROL CONSIDERATIONS

- Additional sedation and/or pain management
- Consider long-term paralysis with rocuronium or vecuronium, if available, **ONLY** if necessary (e.g. for patient or crew safety)
  - Paralytics are not substitutes for adequate sedation and pain management
  - Use of paralytics **requires** ongoing sedation and pain management
  - Inadequate response to sedation and pain management may be secondary to insufficient sedation and/or analgesia

## Key Points/Considerations

- **\*Ketamine may be administered by paramedics only**
- In cases of inadequate ventilation or oxygenation of the intubated patient, consider the DOPE mnemonic:
  - Displacement
  - Obstruction
  - Pneumothorax (tension)
    - Patients who are being ventilated (with positive pressure) have an increased risk of developing a tension pneumothorax
  - Equipment failure

# Procedural Sedation – Adult

For pediatric see, “Procedural Sedation – Pediatric”

## CFR AND ALL PROVIDER LEVELS

### EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy



### CFR AND EMT STOP

### ADVANCED

- Vascular access



### ADVANCED STOP

### CC

- Cardiac monitor with continuous pulse oximetry and waveform capnography



### CC STOP

### PARAMEDIC

- Midazolam (Versed) 2.5 mg IV or 5 mg IM
  - May be repeated every 5 minutes, as needed, if SBP > 100 mmHg or MAP > 65 mmHg.
- Fentanyl 1-1.5 mcg/kg IV, IM, or intranasal
  - Fentanyl may be repeated after 5 minutes; maximum total dose of 200 mcg



### PARAMEDIC STOP

### MEDICAL CONTROL CONSIDERATIONS

- Morphine IV or IM
- Midazolam (Versed) IV, IM, or intranasal
- Ketamine\* 0.5-2 mg/kg IV or 3-5 mg/kg IM
  - Use caution when ordering > 250 mg IM of ketamine after midazolam (Versed) because apnea may occur
- Etomidate (Amidate) 0.1 mg/kg IV (if regionally approved)
  - Should not be administered more than once
  - Note: 0.3 mg/kg IV is the dose typically reserved for induction

### Key Points/Considerations

- **\*Ketamine may be administered by paramedics only**
- This protocol may only be used for intubation upon medical control order
- Etomidate is not a required formulary medication and may not be available in all regions
- For ease of administration, if clinically appropriate: consider approximating the dose of fentanyl to the nearest 50 mcg
- For patients with the following anxiety-producing or painful procedures including:
  - Cardioversion



- Transcutaneous pacing
- For post-intubation sedation, see the “General: Post Intubation Management – Adult” protocol
- If additional sedation is required after giving a dose of etomidate (Amidate), midazolam (Versed) may be used on standing order
- **Utilize waveform capnography with proper sampling equipment for conscious patients (i.e. nasal prong EtCO<sub>2</sub> monitoring device)**

# Procedural Sedation – Pediatric

## CFR AND ALL PROVIDER LEVELS

### EMT

### ADVANCED

- ABCs and vital signs
- Airway management and appropriate oxygen therapy

 **CFR, EMT, AND ADVANCED STOP**

### CC

- Cardiac monitor

 **CC STOP**

### PARAMEDIC

- Vascular access, if indicated (Resources: Vascular Access)

 **PARAMEDIC STOP**

## MEDICAL CONTROL CONSIDERATIONS

- CC vascular access
- Morphine 0.1 mg/kg IV or IM
- Fentanyl 1-1.5 mcg/kg IV, IM, or intranasal
- Midazolam (Versed) 0.1 mg/kg IV, IM, or intranasal
- Ketamine\* 1 mg/kg IV or IM

## Key Points/Considerations

- **\*Ketamine may be administered by paramedics only**
- Consult medical control as soon as possible

# Rapid Sequence Intubation (RSI) – Adult

## INDICATIONS

- Regional policy/procedure determines credentialing of paramedics authorized to utilize this protocol, and any additional directives pertaining to rapid sequence intubation
- Rapid Sequence Intubation (RSI) may be utilized on standing orders when definitive airway control is necessary in an adult, **and** patient's weight at least 30 kg (66 pounds)
- Above restrictions to standing order do not apply to air medical services

## CONTRAINDICATIONS / PRECAUTIONS

- Patients who cannot be ventilated with a bag-valve-mask (BVM) because of anatomy, facial/airway trauma, or other reasons

## PROCEDURE

- Position the patient appropriately
- Attach SaO<sub>2</sub>, NIBP, and cardiac monitor
- Oxygenate via non-rebreather mask (NRB) or utilize a bag-valve-mask (BVM), as indicated, while preparing for the procedure
- Consider high flow nasal oxygen during intubation (15 LPM via nasal cannula)
- Consider use of a Bougie on the initial attempt
- Prepare a continuous EtCO<sub>2</sub> device
- Prepare for post intubation management (General: Post Intubation Management)
- Assemble and test all basic and advanced airway equipment, including suction
- Ready backup airway devices
- Draw up appropriate medications
- Have a second rescuer assist with external laryngeal manipulation (ELM), as indicated
- Administer an induction agent: (Select one medication)
  - Etomidate (Amidate) 0.3 mg/kg rapid IV push
    - Etomidate (Amidate) is dosed on the **total** body weight
    - May round etomidate (Amidate) dose to the nearest 10 mg for adults (Max 40 mg)
  - Ketamine\* 2 mg/kg rapid IV push
    - Ketamine\* is dosed based on the **ideal** body weight
    - May round to the nearest 50 mg for adults (Max 500 mg)
- Administer Paralytic: (Select one medication)
  - Succinylcholine 1.5 mg/kg rapid IV push
    - Succinylcholine is dosed on the **total** body weight (Max 200 mg)
    - May round succinylcholine dose to the nearest 50 mg for adults
  - Rocuronium 1 mg/kg
    - Rocuronium is dosed based on the **ideal** body weight (Max 100 mg)
    - May round rocuronium dose to the nearest 20 mg for adults
- If the intubation is missed (3 attempts maximum) manage the airway and ventilate; consider inserting an alternative airway device
- If unable to adequately oxygenate or ventilate the patient with any other method, perform a cricothyroidotomy

- Attach continuous EtCO<sub>2</sub> monitor, confirm placement, and secure airway
- See “General: Post Intubation Management – Adult”

### MEDICAL CONTROL CONSIDERATIONS

- RSI in patients weighing < 30 kg
- RSI when other standing order criteria are not met

### Key Points/Considerations

- **\*Ketamine may be administered by paramedics only**
- Contraindications to succinylcholine:
  - Known or suspected hyperkalemia (e.g. crush injuries, rhabdomyolysis, dialysis patients, severe burns > 24 hours old, pre-existing spinal cord injuries, and neuromuscular disorders, including ALS [amyotrophic lateral sclerosis / Lou Gehrig’s disease] and MS [multiple sclerosis])
  - Known history of malignant hyperthermia
- Consider hyperkalemia in patients who develop ventricular dysrhythmia after administration of succinylcholine. (General: Hyperkalemia – Adult, Extremis: Ventricular Fibrillation or Pulseless V. Tachycardia – Adult)
- Consider time to definitive care when electing to utilize RSI procedure
  - In some cases, it may be more beneficial to implement BLS airway interventions and call ahead so the receiving hospital can prepare for RSI upon the patient’s arrival

# Seizures – Adult

For pediatric see, “Seizures – Pediatric”

## CFR AND ALL PROVIDER LEVELS

### EMT

- Airway management and appropriate oxygen therapy
  - Suction the airway as needed
  - Position the patient on the side if vomiting
  - Do not put anything in the patient’s mouth when the patient is actively seizing
    - Utilize an appropriate airway adjunct, if needed, after the seizure has ended
- Protect the patient from harm
  - Remove hazards from the patient’s immediate area
  - Avoid unnecessary restraint
- Check a blood glucose level, if equipped.
  - If abnormal, refer to the “General: Hypoglycemia – Adult” protocol
- Ongoing assessment of the effectiveness of breathing
  - Refer to the “Extremis: Respiratory Arrest / Failure – Adult” protocol, if necessary

### CFR AND EMT STOP

## ADVANCED

- Vascular access

### ADVANCED STOP

## CC

### PARAMEDIC

- Cardiac monitor
- Midazolam (Versed) 5 mg IV, IM, or intranasal; may repeat x 1 in 5 minutes
- Magnesium 4 grams IV over 20 minutes, if patient is pregnant

### CC AND PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Additional midazolam (Versed) 2.5 – 5 mg IV, IM, or intranasal

## Key Points/Considerations

- Seizures secondary to eclampsia in pregnancy occur because of a different mechanism than typical epileptic seizures
  - Pre-eclampsia is typically described as BP > 140/90 mmHg with severe headache, confusion, and/or hyperreflexia in a pregnant patient, or in one who has given birth within the past month
  - Pre-eclampsia may progress to eclampsia

- Protect the patient and EMS crew from injury during the seizure
- Patients may become confused and combative after a seizure (in the postictal state)
  - Protect yourself and the patient
  - Obtain law enforcement assistance, if needed
- Status epilepticus (continuing seizure) is a critical medical emergency. Anticonvulsant medication should be administered as soon as possible, preferably starting no later than 5-10 minutes after the onset of the seizure
- Any EMS provider may assist the patient's family or caregivers with the administration of rectal diazepam (Valium/Diastat), if available. (Resources: Prescribed Medication Assistance)

# Seizures – Pediatric

## CFR AND ALL PROVIDER LEVELS

### EMT

- Airway management and appropriate oxygen therapy
  - Suction the airway as needed
  - Position the patient on the side if vomiting
  - Do not put anything in the patient’s mouth when the patient is actively seizing
    - Utilize an appropriate airway adjunct, if needed, after the seizure has ended
- Protect the patient from harm
  - Remove hazards from the patient’s immediate area
  - Avoid unnecessary restraint
- Check a blood glucose level, if equipped.
  - If abnormal, refer to the “General: Hypoglycemia – Pediatric” protocol
- Ongoing assessment of the effectiveness of breathing
  - Refer to the “Extremis: Respiratory Arrest / Failure – Pediatric” protocol, if necessary

### EMT AND ADVANCED STOP

### CC

- Cardiac monitor
- Midazolam (Versed) 0.1 mg/kg IM or intranasal. Maximum dose 5 mg

### CC STOP

### PARAMEDIC

- Vascular access, if indicated (General: Vascular Access)
- If patient continues to seize:
  - Midazolam (Versed) 0.1 mg/kg IV, IM, or intranasal. Maximum dose 5 mg

### PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- CC vascular access
- Additional Midazolam (Versed) 0.1-0.2 mg/kg IV, IM, or intranasal

## Key Points/Considerations

- Patients may become confused and combative after a seizure (in the postictal state)
  - Protect yourself and the patient
  - Obtain law enforcement assistance, if needed
- Status epilepticus (continuing seizure) is a critical medical emergency. Anticonvulsant medication should be administered as soon as possible, preferably starting no later than 5-10 minutes after the onset of the seizure
- Consult medical control, if seizures persist, as soon as possible

- Protect the patient and EMS crew from injury during the seizure
- Any EMS provider may assist the patient's family or caregivers with the administration of rectal diazepam (Valium/Diastat), if available (see "Resources: Prescribed Medication Assistance" protocol)



# Shock – Adult: Shock / Hypoperfusion

For pediatric see, “Shock – Pediatric: Shock / Sepsis / Hypoperfusion”

For trauma see, “Shock – Adult: Trauma Associated Shock”

## Criteria

- This protocol *excludes* traumatic hypovolemia, cardiogenic, and septic shock
  - For cardiogenic shock, “General: Cardiogenic Shock – Adult”
  - For septic shock, “General: Severe Sepsis / Septic Shock”
  - For trauma, “Shock – Adult: Trauma Associated Shock”

## CFR AND ALL PROVIDER LEVELS

### EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Administer supplemental oxygen; refer to the “Resource: Oxygen Administration and Airway Management” protocol
- Facilitate transportation, ongoing assessment, and supportive care
- Check a blood glucose level, if equipped.
  - If abnormal, refer to the “General: Hypoglycemia – Adult” protocol



