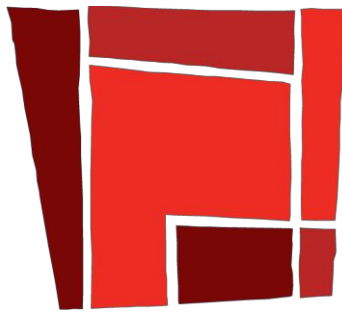


Triage, Treatment and Transport Guidelines (T3G)

As Recommended by the Bureau of EMS and Trauma System



ADHS

PREPAREDNESS

Arizona Department of Health Services

Updated and approved by MDC May 18, 2023.

These guidelines are designed to be a resource document for use by Medical Direction Authorities, as defined by A.R.S. § 36-2205, responsible for the administrative, organizational and on-line medical direction of pre-hospital Emergency Medical Care Technicians (EMCTs). It is specifically recognized that documented regional or local variations from the guidelines contained within are not only acceptable, but also appropriate, depending on the individual circumstances of the involved areas and organizations.

By Statute and Rule, all advanced life support pre-hospital EMCTs shall have administrative and on-line medical direction. These guidelines are not meant to act as a substitute, proxy or alternative to that medical direction. Any conflict between these guidelines and the EMCT's medical direction shall default to the Administrative or on-line medical direction.

These guidelines are deemed by the Bureau of EMS and Trauma System to be within the acceptable standard of medical care. It is specifically recognized that there are acceptable documented regional or local variations from these procedures and protocols, which may also satisfy the standard of care. This manual does NOT define, limit, expand, or otherwise purport to establish the legal standard of care.

HOW TO USE THESE GUIDELINES

These guidelines have been adapted from the National Association of State EMS Officials (NASEMSO) Model EMS Clinical Guidelines published online in March 2022. These algorithms include specific recommendations for evaluation and treatment.

Inclusion and exclusion patient criteria are listed under the title of each guideline. The recommendations within each guideline are listed in order by provider level scope of practice. It is assumed that more advanced levels of EMCT will perform all recommended evaluations and treatments included in the preceding level of care.

STR stands for Special Training Required. “STR skill” means “Specialty Training Requirement skill,” defined as a medical treatment, procedure, or technique or administration of a medication for which an EMCT needs specific training per R9-25-502. This includes oversight by administrative and online medical direction.

The guidelines include specific pediatric recommendations, highlighted by the EMS for Children bear logo, where specific pediatric recommendations differ from those for adults. It is assumed that children will receive the evaluation and care recommended for all patients, unless specific pediatric recommendations are included in the algorithm.



A pediatric patient is defined as age less than 15 years. Age 15 and above is considered an adult patient in regard to treatment guidelines.

The guidelines include specific energy/shock recommendations for cardioversion and defibrillation highlighted by the lightning bolt symbol.



The [Universal Care](#) treatment guideline should be applied to all patient encounters, and encompasses both adult and pediatric patients. All initial patient care is included in this guideline to reduce the need for extensive reiteration of basic assessment and other considerations in every guideline.

Online medical direction may be utilized at any time during the patient encounter *per local protocols*.

The appendix contains additional reference material applicable to these guidelines, such as neurologic assessment tools.

The NASEMSO model guidelines include additional information that medical direction authorities may find helpful for education, training, and quality improvement activities, including patient safety considerations, educational pearls, performance measures, and literature references: nasemso.org.

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These general recommendations apply to all patient encounters. Patient care goals are to facilitate appropriate initial assessment and manage treatment of any EMS patient.

EMT

- Assess scene safety.
- Use appropriate personal protective equipment (PPE).
- Determine number of patients.
- Determine need for MCI triage and additional resources.
- Determine mechanism of injury.
- Determine SMR needs.

- It is preferable for minors to have a parent or legal guardian who can provide consent for treatment on behalf of the child; however, EMS providers may provide emergency treatment when a parent is not available to provide consent.
- Use commercially available tool for weight estimate.



Primary Survey (Airway, Breathing, Circulation, Disability, Exposure)

- Open airway as indicated.
 - Consider position, suction, and use of airway adjuncts as indicated.
- Administer oxygen as appropriate.
- Assess circulatory status.
 - Control any major external bleeding & Initiate chest compressions as indicated.
- Evaluate patient responsiveness: AVPU (alert, verbal, pain, unresponsive)/GCS (Glasgow Coma Scale).
- Evaluate gross motor and sensory function in all extremities.
- Expose patient as appropriate to the chief complaint.

Secondary Survey

- Acquire baseline vital signs.
- Acquire blood glucose level as indicated.
- OPQRST history.
- SAMPLE history.
- Check temperature as indicated. Treat environmental hyperthermia/hypothermia.

Ongoing Reassessment

- Proceed to the appropriate guideline as indicated.
- Determine need for transport, resources available, and location of most appropriate destination. Transport as indicated.
- Reassess chief complaint, assessment findings, and response to treatment.
- Assess vital signs at least every 5 minutes for unstable patients; every 15 minutes for stable.
- Obtain waveform capnography (ETCO2) and SPO2 as indicated. (ETCO2 is STR for EMT)
- IV access and initiate IV fluids as indicated. (STR for EMT)
- Acquire and transmit 12 lead ECG as indicated.

AEMT

- Consider appropriate airway management adjuncts.
- ETCO2 monitoring should be performed after placement of any supraglottic or advanced airway.
- IO access as indicated.

- Use commercially available tool for medication dosing and equipment size selection.