### CFR AND EMT STOP

## ADVANCED

- Vascular access
- Normal saline 500 mL bolus, if SBP < 100 mmHg or MAP < 65 mmHg; may repeat up to a total of 2 L if lung sounds remain clear
  - Goal SBP > 100 mmHg and MAP > 65 mmHg



### ADVANCED STOP

## CC

### PARAMEDIC

- Cardiac monitor
- Consider 12-lead ECGo
- Normal saline, to a total of 2 L, if there is no concern for pulmonary edema
- Consider norepinephrine 2 mcg/min, titrated to 20 mcg/min, if needed, after the fluid bolus is completed
  - Goal SBP >100 mmHg and MAP > 65 mmHg



### CC AND PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Additional normal saline
- Consider dexamethasone (Decadron) 10 mg PO, IM, or IV

### **Key Points/Considerations**

- Hypoperfusion is defined as SBP < 100 mmHg, MAP < 65 mmHg with decreased level of consciousness.
- Vitals should be frequently assessed during transport to avoid unnecessary prehospital overhydration
- Consider potential causes of hypoperfusion: anaphylaxis, toxic ingestions, cardiac rhythm disturbances, myocardial infarction, sepsis, ectopic pregnancy, ruptured abdominal aortic aneurysm, adrenal crisis, or others

# Shock – Adult: Severe Sepsis / Septic Shock

For pediatric see, “Shock – Pediatric: Shock / Sepsis / Hypoperfusion”

## Criteria

Protocol activated for an adult patient with *all three* of the following:

- Suspected infection
- Hypotension (systolic BP < 90 mmHg) **OR** altered mental status
- At least two of the following:
  - Heart rate > 90
  - Respiratory rate > 20 **or** PaCO<sub>2</sub> < 32 mmHg
  - Temperature > 100.4° F (38° C), if available
  - White blood count > 12,000 cells/mm<sup>3</sup> **or** < 4,000 cells/mm<sup>3</sup> **or** > 10% bands, if available

## CFR AND ALL PROVIDER LEVELS

- ABCs and vital signs, including blood pressure
- Airway management and high flow oxygen, non-rebreather mask (NRB), as tolerated
- If the patient has altered mental status, refer to the “General: Altered Mental Status” protocol
- Attempt to maintain normal body temperature



**CFR STOP**

## EMT

- Advise the destination hospital that the patient has signs of sepsis/septic shock
- Obtain vital signs, including blood pressure, frequently



**EMT STOP**

## ADVANCED

- Large bore vascular access
- Normal saline 500 mL bolus, if SBP < 100 mmHg or MAP < 65 mmHg; may repeat up to a total of 2 L if lung sounds remain clear
  - Goal SBP > 100 mmHg and MAP > 65 mmHg
- Notify the destination hospital of potential septic shock patient with a verbal report prior to your arrival



**ADVANCED STOP**

## CC

### PARAMEDIC

- Cardiac monitor and continuous pulse oximetry
- Consider a 12-lead ECG
- Normal saline, to a total of 2 L, if there is no concern for pulmonary edema



## CC AND PARAMEDIC STOP

### MEDICAL CONTROL CONSIDERATIONS

- Additional fluid administration
  - Patients in septic shock may require boluses of up to 3-4 L (or 30cc/kg) prior to initiating vasopressors, provided there are no contraindications to doing so, such as renal failure or pulmonary edema
- Consider norepinephrine 2 mcg/min, titrated to 20 mcg/min, if needed, after the fluid bolus is completed to maintain MAP > 65 mmHg or SBP >100 mmHg

### Key Points/Considerations

- Focus on rapid identification, IV hydration, and early notification of concern for potential septic shock patient to destination facility
- Norepinephrine is a **medical control consideration** for septic shock because the patient may require additional fluid hydration prior to consideration of a pressor in this case
- Concern for any new or worsening infection includes reported fever, shaking chills, diaphoresis, new cough, difficult or less than usual urination, unexplained or newly altered mental status, flushed skin, pallor, new rash, or mottling
- Vitals should be frequently assessed during transport to avoid prehospital over-hydration

# Shock – Pediatric: Sepsis / Shock / Hypoperfusion

## Criteria

- For patients with hypoperfusion because of trauma, bleeding, vomiting, diarrhea, or sepsis
- For sepsis:
  - Pediatric patients with suspected infection who are abnormally hot or cold to touch, and/or have a fever over 100.4° F (38° C), or less than 96.8° F (36° C) and high heart rate (age dependent) and/or high respiratory rate (age dependent) with:
  - Poor perfusion (capillary refill > 3 seconds, decreased peripheral pulses, distal extremity [hands/feet] coolness and dusky color, or age-dependent hypotension) *and/or*
  - need for oxygen, *and/or*
  - altered mental status (lethargy, irritability)

## CFR AND ALL PROVIDER LEVELS

- ABCs and vital signs, including blood pressure
- Airway management and give high flow oxygen, non-rebreather mask (NRB), as tolerated
- If the patient has altered mental status, refer to the “Altered Mental Status” protocol
- Attempt to maintain normal body temperature



### CFR STOP

## EMT

### ADVANCED

- Advise the destination hospital **forthwith** that the patient has signs of sepsis/septic shock
- Obtain vital signs, including blood pressure, frequently

### EMT AND ADVANCED STOP

## CC

- Cardiac monitor



### CC STOP

## PARAMEDIC

- Vascular access, if indicated (General: Vascular Access)
- Normal saline 20 mL/kg bolus IV (Use normal saline 100 mL bag if patient < 20 kg)



### PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Advanced / CC vascular access

## Key Points/Considerations

- Consult medical control if you suspect cardiogenic shock
- Do not use normal saline 1000 mL (one liter) bags for pediatric patients unless they weigh  $\geq 20$  kg
- Diagnostic indications for hypoperfusion include: cool / clammy or mottled skin, inability to recognize parents, restlessness, listlessness, tachycardia, tachypnea, systolic BP  $< 70$  mmHg (2 years and older), or systolic BP  $< 60$  mmHg (less than 2 years old)
- Sepsis / septic shock is a life-threatening condition in children and must be recognized and treated as rapidly as possible
- Vital sign criteria for defining sepsis:

	<u><math>&lt; 1</math> mo.</u>	<u><math>&lt; 1</math> yr</u>	<u>1 yr-11 yr</u>	<u><math>\geq 11</math> yr</u>
○ Tachycardia	$> 180$	$> 180$	$> 140$	$> 110$
○ Tachypnea	$> 60$	$> 40$	$> 30$	$> 20$
○ Hypotension*	$< 60$	$< 70$	$(< 70 + 2 \times \text{age})$	$< 90$
- \*Blood pressures may be very difficult to obtain in infants – assure the respiratory rate and pulse are measured accurately
- Communication with the destination hospital is critical so that they can prepare to treat the child aggressively

# Smoke Inhalation / Cyanide Poisoning – Symptomatic

Applies to adult and pediatric patients

## CFR AND ALL PROVIDER LEVELS

- ABCs and vital signs
- Oxygen via non-rebreather mask (NRB) at 15 LPM

### **CFR STOP**

## EMT

- Apply a carbon monoxide monitor, if equipped
  - See also “General: Carbon Monoxide Exposure – Suspected,” protocol
- If the patient is in respiratory distress or rales are present and there is no soot in the airway, consider CPAP\* 5-10 cm H<sub>2</sub>O (if the device delivers 100% oxygen)
  - For the adult patient
  - For older pediatric patients consider CPAP, as equipment size allows if available and trained

### **EMT STOP**

## ADVANCED

- Airway management, as appropriate
- Vascular access
- Normal saline 500 mL bolus

### **ADVANCED STOP**

## CC

## PARAMEDIC

- Cardiac monitor with 12-lead ECG, when possible
- ADULT: If cardiac or respiratory arrest, seizing, or SBP < 80 mmHg with signs of hypoperfusion after exposure to smoke in an enclosed space:
- Hydroxycobalamin (CyanoKit) 5 grams IV over 15 minutes
- PEDIATRIC: If cardiac or respiratory arrest:
- Hydroxycobalamin (CyanoKit) 70 mg/kg IV over 15 minutes

### **CC AND PARAMEDIC STOP**

## MEDICAL CONTROL CONSIDERATIONS

- Repeat dose hydroxycobalamin (CyanoKit) 5 grams IV over 15 minutes to 2 hours (depending on clinical condition)

## Key Points/Considerations

- \*If equipped and trained
- Hydroxycobalamin (CyanoKit) is not available in all ambulances, and may not be available in all regions. It may be available for response to scenes through County Fire, EMS Coordinators, or as otherwise regionally established

- Although hydroxycobalamin (CyanoKit) may alter subsequent laboratory values, it is often not practical to obtain specimens in the field. The risk incurred from altered laboratory results does not outweigh the risk of withholding hydroxycobalamin (CyanoKit) when it is indicated
- Suspect cyanide toxicity in patients who were in enclosed spaces during a fire, have soot in their nares or oropharynx, and exhibit altered mental status
- Disorientation, confusion, and severe headache are potential indicators of cyanide poisoning IN THE SETTING of smoke inhalation
- Hypotension without other obvious cause IN THE SETTING of smoke inhalation increases the likelihood of cyanide poisoning Do not delay transport awaiting a hydroxycobalamin (CyanoKit); it is available in most EDs
- For IO administration, placing a stopcock on the IV tubing will allow use of a syringe to draw medication from the bottle and inject it into the IO line
- BiPAP may be used in place of CPAP, as training and equipment allow



# Stroke

## Applies to adult and pediatric patients

### CRITERIA

- For patients presenting with acute focal neurologic deficits including, but not limited to, slurred speech, facial droop, and/or unilateral (one-sided) weakness or paralysis

### CFR AND ALL PROVIDER LEVELS

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Check a blood glucose level, if equipped.
  - If abnormal, refer to the “General: Hypoglycemia – Adult” protocol
- Determine the “**Last Known Well**”; the **exact time** the patient was **last in his or her usual state of health and/or seen without symptoms** by interviewing the patient, family, and bystanders (this may be different than the “**Time of Symptom Onset**”)



### CFR STOP

### EMT

- Perform a neurological exam, including **Cincinnati Stroke Scale** and other regionally approved and indicated stroke scale
- If time from last known well or time of symptom onset to estimated arrival in the ED will be less than 3.5 hours, **unless otherwise regionally designated**, transport the patient to a NYS DOH Designated Stroke Center, or consult medical control to discuss an appropriate destination facility
- Follow any local or regional guidelines for triage of stroke patients to centers with endovascular capabilities, if available
- Notify the destination hospital ASAP
- Do not delay transport

### ADVANCED

- Vascular access



### ADVANCED STOP

### CC

### PARAMEDIC

- Cardiac monitor
- 12-lead ECG when possible
- Maintain systolic BP > 120 mmHg or MAP > 90 mmHg  
If systolic BP > 220 mmHg or diastolic BP > 120 mmHg, contact medical control



### CC AND PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Metoprolol 5 mg slow IV push

### Key Points/Considerations

- Make sure to collect family or witness contact information to assist with hospital care
- Make sure to record **Last Known Well** and who reported that information as part of your verbal report at the hospital and in your written documentation
- “**Time of Symptom Onset**” is also a key piece of information if available from witnesses

#### Cincinnati Prehospital Stroke Scale:

- Have the patient repeat, “You can’t teach an old dog new tricks”
  - Assess for correct use of words and lack of slurring
- Have the patient smile
  - Assess for facial droop
- Have the patient close eyes and hold arms straight out for 10 seconds
  - Assess for arm drift or unequal movement of one side

# Technology Assisted Children

## CRITERIA

- Children with special health care needs requiring technological assistance for life support:
  - Tracheostomy
    - Breathing tube in neck
  - Central venous catheters (tunneled catheter, Broviac catheter, Mediport, PICC)
    - Catheters that enter a large (central) vein
  - CSF shunt (e.g. ventriculoperitoneal or V-P shunt)
    - Internal tube that drains spinal fluid from the brain into the abdomen
  - Gastrostomy (PEG tube, MIC-KEY® “button”) or J-tube
    - Feeding tube that goes through the abdominal wall
  - Colostomy or ileostomy
    - Bowel connected through abdominal wall for collection of waste in a bag
  - Ureterostomy or nephrostomy tube
    - Connection of the urinary system through the abdominal wall or through the back for collection of urine in a bag
  - Foley catheter
    - Catheter in urethra to collect urine from the bladder into a bag

## CFR AND ALL PROVIDER LEVELS

- ABCs and vital signs including blood pressure
- Basic airway management, give high flow oxygen, non-rebreather mask (NRB), if needed
- Supportive measures (device-specific):
  - Tracheostomy
    - If on ventilator and there are respiratory concerns, disconnect and attempt to ventilate via tracheostomy adapter using a bag-valve-mask (BVM)
    - If tracheostomy tube is fully or partially dislodged, remove it, cover tracheostomy stoma with an occlusive dressing, and ventilate via mouth and nose using a bag-valve-mask (BVM)
  - Central venous catheters: if catheter is broken or leaking, clamp (pinch off) catheter between patient and site of breakage or leakage
  - Gastrostomy tube or button, ureterostomy, or nephrostomy tube: if tube or button is fully dislodged, cover the site with an occlusive dressing; if partially dislodged, tape in place
  - Gastrostomy, colostomy, ileostomy, or nephrostomy: if stoma site is bleeding, apply gentle direct pressure with a saline-moistened gauze sponge
  - Foley catheter: if catheter is dislodged, tape in place



## CFR STOP

## EMT

## ADVANCED

**CC**

**PARAMEDIC**

- Notify the destination hospital ASAP and state that the patient has special health care needs that requires technological assistance (be specific)
- Obtain frequent vital signs, including blood pressure



## **EMT, ADVANCED, CC, AND PARAMEDIC STOP**

### **Key Points/Considerations**

- Listen to the caregivers. They know their child best. Allow them to assist with care.
- Inquire about:
  - Presence of a “Patient Care Plan” (PCP)
  - Syndromes/diseases
  - Devices/medications
  - Child’s baseline abilities
  - Usual vital signs
  - Symptoms
  - What is different today
  - Best way to move the child
- Look for MedicAlert® jewelry, “Emergency Information Form” (EIF), or “Patient Care Plan” (PCP), or other health care forms, if usual caregiver is not available
- Take “Emergency Information Form” (EIF), “Patient Care Plan” (PCP), or other health care forms to the hospital with the patient
- Assess and communicate with the child based on developmental, not chronological, age
- Take necessary specialized equipment (e.g. patient trach/ventilator pack, G-tube connectors, etc.) to the hospital with the patient, if possible

## **(4.0) Trauma**

# Trauma General

**Applies to adult and pediatric patients**

## **Key Points/Considerations**

- Traumatic arrest patient: refer to the “Extremis: Obvious Death” protocol. If the patient does not meet criteria of obvious death as defined in the protocol, refer to the appropriate cardiac arrest protocol
- All other trauma patients meeting CDC criteria for transport to a trauma center go to closest appropriate trauma center
  - See “Trauma: Trauma Patient Destination”
- Patients with an *unmanageable* airway: go to the closest hospital, or call for air medical or other advanced airway assistance while transporting to the closest hospital
  - An airway does *not* necessarily require the placement of an endotracheal tube to be adequately managed
- **UNSTABLE patients should have transport initiated to the appropriate hospital/landing zone within 10 minutes of disentanglement/extrication**
- Notify the receiving facility as early as possible; give a brief description of the mechanism of injury, status of patient(s), and estimated time of arrival
- Tourniquets are approved for use in extremity trauma in New York State at the CFR level and above
- Hemostatic dressings are approved for use in New York State at the CFR level and above
- For spinal motion restriction guidelines, see “Trauma: Suspected Spinal Injuries”

# Amputation

Applies to adult and pediatric patients

<b>CFR AND ALL PROVIDER LEVELS</b>
<b>EMT</b>
<b>ADVANCED</b>
<b>CC</b>
<b>PARAMEDIC</b>

- Refer immediately to the “Trauma: Bleeding / Hemorrhage Control” protocol, as indicated
- ABCs and vital signs
- Elevate and wrap the stump with moist sterile dressings and cover with dry bandage
- Consider spinal motion restriction, refer to “Trauma: Suspected Spinal Injuries” protocol
- Provide or direct care for amputated part:
  - Moisten sterile dressing with sterile saline solution and wrap amputated part
  - Place the severed part in a water-tight container, such as a sealed plastic bag
  - Place this container on ice or cold packs, using caution to avoid freezing the limb

## **CFR, EMT, ADVANCED, CC, AND PARAMEDIC STOP**

### **Key Points/Considerations**

- Distal amputations (those distal to wrist or ankle) do not typically require a trauma center
- Transport the amputated part with the patient, if possible, but do not delay transport to search for amputated part
- Consider medical control consultation if there is uncertainty regarding appropriate destination facility

# Avulsed Tooth

Applies to adult and pediatric patients

## Criteria

- For permanent teeth only

### CFR AND ALL PROVIDER LEVELS

EMT

ADVANCED

CC

PARAMEDIC

- ABCs and vital signs
- Hold the tooth by the crown (not the root)
- Quickly rinse the tooth with saline before reimplantation, but do not brush off or clean the tooth of tissue
- Remove the clot from the socket; suction the clot, if needed
- Reimplant the tooth firmly into its socket with digital pressure
- Have the patient hold the tooth in place using gauze and bite pressure
- Report to hospital staff that a tooth has been reimplanted



**CFR, EMT, ADVANCED, CC, AND PARAMEDIC STOP**

## Key Points/Considerations

- The best *transport medium* for an avulsed tooth is in the socket, in the appropriate situation
  - The best chance for success is when reimplantation occurs within five minutes of the injury
  - **If the patient has altered mental status, do not reimplant**
  - **If the patient must be transported in a supine position, do not reimplant**
  - Do not reimplant if the alveolar bone / gingiva are missing, or if the root is fractured
  - Do not reimplant if the patient is immunosuppressed, or reports having cardiac issues that require antibiotics prior to procedures
- If the patient is not a candidate for reimplantation and avulsed a permanent tooth, place the avulsed tooth in interim storage media (commercial tooth preservation media, lowfat milk, patient's saliva, or saline) and keep cool. Avoid tap water storage, if possible, but do not allow the permanent tooth to dry



# Bleeding / Hemorrhage Control

Applies to adult and pediatric patients

## Criteria

- This protocol authorizes the use of hemostatic dressings, compressive devices, and commercially manufactured tourniquets
  - These devices are not mandatory for any agency to stock or carry
- Junctional tourniquets, wound closure devices, and other hemostatic devices may be used in accordance with manufacturer instructions, if regionally approved
- Tactical application of these devices beyond this protocol may be regionally approved

## CFR AND ALL PROVIDER LEVELS

EMT

ADVANCED

CC

PARAMEDIC

- Immediate intervention for severe bleeding:
  - Apply pressure directly on the wound with a dressing
    - Hemostatic gauze\* may be applied with initial direct pressure
    - Rolled gauze may be used if hemostatic gauze is not available
    - Pack wound and hold pressure
  - If bleeding soaks through the dressing, apply additional dressings
  - If bleeding is controlled, apply a pressure dressing to the wound
  - If severe bleeding persists through conventional dressings and hemostatic dressing becomes available, remove all conventional dressings, expose site of bleeding, and apply hemostatic dressing\*
  - Cover the dressed site with a pressure bandage
- Immediate intervention for uncontrollable bleeding from an extremity:
  - Place tourniquet 2-3 inches proximal to the wound
  - If bleeding continues, you may place a second tourniquet proximal to the first, or above the knee or elbow, if wound is distal to these joints
  - Note the time of tourniquet application and location of tourniquet(s)
- Refer “Trauma: Trauma Associated Shock – Adult,” “General: Sepsis / Shock / Hypoperfusion – Pediatric,” and other protocols, as indicated



**CFR AND EMT STOP**

## Key Points/Considerations

- Do not remove a tourniquet that was placed for life threatening bleeding

- If a tourniquet had been placed for apparently non-life-threatening bleeding, the tourniquet may be released while maintaining the ability to immediately reapply and otherwise control the hemorrhage should significant bleeding occur
- These steps are not intended to be used in sequence; interventions should be taken using the best judgement of the EMS professional
- Hemodialysis access sites may result in life threatening hemorrhage. Direct digital pressure should be used first followed by tourniquet ONLY in the setting of life-threatening hemorrhage when other means of hemorrhage control have been unsuccessful
- When extremity bleeding sites cannot be rapidly determined, tourniquets may be placed “high and tight” in accordance with training
- Conventional and pressure splints may also be used to control bleeding
- Hemostatic dressings\* should be used according to manufacturer’s instructions and training and may require removal of coagulated blood to directly access the source of bleeding
- If non hemostatic dressings are used for wound packing, manual pressure should be maintained for 10 minutes before applying a pressure bandage
- \*If equipped and trained

# Burns

## Applies to adult and pediatric patients

### CFR AND ALL PROVIDER LEVELS

- Stop the burning
- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Remove smoldering clothing that is not adhering to the patient's skin
- Remove rings, bracelets, and constricting objects at or distal to burned area, if possible
- Cover the burn with dry sterile dressings
- Burns to the eye require copious irrigation with normal saline — do not delay irrigation
  - Other neutral fluid may be used, if needed, such as tap water
- Consider the potential for carbon monoxide poisoning and refer to the “General: Carbon Monoxide Exposure – Suspected” protocol, as indicated

### CFR STOP

### EMT

- Burns should be covered with dry, sterile dressings
  - Moist sterile dressings *may* be used to augment pain management *only* if the burn is  $\leq 10\%$  BSA (body surface area)

### EMT STOP

### ADVANCED

- Vascular access at 2 sites, if possible (no more than one IO), for severe burns
- Normal saline 500 mL bolus
- Refer to the “General: Pain Management – Adult” or “General: Pain Management – Pediatric” protocol

### ADVANCED STOP

### CC

### PARAMEDIC

- Be prepared to intubate, if the patient has signs of airway involvement
- For eye exposures:
  - Tetracaine (0.5%) 2 drops in the affected eye for pain every 3 minutes, as needed
  - For chemical exposure to the eye, you may use a Morgan Lens<sup>®</sup> for irrigation

### CC AND PARAMEDIC STOP

### MEDICAL CONTROL CONSIDERATIONS

- Additional fluid to maintain perfusion while exercising caution against administering excessive volume

### Key Points/Considerations

- Assure scene safety and patient decontamination for chemical burns/HAZMAT exposure
  - For liquid chemical burns, flush with copious amount of water or saline, ideally for a minimum of 20 minutes
  - For dry powder burns, brush powder off before flushing
  - Use caution to avoid the spread of the contaminant to unaffected areas
- Consider other injuries, including cardiac dysrhythmias
- Consider smoke inhalation and airway burns
  - Administer high flow oxygen
  - Oxygen saturation readings may be falsely elevated
- If hazardous material involvement is suspected, immediately notify the destination hospital to allow for decontamination
- The whole area of the patient's hand (palm plus digits) is ~1% BSA (body surface area)
  - When considering the total area of a burn, DO NOT count first degree burns
- Burns > 10% are *only* to be dressed with *dry* simple sterile dressings once the burning process has stopped
  - Hypothermia is a significant concern in these patients

### Transportation Considerations

- Burns associated with trauma should go to the closest appropriate trauma center
- Consider direct transport to a burn center in discussion with medical control

# Chest Trauma

Applies to adult and pediatric patients

## CFR AND ALL PROVIDER LEVELS

### EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- If there is a sucking chest wound, cover with occlusive dressing; if dyspnea increases, release the dressing, momentarily, during exhalation
  - A sucking chest wound occurs when air passes through a wound in the chest wall when the patient breaths in
- Contact the receiving hospital as soon as possible



### CFR AND EMT STOP

## ADVANCED

- Vascular access; use the side opposite of the injury if possible
- Normal saline administration, per the “Trauma: Trauma Associated Hypoperfusion / Hypovolemia” protocol
- If the patient is in cardiac arrest, proceed with bilateral needle chest decompression and refer to appropriate arrest protocol\*



### ADVANCED STOP

## CC

- If the patient is not in cardiac arrest, contact medical control for consideration of needle chest decompression if there is concern for a tension pneumothorax



### CC STOP

## PARAMEDIC

- Needle decompression if signs and symptoms of tension pneumothorax, including hemodynamic compromise



### PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- If patient has signs and symptoms consistent with tension pneumothorax AND hemodynamic compromise, consider needle chest decompression for Advanced

## Key Points/Considerations

- Signs and symptoms of a tension pneumothorax include absent lung sounds on one side, extreme dyspnea, AND hemodynamic compromise (may also include jugular vein distention, cyanosis, and tracheal deviation)
- May repeat chest decompression if tension pneumothorax recurs

- If resuscitating a patient in traumatic arrest, consider bilateral chest decompression
- Hemodynamic compromise: hypotension, narrowed pulse pressure, and tachycardia
- Thoracic decompression is a serious medical intervention that may require a chest tube in the hospital
- CQI review may be required by regional procedure
- Thoracic decompression should only be performed with a  $\geq 3.25''$ ,  $\geq 14G$  IV catheter (size for adults)
- \*Advanced EMTs in tactical EMS may be trained and equipped for decompression, but the agency must be approved by the REMAC

# Crush Injuries – Adult

Standing orders apply to adults only

## CFR AND ALL PROVIDER LEVELS

### EMT

- ABCs and vital signs every 5 minutes, if practical
- Airway management and appropriate oxygen therapy
- Consider EMS physician response, if available, or early physician consultation for prolonged entrapment

### CFR AND EMT STOP

## ADVANCED

- Vascular access, ideally at 2 sites (no more than one IO)
- Normal saline 1 liter IV bolus
- Refer to the “General: Pain Management – Adult” protocol, as indicated

### ADVANCED STOP

## CC

- Cardiac monitor, if possible, with 12-lead ECG repeated at 30 minute intervals

### CC STOP

## PARAMEDIC

- If one complete extremity is crushed > 2 hours, or 2 extremities are crushed >1 hour:
  - Sodium bicarbonate 50 mEq IV slow push every 30 minutes
    - In addition, one minute prior to extrication: Sodium bicarbonate 50 mEq IV

### PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- If hyperkalemia is suspected and ECG changes, calcium chloride 1 gram IV (over 5 minutes). Repeat in 10 minutes, if there is no resolution of the ECG changes
- Albuterol via nebulizer
- Consider application of a tourniquet for prolonged entrapment placed as close as possible to the crush injury prior to the release of the extremity

## Key Points/Considerations

- Consider EMS physician response to the scene, if prolonged extrication is anticipated
- Flush 50 mL normal saline in IV between calcium chloride and sodium bicarbonate
- Hyperkalemia is indicated by PVCs, peaked T-waves, or widened QRS complexes
- After extrication, immobilize the extremity and apply cold therapy; do not elevate the extremity

# Eye Injuries

Applies to adult and pediatric patients

## CFR AND ALL PROVIDER LEVELS

### EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Stabilize (or limit movement of) any object lodged in the eye, and cover both eyes to prevent consensual movement
- If the eye is contaminated, refer to the “Trauma: Burns” protocol



**CFR AND EMT STOP**

### ADVANCED

### CC

### PARAMEDIC

- Vascular access, if needed
- Refer to the “General: Pain Management” protocol, as indicated



**ADVANCED, CC, AND PARAMEDIC STOP**

### Key Points/Considerations

- Do not put any pressure on the eye when covering with a shield or patch



# Musculoskeletal Trauma

Applies to adult and pediatric patients

## CFR AND ALL PROVIDER LEVELS

- ABCs and vital signs
- Consider spinal motion restriction
- Refer immediately to the “Trauma: Bleeding / Hemorrhage Control” protocol, as indicated
- Manually stabilize the extremity above and below the injury
- Evaluate distal pulse, motor, and sensory function
- Expose injured area
- Apply cold packs or ice, as available



## CFR STOP

EMT

ADVANCED

CC

PARAMEDIC

- If the distal extremity is cyanotic, *or* lacks a pulse, *or* if a long bone is severely deformed, align the extremity by applying gentle manual traction prior to splinting
- Apply a splint, and reassess the distal pulse, motor, and sensory function
  - Traction splinting may be indicated if there is a mid-thigh injury, and no suspected injury to the pelvis, knee, lower leg, or ankle on the same side (depending on particular device)
  - Traction splint may be used for suspected proximal femur fracture only if manufacturer approved
  - The traction splint may not be applied if the injury is close to the knee, associated with amputation, or near an avulsion with bone separation
- Stabilize the pelvis if the patient has a potential unstable pelvic fracture
- Continue ongoing assessment of vital signs and distal pulse, motor, and sensory function
- Consider “General: Pain Management – Adult” or “General: Pain Management – Pediatric” protocol as your level of training allows, as indicated



## EMT, ADVANCED, CC, AND PARAMEDIC STOP

### Key Points/Considerations

- Consider any open wound near a suspected bone injury site to be the result of bone protrusion
- Physical examination for unstable pelvis fractures is unreliable and stabilization of the pelvis is indicated based on the mechanism of injury

# Patella Dislocation

**Applies to adult and pediatric patients**

## Criteria

- For isolated, clinically obvious, medial or lateral dislocation of the patella
- May be described as “knee went out”
- Intraarticular and superior dislocations are not reducible in the prehospital environment

## CFR AND ALL PROVIDER LEVELS

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Address hemorrhage and other, more serious injuries first (if there are other serious injuries, this protocol does not apply)

## CFR STOP

**EMT**

**ADVANCED**

**CC**

**PARAMEDIC**

- Obvious medial or lateral patella dislocation
  - If unsure or if body habitus (e.g. large body build or obesity) precludes accurate assessment, immobilize in position found
- Gradually extend the knee while, at the same time, a second provider applies pressure on the patella towards the midline of the knee
- When straight, consider placing the entire knee joint in a knee immobilizer or splint
- Consider “General: Pain Management – Adult” or “General: Pain Management – Pediatric” protocol as your level of training allows, as indicated

## EMT, ADVANCED, CC, AND PARAMEDIC STOP

## Key Points/Considerations

- Some increased pain may occur during reduction
- If there is severe increased pain or resistance, stop and splint in the position found
- Patient usually feel significantly better after reduction, but they still need transport to a hospital for further evaluation and possible treatment

# Shock – Adult: Trauma Associated Shock

For pediatric see, “Shock - Pediatric: Sepsis / Shock / Hypoperfusion”

## CFR AND ALL PROVIDER LEVELS

### EMT

- ABCs and vital signs
- Airway management and appropriate oxygen therapy
- Position the patient in a supine position if possible (e.g. no evidence of pulmonary edema)

### CFR AND EMT STOP

## ADVANCED

### CC

- Vascular access
- If COMPENSATED SHOCK: (Systolic BP  $\geq$  100 mmHg, MAP  $\geq$ 65)
- Normal saline, one (1) liter, then 500 mL/hour
- IF DECOMPENSATED SHOCK:
- Normal saline 500 mL bolus, if SBP < 100 mmHg or MAP < 65 mmHg; may repeat up to a total of 2 L if lung sounds remain clear
    - Goal Systolic BP  $\geq$  100 mmHg, MAP  $\geq$ 65

### ADVANCED and CC STOP

## PARAMEDIC

- IF DECOMPENSATED SHOCK:
- Blood\* - transfuse 1 unit Type O(-) blood per protocol
  - Tranexamic Acid (TXA) 1gm in 100ml over 10 minutes  
(While moving to the hospital or LZ unless patient is entrapped)

### PARAMEDIC STOP

## MEDICAL CONTROL CONSIDERATIONS

- Additional normal saline
- Blood\* administration in patients not defined in this protocol
- TXA administration in patients not defined in this protocol – see educational document
- Norepinephrine 2 mcg/min, titrated to 20 mcg/min, if needed after fluid bolus is completed, to maintain Systolic BP  $\geq$  100 mmHg, MAP  $\geq$ 65

## Key Points/Considerations

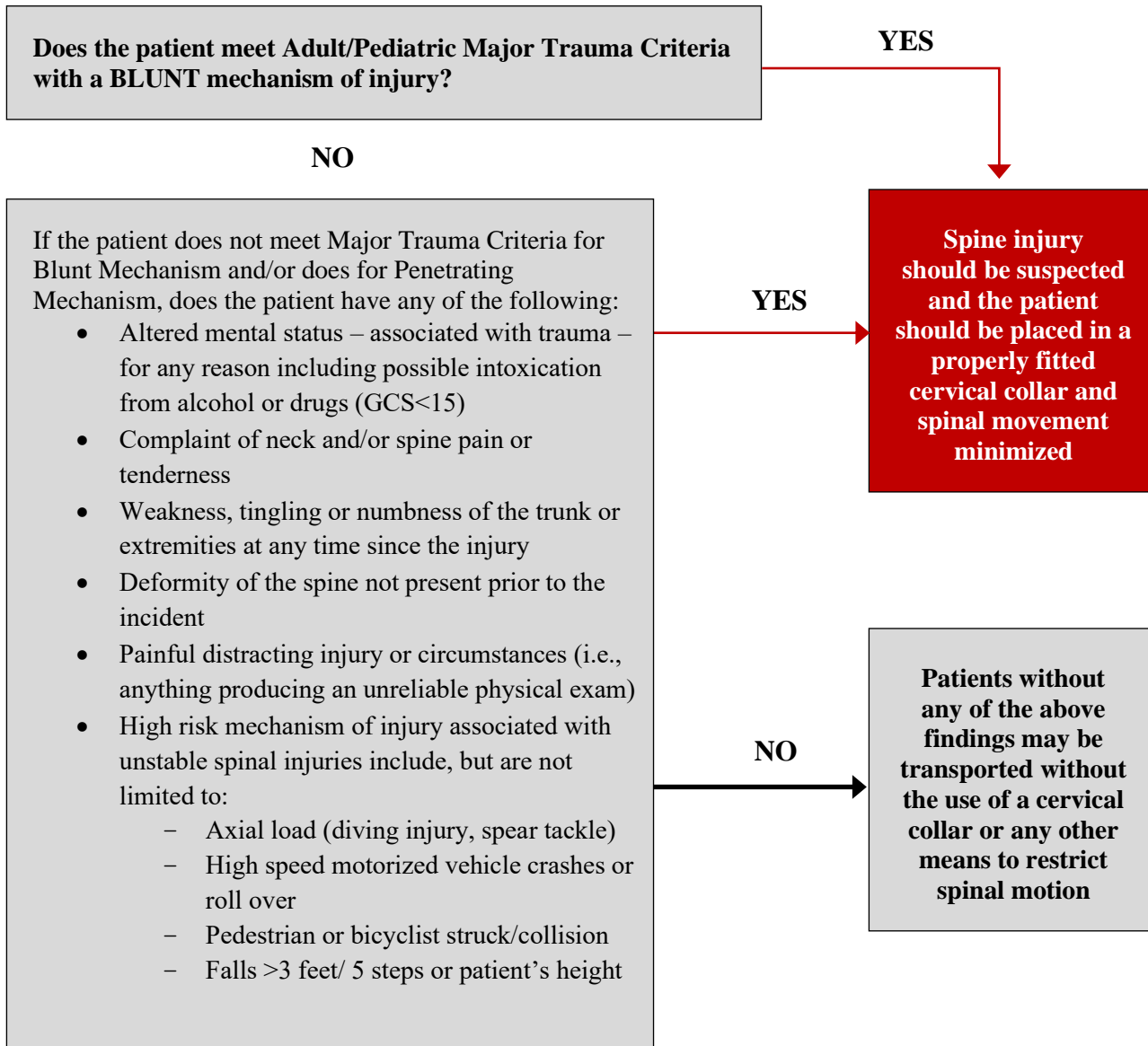
**COMPENSATED SHOCK** in trauma is defined as significant mechanism of injury AND tachypnea, tachycardia, pallor, or restlessness, AND Systolic BP  $\geq$  100 mmHg, MAP  $\geq$ 65 mmHg

**DECOMPENSATED SHOCK** is defined as clinical picture of shock AND systolic BP < 100 mmHg, MAP < 65 mmHg

- A falling BP is a LATE sign of shock
- Contact the receiving hospital early with a “trauma alert” call, giving a brief description of the mechanism of injury, status of the patient, and estimated time of arrival

# Suspected Spinal Injuries

Applies to adult and pediatric patients



## Key Points/Considerations

- Spinal movement can be minimized by application of a properly fitting rigid cervical collar and securing the patient to the EMS stretcher
- The head of the stretcher should not be elevated by more than 30 degrees
- When spinal motion restriction has been initiated and a higher level of care arrives, patients may be reassessed for spinal injury (per this protocol)
- When possible, the highest level of care on scene will determine if spinal motion restriction is to be used or discontinued (collar removed, etc.)

- A long spine board is one of multiple modalities that can be used to minimize spinal movement. Electing not to use a long spine board will not constitute a deviation from the standard of care.
- Long spine boards do not have a role in transporting patients between facilities

# Trauma Patient Destination

Applies to adult and pediatric patients

## National Guideline for the Field Triage of Injured Patients

### RED CRITERIA

#### High Risk for Serious Injury

Injury Patterns	Mental Status & Vital Signs
<ul style="list-style-type: none"> <li>▪ Penetrating injuries to head, neck, torso, and proximal extremities</li> <li>▪ Skull deformity, suspected skull fracture</li> <li>▪ Suspected spinal injury with new motor or sensory loss</li> <li>▪ Chest wall instability, deformity, or suspected flail chest</li> <li>▪ Suspected pelvic fracture</li> <li>▪ Suspected fracture of two or more proximal long bones</li> <li>▪ Crushed, degloved, mangled, or pulseless extremity</li> <li>▪ Amputation proximal to wrist or ankle</li> <li>▪ Active bleeding requiring a tourniquet or wound packing with continuous pressure</li> </ul>	<p><b>All Patients</b></p> <ul style="list-style-type: none"> <li>▪ Unable to follow commands (motor GCS &lt; 6)</li> <li>▪ RR &lt; 10 or &gt; 29 breaths/min</li> <li>▪ Respiratory distress or need for respiratory support</li> <li>▪ Room-air pulse oximetry &lt; 90%</li> </ul> <p><b>Age 0-9 years</b></p> <ul style="list-style-type: none"> <li>▪ SBP &lt; 70mm Hg + (2 x age in years)</li> </ul> <p><b>Age 10-64 years</b></p> <ul style="list-style-type: none"> <li>▪ SBP &lt; 90 mmHg or</li> <li>▪ HR &gt; SBP</li> </ul> <p><b>Age ≥ 65 years</b></p> <ul style="list-style-type: none"> <li>▪ SBP &lt; 110 mmHg or</li> <li>▪ HR &gt; SBP</li> </ul>

*Patients meeting any one of the above RED criteria should be transported to the highest-level trauma center available within the geographic constraints of the regional trauma system*

### YELLOW CRITERIA

#### Moderate Risk for Serious Injury

Mechanism of Injury	EMS Judgment
<ul style="list-style-type: none"> <li>▪ High-Risk Auto Crash               <ul style="list-style-type: none"> <li>- Partial or complete ejection</li> <li>- Significant intrusion (including roof)                   <ul style="list-style-type: none"> <li>▪ &gt;12 inches occupant site OR</li> <li>▪ &gt;18 inches any site OR</li> <li>▪ Need for extrication for entrapped patient</li> </ul> </li> <li>- Death in passenger compartment</li> <li>- Child (age 0-9 years) unrestrained or in unsecured child safety seat</li> <li>- Vehicle telemetry data consistent with severe injury</li> </ul> </li> <li>▪ Rider separated from transport vehicle with significant impact (eg, motorcycle, ATV, horse, etc.)</li> <li>▪ Pedestrian/bicycle rider thrown, run over, or with significant impact</li> <li>▪ Fall from height &gt; 10 feet (all ages)</li> </ul>	<p><b>Consider risk factors, including:</b></p> <ul style="list-style-type: none"> <li>▪ Low-level falls in young children (age ≤ 5 years) or older adults (age ≥ 65 years) with significant head impact</li> <li>▪ Anticoagulant use</li> <li>▪ Suspicion of child abuse</li> <li>▪ Special, high-resource healthcare needs</li> <li>▪ Pregnancy &gt; 20 weeks</li> <li>▪ Burns in conjunction with trauma</li> <li>▪ Children should be triaged preferentially to pediatric capable centers</li> </ul> <p><b>If concerned, take to a trauma center</b></p>

*Patients meeting any one of the YELLOW CRITERIA WHO DO NOT MEET RED CRITERIA should be preferentially transported to a trauma center, as available within the geographic constraints of the regional trauma system (need not be the highest-level trauma center)*

## **(5.0) Resources**



# Advance Directives / DNR / MOLST

## Applies to adult and pediatric patients

### Criteria

PHL § 2994-gg: “No person shall be subjected to criminal prosecution or civil liability, or be deemed to have engaged in unprofessional conduct, for honoring reasonably and in good faith pursuant to this section a nonhospital order not to resuscitate, for disregarding a nonhospital order pursuant to section twenty-nine hundred ninety-four-ee of this article, or for other actions taken reasonably and in good faith pursuant to this section.”

### CFR AND ALL PROVIDER LEVELS

EMT

ADVANCED

CC

PARAMEDIC

- For conscious and alert patients, their wishes are to be followed in accordance with standard consent procedures
- For patients unable to consent, including the unconscious, determine the presence of valid MOLST, eMOLST or DNR forms at the scene:
  - Signed “Medical Orders for Life Sustaining Treatment” (MOLST) form
  - Electronically signed eMOLST form
  - Signed New York State approved document, bracelet, or necklace
  - Properly documented nursing home or nonhospital DNR form
- If MOLST, eMOLST, or DNR (document, bracelet, or necklace) is *not present* – begin standard treatment, per protocol
- If MOLST, eMOLST, or DNR (document, bracelet, or necklace) is *present*, and is valid for the patient’s clinical state (e.g. cardiac arrest), follow the orders as written, *inclusive of either terminating or not beginning resuscitation*
- If advanced directives not mentioned above are present (living will or health care proxy), contact medical control for direction



### CFR AND EMT STOP

### MEDICAL CONTROL CONSIDERATIONS

- Direction regarding wishes expressed via other forms of advanced directives including living wills, health care proxies, and in-hospital do not resuscitate orders

### Key Points/Considerations

- Any appropriate directive indicated on the MOLST or eMOLST should be honored, including the directive for the patient not to be transported to the hospital
- A MOLST is still valid even if the physician signature has expired

- A copy of the original MOLST is a valid document
  - The eMOLST form may be printed and affixed with electronic signatures.  
Electronic signatures on the eMOLST form are considered valid signatures
- A copy of the DNR, MOLST, or eMOLST form should be attached to the PCR and retained by the agency whenever possible
- Reference DOH Policy Statement 11-02 or its updated replacement, if superseded
- If a patient with a DNR (stand-alone DNR form, or as directed by a MOLST or eMOLST form) is a resident of a nursing home (or a patient of an interfacility transport) and expires during transport, contact the receiving staff to determine if they are willing to accept the patient to that facility. If not, return the patient to the sending facility. A copy of the DNR, MOLST, or eMOLST must be attached to the PCR and retained by the agency for all transports from a sending facility to a nursing home

## APGAR

	0	1	2
Activity	limp	flexion	active
Pulse	0	<100	>100
Grimace (during suctioning)	none	grimace	pulling away
Appearance	blue-gray	gray hands/feet	normal
Respirations	0	weak cry	vigorous cry

# Automatic Transport Ventilator

## Applies to adult and pediatric patients

This is a general resource document on the use of automatic transport ventilators, not a protocol. It is intended only for those who are separately equipped and trained. This does not supersede device-specific practice guidelines provided through agency education.

### General Parameters

**FiO<sub>2</sub>:** Maintain SaO<sub>2</sub>  $\geq$ 92%

**PEEP:** 5 cm H<sub>2</sub>O (increase up to 10 cm H<sub>2</sub>O as needed to improve oxygenation).

**Mode:** A/C or SIMV

**Pressure Support:** 5 – 10 cmH<sub>2</sub>O, if in SIMV (if available)

**Volume Control:** Tidal volume (Vt) 6 – 8 mL/kg ideal body weight (maintain plateau pressure [Pplat] < 30 cm H<sub>2</sub>O or PIP < 35 cm H<sub>2</sub>O)

**Rate:** Child: 16 – 20 breaths/min; Adult: 12 – 14 breaths/min

**I-Time:** Child: 0.7 – 0.8 seconds; Adult: 0.8 – 1.2 seconds

**Please refer to the manufacturer's ventilator operation manual for specific directions on how to operate your ventilator.**

### Recommended Minimum Requirements for Automated Ventilator

- Pressure limit / safety relief at a maximum of 40 cmH<sub>2</sub>O
- Ability to adjust volume to 4-8 mL/kg ideal body weight
- Ability to adjust rate in the minimum range of 10-30 breaths/min
- Ability to add PEEP or PEEP valve in the minimum range of 5 - 10 cmH<sub>2</sub>O
- Ability for patient triggered breaths (complete control ventilation is prohibited)

### Initiating Mechanical Volume Ventilation

- Use EtCO<sub>2</sub> detection and pulse oximetry to evaluate the effectiveness of the ventilation technique and to verify artificial airway patency and position
- Prepare the bag-valve-mask (BVM) for emergent use in case of a ventilator failure
- Assure a secondary oxygen source with a minimum of 1000psi in a D tank
- Attach a ventilator to appropriate oxygen/air source
- Attach a disposable ventilator circuit to ventilator
- Attach a gas outlet, pressure transducer, and exhalation valve tubes to corresponding connectors
- Select the appropriate mode, if applicable
- Select the appropriate respiratory rate (RR). Titrate to appropriate EtCO<sub>2</sub>
  - Adult: 12 – 14 breaths/min
  - Child: 16 – 20 breaths/min
- Select the appropriate tidal volume (Vt) of 6 – 8 mL/kg ideal body weight
- Select the appropriate inspiratory time (It), if applicable

- Select the desired FiO<sub>2</sub> if applicable. An FiO<sub>2</sub> of 1.0 (100% O<sub>2</sub>) is a standard start and then should be titrated down to maintain SpO<sub>2</sub> ≥ 92%
- Verify a high pressure alarm no higher than 40 cm H<sub>2</sub>O
- Set PEEP to 5 cmH<sub>2</sub>O
- Observe the delivery of several breaths
  - Evaluate the patient for adequate chest rise, ETCO<sub>2</sub> and SpO<sub>2</sub>
  - Adjust the ventilator settings, as necessary, to improve clinical parameters
- Record all set parameters on the patient transport record
- Monitor and record PIP, if applicable

### **Key Points**

- If at any time the ventilator should fail, or an alarm is received that cannot be corrected, the patient should be immediately ventilated with a bag-valve-mask (BVM) attached to a 100% oxygen source

# Child Abuse Reporting

## Criteria

- Emergency Medical Technicians (all levels) are *required* to report cases of suspected child abuse they come across while performing their jobs
- Document observations, thoroughly and objectively on the patient care report (PCR)
- Notify the emergency department staff of concerns and your intent to report
- An immediate oral report shall be made to:
  - NYS Child Abuse and Maltreatment Register: 1-800-635-1522
  - This is a hotline number for mandated reporters only, not the public
- All oral reports must be followed up with a written report within 48 hours, using form DSS-2221-A, “Report of Suspected Child Abuse or Maltreatment”, and sent to the appropriate agency

## Key Points/Considerations

- Notifying hospital staff of concern for child abuse or maltreatment is *not* sufficient to meet the obligation of reporting. *All* of these steps are required:
  - PCR completion
  - Notification of emergency department staff
  - Oral report to NYS Child Abuse and Maltreatment Register
  - Written report submitted within 48 hours
- If multiple EMTs are on scene from the same agency, it is only necessary for one EMT (the EMT of record and in charge of patient care) to complete the reporting process
- If EMTs from multiple agencies are involved in the response, treatment, and transport of the same patient, the EMT of record from each agency must complete the reporting process
- EMTs are not expected to complete form DSS-2221-A in its entirety, although they should fill out as much as possible, in accordance with available information
- Mandated reporters who file a report of suspected child abuse or maltreatment in good faith are immune from liability for reporting such a case (§ 419 of the Social Services Law)

# De-escalation Techniques

## Criteria

- EMS providers all levels) may be faced with situations that will benefit from these techniques. While we introduce these as beneficial for adolescent encounters, they may be of benefit for all patients
- Some of these techniques will be more applicable for some situations than others. Resources and location will determine how these can be employed
- Education to support these techniques may be available from EMS-C and others

## Key Points/Considerations

When possible, have the care team develop a plan for interaction with the patient prior to engaging with them

### Environmental Interventions

- Move the patient to a safe and comfortable area that can reduce triggers and calm the patient

### Rules of Verbal De-escalation

- Respect personal space
- Do not be provocative
- Establish verbal contact (1 communicator)
- Be concise
- Identify wants and feelings
- Listen closely to what the patient is saying
- Agree or agree to disagree
- Set firm safety limits clearly and calmly
- Offer choices and optimism
- Debrief the patient and staff

### Behavioral Interventions

- Limits on unacceptable behaviors and specific praise for adherence to requests
- Reflective statements and validation
- Allow patient to clarify triggers for agitation and promote problem-solving

# Glasgow Coma Score (GCS)

## Adult GCS (Score 3-15)

Best Eye Response	Best Verbal Response	Best Motor Response
Spontaneous (+4)	Oriented (+5)	Obeys commands (+6)
To verbal command (+3)	Confused (+4)	Localized pain (+5)
To pain (+2)	Inappropriate words (+3)	Withdrawal from pain (+4)
No eye opening (+1)	Incomprehensible sounds (+2)	Flexion to pain (+3)
	No verbal response (+1)	Extension to pain (+2)
		No response (+1)

## Pediatric <~2 y/o GCS (Score 3-15)

Best Eye Response	Best Verbal Response	Best Motor Response
Spontaneous (+4)	Coos, babbles (+5)	Moves spontaneously / purposefully (+6)
To verbal stimuli (+3)	Irritable cries (+4)	Withdraws to touch (+5)
To pain (+2)	Cries in response to pain (+3)	Withdraws to pain (+4)
No response (+1)	Moans in response to pain (+2)	Flexor posturing to pain (+3)
	No response (+1)	Extensor posturing to pain (+2)
		No response (+1)



## **Incident Command**

The Governor's Executive Order No. 26 of March 5, 1996, establishes the National Incident Management System (NIMS) as the standard system of command and control for emergency operations in New York State. The Incident Command System (ICS) does not define who is in charge, but rather defines an operational framework to manage many types of emergency situations.

One essential component of ICS is Unified Command. Unified Command is used to manage situations involving multiple jurisdictions, multiple agencies, or multiple situations. The specific issues of direction, provision of patient care, and the associated communication among responders must be integrated into each single or unified command structure and assigned to the appropriately trained personnel to carry out.

# Interfacility Transport

## Applies to adult and pediatric patients

### EMT

- An EMT may transport stable patients with a secured saline lock device in place, as long as no fluids or medications are attached

### EMT STOP

### ADVANCED

- An AEMT may transport stable patients with simple IV fluids, eg: D5W, normal saline, or lactated ringers. The solution may not contain potassium or any other medications

### ADVANCED STOP

### CC

### PARAMEDIC

- Paramedics and critical care technicians may transport a patient between facilities with standard IV infusions flowing, including antibiotics, provided they are ordered and provided by the transferring facility
- Be certain to clarify orders regarding medication titration prior to departure
- All vasoactive medication drips and all fluids containing potassium must be run on an infusion pump

### CC AND PARAMEDIC STOP

### Key Points/Considerations

- This protocol may be applied to facilities not covered in Article 28 of the public health law, such as urgent care centers and physician offices, as required
- Orders should be written by the sending physician in case there are directives to implement care not otherwise specified in the protocols
- Ambulances credentialed as, “Ambulance Transfusion Services,” may transport patients with blood products initiated at the hospital, but must have orders for the blood products and orders for response to complications, written by the sending physician
- If there is an emergent situation where the patient’s life depends on blood product administration, and no “Ambulance Transfusion Service” is available to transport the patient, any ambulance may transport a patient with blood products initiated at the hospital, but the department and the region must be notified IMMEDIATELY following the completion of the transport
- After assessing the patient and reviewing the patient’s records and transfer orders, the crew must determine if the patient’s current condition is appropriate for the provider’s level of training, experience, and available equipment
- If there are any changes in the patient’s condition that are not covered by the prescribed orders or agency protocols, contact medical control. If a total failure of communications occurs, and the patient is unstable and decompensating, follow these protocols and go to the closest hospital’s emergency department
- An appropriately trained nurse, respiratory therapist, physician assistant, nurse practitioner, or physician from the sending facility must accompany the patient for any prescribed

treatments or modalities for which the designated provider is not credentialed by his or her agency, or that is outside of the provider's level of training, experience, and/or available equipment

- Each region may indicate specific medications or medication types that providers may transport without hospital personnel
- Specialty care transports (SCT) are a subset of inter-hospital transports, and can only be done by paramedics or critical care technicians credentialed by the medical director of the agency performing the transport and in accordance with regional procedure
- Regions may have more extensive procedures governing interfacility transports

## Medication Formulary

Medication	Administration Route	Concentration /mL or tab
Adenosine	Rapid IV	3 mg
Albuterol	Nebulized	0.83 mg
Amiodarone	IV bolus, drip	50 mg
Aspirin	PO chewed	81 mg
Atropine*	IV bolus	0.1 mg
Buprenorphine/Naloxone <sup>#</sup>	Sublingual film	8mg/2mg
Ipratropium (Atrovent) <sup>†</sup>	Nebulized	0.2 mg
Calcium Chloride	IV bolus	100 mg
Dexamethasone (Decadron)	PO, IM, IV	10 mg
Diltiazem (Cardizem)	IV slow	5 mg
Diphenhydramine (Benadryl)	IV slow	50 mg
Epinephrine 1:1,000 (1 mg/mL)	IM, IV gtt	1 mg
Epinephrine 1:10,000 (0.1 mg/mL)	IV	0.1 mg
Etomidate (Amidate)**	IV	2 mg
Glucagon	IM, IV	1 mg
Glucose, oral	PO	varies
Haloperidol**	IM, IV	1 mg
Ketorolac (Toradol)**	IM, IV	varies
Lidocaine 2%	IV, IV gtt	20 mg
Magnesium	IV, IV gtt	500 mg
Metoprolol	IV slow	1 mg
Naloxone (Narcan)	IM, IV, intranasal	1 mg
Nitroglycerin (PO)	SL, lingual	0.4 mg
Nitroglycerin (IV)	IV	0.05 mg/mL
Nitrous oxide**	Inhaled	N/A
Norepinephrine	IV gtt	4 mg/4mL
Ondansetron (Zofran) (inj)	IM, IV slow	2 mg
Ondansetron (Zofran) (ODT/PO)**	SL dissolve	4 mg tab
Oxymetazoline	Intranasal	Unit
Sodium Bicarbonate	IV, IV gtt	1 mEq/mL
Tetracaine***	Ophthalmic	Unit
Tranexamic Acid**	IV	1 gram

<sup>#</sup> NYS DOH Approved PILOT Program sites only

\* Does not include atropine included in DOH field deployment stock

\*\* Etomidate (Amidate), ketorolac (Toradol), nitrous oxide, haloperidol (Haldol), and ondansetron ODT may not be required by every region

\*\*\* Tetracaine is required only if Morgan Lenses are utilized

<sup>†</sup>A combination unit dose (such as a DuoNeb<sup>®</sup>) may be carried in place of ipratropium (Atrovent)

The minimum quantities of medications will be determined by local REMAC

## Medication Infusion Formulary

Medication	Concentration	Volume
Dextrose 10%	25 grams/unit	250 mL
Normal saline 0.9%*		100 mL
Normal saline 0.9%**		1000 mL

\* D5W 100 mL bags may be substituted for normal saline 100 mL, if there is a persistent shortage and normal saline is not available.

\*\*Lactated Ringers may be substituted for normal saline, if normal saline is not available. Minimum number of infusions will be determined by regional procedure

## Resource: Medication Formulary Controlled Substances

Medication	Administration Route	Concentration/mL
Fentanyl	IM, IV, intranasal	50 mcg
Ketamine (Access must be restricted to paramedics only)	IM, IV, intranasal	100 mg
Midazolam (Versed)	IM, IV, intranasal	5 mg
Morphine	IM, IV	10 mg

Not all controlled substances are required; please refer to state and regional policy  
The minimum number of medications will be determined by regional procedure

## Medication Formulary RSI (Optional)

Medication	Administration Route	Concentration/mL
Succinylcholine	IV rapid	20 mg
Vecuronium	IV	1 mg (reconstituted)
Rocuronium	IV	10 mg

RSI is not required

If utilized, the minimum number of medications will be determined by regional procedure

## Medication Formulary Other (Optional)

Medication	Administration Route	Concentration/mL
Nitrous Oxide	Inhaled	50%
Acetaminophen	PO	325 mg / 10.15 mL
Ibuprofen	PO	100 mg/ 5 mL

## Medication Infusion

Amiodarone: 150 mg in 100 mL normal saline = 1.5 mg/mL

Infusion Rate	Admin Set: 10 drops/mL	Admin Set: 15 drops/mL
10 mL/min (over 10 min)	100 drops/min or 5 drops every 3 seconds	150 drops/min or 5 drops every 2 seconds

Lidocaine: 200 mg in 100 mL normal saline = 2 mg/mL

Infusion Rate	Admin Set: 60 drops/mL
1 mg/min	30 drops/min
2 mg/min	60 drops/min
3 mg/min	90 drops/min
4 mg/min	120 drops/min

Epinephrine: 1 mg in 1000 mL normal saline = 1mcg/mL

(Must use pump or dial-a-flow)

Either concentration of epinephrine may be used to make the solution

Infusion Rate	Admin Set: 10 drops/mL	Admin Set: 15 drops/mL	Admin Set: 60 drops/mL
1 mcg/min	10 drops/min	15 drops/min	60 drops/min or 1 drop/sec
2 mcg/min	20 drops/min	30 drops/min	120 drops/min or 2 drops/sec
4 mcg/min	40 drops/min	60 drops/min	240 drops/min or 4 drops/sec
6 mcg/min	60 drops/min	90 drops/min	360 drops/min or 6 drops/sec
8 mcg/min	80 drops/min	120 drops/min	480 drops/min or 8 drops/sec
10 mcg/min	100 drops/min	150 drops/min	600 drops/min or 10 drops/sec

Magnesium:

2 grams in 100 mL normal saline = 20 mg/mL; give 100 mL over 10 minutes

4 grams in 100 mL normal saline = 40 mg/mL; give 100 mL over 20 minutes

Infusion Rate (2 grams over 10 min)	Admin Set: 10 drops/mL	Admin Set: 15 drops/mL
10mL/min	100 drops/min	150 drops/min
Infusion Rate (4 grams over 20 min)	Admin Set: 10 drops/mL	Admin Set: 15 drops/mL
5 mL/min	50 drops/min	75 drops/min

Norepinephrine: 4 mg in 4 mL mixed in normal saline 1000 mL = 4 mcg/mL

Infusion Rate	Admin Set: 10 drops/mL	Admin Set: 15 drops/mL	Admin Set: 60 drops/mL
2 mcg/min	5 drops/min	7drops/min	30 drops/min
4 mcg/min	10 drops/min	15 drops/min	60 drops/min or 1 drop/sec
6 mcg/min	15 drops/min	22 drops/min	90 drops/min or 1.5 drops/sec
8 mcg/min	20 drops/min	30 drops/min	120 drops/min or 2 drops/sec
10 mcg/min	25 drops/min	37 drops/min	150 drops/min or 2.5 drops/sec
12 mcg/min	30 drops/min	45 drops/min	180 drops/min or 3 drops/sec
14 mcg/min	35 drops/min	52 drops/min	210 drops/min or 3.5 drops/sec

16 mcg/min	40 drops/min	60 drops/min	240 drops/min or 4 drops/sec
18 mcg/min	45 drops/min	67 drops/min	270 drops/min or 4.5 drops/sec
20 mcg/min	50 drops/min	75 drops/min	300 drops/min or 5 drops/sec

# Needlestick / Infectious Exposure

Applies to adult and pediatric patients

## Criteria

- This resource outlines the immediate actions to be taken following any percutaneous, non-intact skin, or mucous membrane contact with blood or body secretions

## Cleansing for a Puncture Wound

- Immediately cleanse with Betadine or chlorhexidine
- Follow-up by soaking the site for five minutes in a solution of Betadine and sterile water

## Cleansing for Skin Contact

- Wash the area with soap and water then clean the area with Betadine or chlorhexidine

## Cleansing for Mucous Membranes

- If in the mouth, rinse mouth out with a large volume of tap water
- If in the eyes, flush with water from an eyewash station. If an eyewash station is not available, use tap water

## Key Points/Considerations

- Thoroughly cleanse the area of exposure
- Decontamination may be limited because of the lack of available resources
- Report the exposure to a supervisor, immediately
- Seek immediate medical attention and post-exposure evaluation at the hospital the source patient was transported to, if possible



# Nerve Agent – Suspected

Applies to adult and **SOME** pediatric patients

## **THIS RESOURCE IS SPECIFIC TO A DISASTER SETTING**

### Criteria

- This resource is for those adult patients who are suspected of being exposed to an organophosphate or a chemical nerve agent, and are experiencing some or all of following signs/symptoms:
  - MODERATE: SLUDGEM = Salivation-Lacrimation-Urination-Diarrhea-GI Distress-Emesis-Muscle Twitching-Miosis
  - SEVERE: SLUDGEM + Agitation/Confusion/Seizures/Coma + Respiratory Distress
- This is a reference to assist with the implementation of BEMS policy statement 03-05 (“Mark I Kits”) or the updated version in a WMD incident

### EMT

### ADVANCED

### CC

### PARAMEDIC

- Don personal protective equipment  
DO NOT APPROACH WITHOUT ADEQUATE PROTECTION
- Contact dispatch to declare an incident; request an appropriate response
- Request ALS, if not already present or en route
- Contact medical control to request CHEMPACK Program Antidote Kits
- Consider requesting an EMS physician to scene
- Decontaminate as needed
- ABCs and vital signs
- Airway management with high concentration oxygen
- If SEVERE signs and symptoms are present, administer three (3) atropine 2 mg auto-injectors and three (3) pralidoxime (2-PAM) auto-injectors in rapid succession (stacked). Atropine MUST be administered first
- If MODERATE signs and symptoms are present, administer two (2) atropine 2 mg auto-injectors and one (1) pralidoxime (2-PAM) auto-injectors in rapid succession (stacked). Atropine MUST be administered first



### **EMT, ADVANCED, CC, AND PARAMEDIC STOP**

### Key Points/Considerations

- EMS providers should be trained at the WMD Awareness level to use this protocol
- The auto-injectors or other medications found in the CHEMPACK Program Antidote Kits are NOT to be used for prophylaxis

- Children should be decontaminated and have expedited transport off scene, especially if they are demonstrating ANY signs or symptoms of exposure
- Consult medical control before administering medication to children younger than 8 years of age
- **CHEMPACK Program Antidote Kit medications may be used regardless of the expiration date**

### Mark I Kit Dosing Chart

Triage - Initial Treatment – Antidote Dosing Schedules		
Signs and Symptoms	Atropine Dose Monitor Interval	Pralidoxime Chloride (2-PAM CL) Dose
<b>SEVERE</b> Respiratory Distress Agitation/Seizures SLUDGEM	3 Auto-injectors (6 mg total) Monitor every 5 minutes	3 Auto-injectors (1.8 Gm)
<b>MODERATE</b> Respiratory Distress SLUDGEM	2 Auto-injectors (4 mg total) Monitor every 10 minutes	1 Auto-injector (600 mg)
<b>ASYMPTOMATIC</b> None	None Monitor for signs and symptoms every 15 minutes	None

**From NYS DOH Mark I Kit**

### Key Points/Considerations

- Mark I Kit Assets: diazepam (Valium), atropine, and pralidoxime (2-PAM) may be administered by qualified emergency personnel and designated emergency responders who have had adequate training in on-site recognition and treatment of nerve and/or organophosphate agent intoxication
- Combination autoinjectors (such as DuoDote® and ComboPen®) that contain both atropine and pralidoxime (2-PAM) together may be used in place of the autoinjectors that contain the individual drugs
- Diazepam (Valium) auto-injectors should be administered, as directed on the packaging, only to patients who are having active tonic-clonic seizures
- **CHEMPACK Program Antidote Kit medications may be used regardless of the expiration date**

## Normal Vital Signs for Infants / Children

Age	Respirations	Pulse	Systolic BP
Newborn (<28 days)	30 – 60	100 – 180	>60
Infant (< 1 year)	30 – 60	100 – 160	>60
Toddler (1 – 3 years)	24 – 40	90 – 150	>70
Preschooler (3 – 5 yrs)	22 – 34	80 – 140	>75
School-aged (6 – 8 yrs)	18 – 30	70 – 120	>80

From: American Academy of Pediatrics, Pediatric Education for Prehospital Professionals

# Oxygen Administration and Airway Management

Applies to adult and pediatric patients

## Criteria

Providers may operate as outlined below. They may not exceed their scope of practice, even with direct online medical control

## CFR AND ALL PROVIDER LEVELS

- Ongoing assessment of the effectiveness of breathing
  - Refer to the “Extremis: Respiratory Arrest / Failure – Adult” or “Extremis: Respiratory Arrest / Failure – Pediatric” protocol, if necessary
- Oxygen therapy via non-rebreather mask (NRB) 10-15 LPM, or nasal cannula (NC) 2-6 LPM, to maintain oxygen saturation if saturation is < 92% or to effectively manage other signs of dyspnea
  - Some children with cardiac conditions may have baseline oxygen saturations between 65 and 85% rather than above 92% (ask care provider about patient’s usual oxygen saturation level)
  - Infant oxygen administration, if needed, should be provided at 0.5-2 LPM via appropriately sized nasal cannula
- Any patient with suspected carbon monoxide poisoning should receive high flow oxygen via non-rebreather mask (NRB), see also “General: Carbon Monoxide Exposure – Suspected” protocol
- Oxygen therapy using bag-valve-mask (BVM) 15-25 LPM
- Appropriate BLS airway adjuncts
- Bag-valve-mask (BVM) assisted ventilation



## CFR STOP

## EMT

- Oxygen powered nebulizer devices for use in accordance with manufacturer specifications (typically ~6-8 LPM)
- Continuous positive airway pressure (CPAP) 5-10 cm H<sub>2</sub>O\*
  - For the adult patient
  - For older pediatric patients consider CPAP for EMT, as equipment size allows if available and trained
- Portable automated transport ventilators (ATV)\*
  - See “Resource: Automatic Transport Ventilator”



## EMT STOP

## ADVANCED

- Alternative airway device in unresponsive ADULTS



## ADVANCED STOP

## CC

- Oral endotracheal intubation in ADULTS
- Age-appropriate laryngoscope and Magill Forceps in cases of obstructed airway



## CC STOP

### PARAMEDIC

- Nasal endotracheal intubation in ADULTS, if trained and regionally approved
- Pediatric intubation
  - Consider intubation in pediatric patients *only* if unable to effectively ventilate with bag-valve-mask (BVM) and basic airway adjuncts
- Rapid sequence intubation, if equipped and credentialed
- Surgical airway\*



## PARAMEDIC STOP

### Key Points

- Oxygen should be titrated to maintain saturation at or just above 92% and/or to treat signs of dyspnea. If there is a situation in which the patient may be unstable and hypoxia might be missed (such as major trauma), it is acceptable to place the patient on high flow oxygen
- Blow-by oxygen administration may be required in some cases
- Every supraglottic airway and endotracheal tube must have a viral filter attached
- Providers may only perform endotracheal intubation if they have end-tidal waveform capnography
- Only paramedics may intubate pediatric patients
- Rapid sequence intubation is to be performed only by paramedics who have received specific training and are approved per regional procedure
- Only air medical agencies may perform pediatric rapid sequence intubation on standing orders
- Intubation may be attempted on a patient a maximum of 2 times by one provider, and one more time by a second, if appropriate. If a patient is not intubated for any reason, utilize an alternative airway device and ventilate with a bag-valve-mask (BVM)
- A cervical collar should be considered on all intubated patients to assist the maintenance and secure placement of the airway device, especially when moving the patient
- Approved list of alternative airway devices is available through each Regional Program Agency
- Contraindications for use of alternative airway device:
  - Patients with pharyngeal hemorrhage, tracheostomy, or laryngectomy
  - Patients who have ingested a caustic substance
  - Patients with known obstruction of larynx and/or trachea
- BiPAP may be used in place of CPAP, as training and equipment allow
- \*If equipped and trained

# Pediatric Assessment Triangle

## General Impression

(first view of patient)

### **A** Airway and Appearance (Open/Clear – Muscle Tone/Body Position)

#### **ABNORMAL**

Abnormal or absent cry or speech  
Decreased response to parents or environmental stimuli  
Floppy or rigid muscle tone or not moving

#### Normal

Normal cry or speech  
Responds to parents or to environmental stimuli such as lights, keys, or toys  
Good muscle tone and moves extremities well

### **B** Work of Breathing

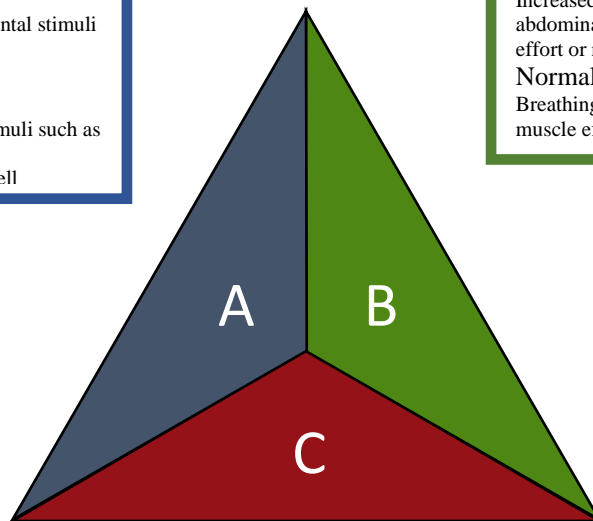
(Visible Movement / Respiratory Effort)

#### **ABNORMAL**

Increased/excessive (nasal flaring, retractions or abdominal muscle use) or decreased/absent respiratory effort or noisy breathing

#### Normal

Breathing appears regular without excessive respiratory muscle effort or audible respiratory sounds



### **C** Circulation to Skin (Color / Obvious Bleeding)

#### **ABNORMAL**

Cyanosis, mottling, paleness/pallor or obvious significant bleeding

#### Normal

Color appears normal. No significant bleeding

# Prescribed Medication Assistance

## Applies to adult and pediatric patients

### Criteria

- This protocol is intended to provide assistance to patients or caregivers of patients who require help with emergency medication that they, or people in their care, are prescribed

### CFR AND ALL PROVIDER LEVELS

#### EMT

- Sublingual nitroglycerin for patients with chest pain
- Inhalers (albuterol\* or other beta-agonists) for patients with asthma or COPD
- Rectal diazepam (Diastat) for children or adults with seizures or special needs
- Epinephrine autoinjectors for treatment of anaphylaxis
- Naloxone (Narcan®) via autoinjector or intranasal device

### CFR AND EMT STOP

#### ADVANCED

#### CC

#### PARAMEDIC

- Vascular access to resume and maintain pre-existing drips
- Naloxone (Narcan) via IM injection
- Steroids (SoluCortef and others) via IM injection

### ADVANCED, CC, AND PARAMEDIC STOP

### MEDICAL CONTROL CONSIDERATIONS

- Approval of assisted medication administration within the scope of practice for administration route of an EMS provider as needed

### Key Points/Considerations

- This protocol is designed to assure that the EMS provider and medical control provider are best prepared to assist patients with ongoing disease processes that are not covered by these protocols, and who have already been given therapy by their prescribers. Typical situations include:
  - Pulmonary hypertension – epoprostenol (Flolan) infusion when PICC line breaks
  - Congenital adrenal hyperplasia – assisting IM hydrocortisone (Solu-Cortef)
- If a patient is on a continuous drip medication and they lose their access, it is potentially fatal. Obtaining IV access (or an IO, should IV access be unobtainable) and continuing an infusion pump the patient has prescribed may be life-saving

- Access of ports may not be done unless the provider has additional training and is equipped, or patient has his or her own access device. See Vascular Devices – Pre-Existing
- \*Common brand names for albuterol include Ventolin<sup>®</sup>, Proventil<sup>®</sup>, and ProAir<sup>®</sup>
  - Levalbuterol (Xopenex) is a beta agonist and, therefore, a levalbuterol inhaler may be utilized in this protocol
  - A combination inhaler that contains albuterol & ipratropium (Atrovent<sup>®</sup>), such as Combivent<sup>®</sup>, that is prescribed to the patient may be substituted for an albuterol inhaler in this protocol



# Refusal of Medical Attention

## Applies to adult and pediatric patients

### Criteria

- To be utilized when a person with an actual or potential injury or other medical problem is encountered by EMS personnel and wishes to refuse indicated care or transport
- In the absence of a demonstrated and documented impairment, adults and parents of children have a right to refuse treatment for themselves and their minor children
- Providers have the responsibility to provide informed consent for the refusal
- Agency and regional policies and procedures may augment these minimum protocols
- Medical control should be contacted for transport refusals of patients with an Apparent Life Threatening Event (ALTE) / Brief Resolved Unexplained Events (BRUE) – see protocol
- Patients with the following should be considered “high risk” – consider medical control
  - Age greater than 65 years or less than 2 months
  - Pulse >120 or <50
  - Systolic blood pressure >200 or <90
  - Respirations >29 or <10
  - Serious chief complaint (including, but not limited to, chest pain, shortness of breath, syncope, and focal neurologic deficit)
  - Significant mechanism of injury or high index of suspicion
  - Fever in a newborn or infant under 8 weeks old

### CFR AND ALL PROVIDER LEVELS

- May cancel an ambulance only when there is no indication of a potential illness or injury
- A CFR may not initiate a refusal of care when there is a person who appears to have an injury or illness



### CFR STOP

EMT

ADVANCED

CC

PARAMEDIC

Patients who have the medical decision-making capacity (ability to understand the nature and consequences of their medical care decision) and wish to refuse care/transport may do so after the provider has:

- Determined the patient exhibits the ability to understand the nature and consequences of refusing care/transport (See below)
- Offered transport to a hospital
- Explained the risks of refusing care/transport
- Explained that by refusing care/transport, the possibility of serious illness, permanent disability, and death may increase
- Advised the patient to seek medical attention and gave instructions for follow-up care

- Confirmed that the patient understood these directions
- Left the patient in the care of a responsible adult (when possible)
- Advised the patient to call again with any return of symptoms or if he or she wishes to be transported

## **EMT, ADVANCED, CC, PARAMEDIC STOP**

### **MEDICAL CONTROL CONSIDERATIONS**

- Assistance with high risk, difficult, or unclear situations

### **Key Points/Considerations**

The evaluation of any patient refusing medical treatment or transport should include the following:

- Visual assessment – To include responsiveness, level of consciousness, orientation, obvious injuries, respiratory status, and gait
- Initial assessment – Airway, breathing, circulation, and disability
- Vital signs – (If patient allows) pulse, blood pressure, and respiratory rate and effort; pulse oximetry and/or blood glucose, when clinically indicated
- Focused exam – As dictated by the patient’s complaint (if any)

Medical decision making capacity determination – As defined below

- Patients at the scene of an emergency who demonstrate the ability to understand the nature and consequences of their medical care decisions shall be allowed to make decisions regarding their medical care, including refusal of evaluation, treatment, or transport
- A patient, who is evaluated and found to have any one of the following conditions shall be considered incapable of making medical decisions regarding care and/or transport and should be transported to the closest appropriate medical facility under implied consent:
  - Altered mental status from any cause
  - Age less than 18 unless an emancipated minor or with legal guardian consent
  - Attempted suicide, danger to self or other, or verbalizing suicidal intent
  - Acting in an irrational manner, to the extent that a reasonable person would believe that the capacity to make medical decisions is impaired
  - Unable to verbalize (or otherwise adequately demonstrate) an understanding of the illness and/or risks of refusing care
  - Unable to verbalize (or otherwise adequately demonstrate) rational reasons for refusing care despite the risks
  - No legal guardian available (in person or by telephone) to determine transport decisions
- Patient consent in these circumstances is implied, meaning that a reasonable and medically capable adult would allow appropriate medical treatment and transport under similar conditions
- Law enforcement should be considered, if needed, to facilitate safe management of patients who lack capacity and require involuntary transport
  - Capacity is a clinical decision, therefore, it is not necessary for law enforcement to place a patient in their “protective custody” in order to safely manage those whom lack capacity and require transportation for further evaluation and treatment

# **Responsibilities of Patient Care**

## **Applies to adult and pediatric patients**

The provision of patient care is a responsibility given to certified individuals who have completed a medical training and evaluation program specified by the NYS Public Health or Education Laws and subject to regional and State regulations or policy. Prehospital providers are required to practice to the standards of the certifying agency (DOH) and the medical protocols authorized by the local REMAC.

Patient care takes place in many settings, some of which are hazardous or dangerous. The equipment and techniques used in these situations are the responsibility of locally designated, specially trained, and qualified personnel. Emergency incident scenes may be under the control of designated incident commanders who are not emergency medical care providers. These individuals are generally responsible for scene administration, safe entry to a scene, or decontamination of patients or responders.

Pursuant to the provisions of Public Health Law, the individual having the highest level of prehospital medical certification, and who is responding with authority (duty to act) is responsible for providing and/or directing the emergency medical care and the transportation of a patient. Such care and direction shall be in accordance with all NYS standards of training, applicable state and regional protocols, and may be provided under medical control.

# Transfer of Patient Care

## Applies to adult and pediatric patients

### Criteria

- Providers are responsible for the patient while in their care. Transferring or receiving providers will not be responsible for his or her counterpart's actions
- Patients may be transferred to a provider with the same or higher level of certification
- Patients may be transferred to a provider with a lower level of certification provided the patient is not anticipated to require higher-level care and the lower level provider has formally accepted the transfer of care

### CFR AND ALL PROVIDER LEVELS

#### EMT

When transferring patients, both the receiving and transferring providers should:

- Ensure that all patient information is transferred to the receiving provider, such as chief complaint, past medical history, current history, vital signs, and care given prior to the transfer of care
- Assist the receiving provider until they are ready to assume patient care
- Be willing to accompany the receiving provider to the hospital, if the patient's condition warrants or if the receiving provider requests it, as resources allow

All personnel and agencies must comply with NYSDOH BEMS policy statement 12-02 (or updated version) regarding documentation:

- Both providers will complete a Patient Care Report (PCR), as appropriate, detailing the care given to the patient while in their care
- The receiving provider must briefly document patient care given prior to receiving the patient
- Providers within the same agency may utilize the same PCR (as technology and agency/regional/state policy allow)

### MEDICAL CONTROL CONSIDERATIONS

- Resolution of any disagreements between transferring and transporting providers

### Key Points/Considerations

- Any disparity between the providers must be resolved by on-line medical control or the provider of higher certification must transport with the patient
- In situations involving multiple patients or mass casualty incidents, EMS providers may field-triage patients to care and transportation by EMS providers of lower level of certification as resources allow
- A standardized process of transfer of care may be implemented by regional systems

# Vascular Access

## Applies to adult and pediatric patients

### EMT

- No options



### EMT STOP

### ADVANCED

- Adult IV
- Adult IO
- Pediatric IO



### ADVANCED STOP

### CC

- Critical pediatric IV (cardiac arrest/respiratory arrest/diabetic emergency/or similar situation where intervention is critical ONLY)
- Need to maintain critical IV infusion in pediatric patient (such as Flolan [epoprostenol]) (see: Prescribed Medication Assistance)
- If IO access is started in a conscious patient, the IO should be instilled with lidocaine (2%) 40 mg (2 mL) for adults, or 1 mg/kg for pediatric patients in the method described by the manufacturer



### CC STOP

### PARAMEDIC

- Access to pre-existing vascular devices standing order is for patients in extremis requiring a lifesaving intervention **ONLY**. (General: Vascular Devices – Pre-Existing)
- Pediatric IV
  - There are no prophylactic vascular access procedures performed in children
  - Do not initiate vascular access in children unless
    - They require IV/IO fluid
    - They require IV/IO medication
    - They meet step one or step two trauma triage criteria (Resource: Trauma Triage – CDC)
  - For patient safety, IV fluid bags of no greater than normal saline 100 mL bags may be hung on patients weighing < 20 kg



### PARAMEDIC STOP

### Key Points

- Intraosseous infusion may only be used in cases of critical patients where IO access may be lifesaving
- Any IV medication in these protocols may be given IO, if required
- IV sites include peripheral veins, including upper extremities and lower extremities (below the knees) and the external jugular vein. The scalp veins may be used in infants

- Pediatric vascular access should only be obtained if there is a critical intervention to perform, such as a fluid bolus in patients in decompensated shock, or glucose administration in a hypoglycemic patient with diabetes
- The number of vascular access attempts, the provider making the attempts, the site of the attempts, the catheter sizes, the solution, the infusion rate (e.g. KVO, 250 mL/hr, open) and total fluid infused should be noted on the PCR
- Good clinical judgment will dictate the maximum number of vascular access attempts
- Do not delay transport solely to attempt vascular access

# Vascular Devices – Pre-Existing

Applies to adult and pediatric patients

## PARAMEDIC ONLY

### Procedure

- Identify the device
- If the patient is in EXTREMIS and a lifesaving intervention will be performed, establish access to the device
- If the patient is not in extremis, consult medical control for orders to access the device.
  - No prophylactic IV lines / access may be established using pre-existing vascular devices
- Procedure to establish access to Pre-Existing Vascular Access Device:
  - Discontinue any solution flowing into the pre-existing vascular device (providing continuous infusion is not necessary to maintain such as epoprostenol [Flolan]; contact medical control in these cases prior to initiating access)
  - Put on sterile gloves, if available
  - Clean injection site with iodine solution or chlorhexidine wipe. Do not remove or unscrew the cap, unless no other means of accessing the device is possible
  - Remove any clamps on the vascular access device, and slowly withdraw 10 mL of fluid from the port
  - Inject 5 mL normal saline. If the bolus does not inject freely, the access must not be used
  - If the device is patent, inject the remaining 5 mL from the syringe
  - Secure an administration set to the access site
  - Maintain normal saline KVO through the device
  - Administer a fluid bolus and/or medications as you would for a peripheral IV
  - If the access device is damaged and begins to leak, clamp it one inch from the skin entry site with a padded, non-serrated hemostat, if available

### Key Points

- EXTREMIS includes, but is not limited to: cardiac arrest, respiratory arrest, status epilepticus, decompensated shock, and life threatening arrhythmias
- Pre-existing vascular devices include central venous catheters (CVC), peripheral inserted central catheters (PICC), and renal dialysis lines (**NOT** fistulas)
- Implanted ports and fistulas are **not** considered pre-existing vascular devices, and cannot be accessed by the prehospital provider
- Percutaneous catheters below the nipple are not for vascular access and should not be used
- Once the device is accessed, continuous flow of normal saline must be maintained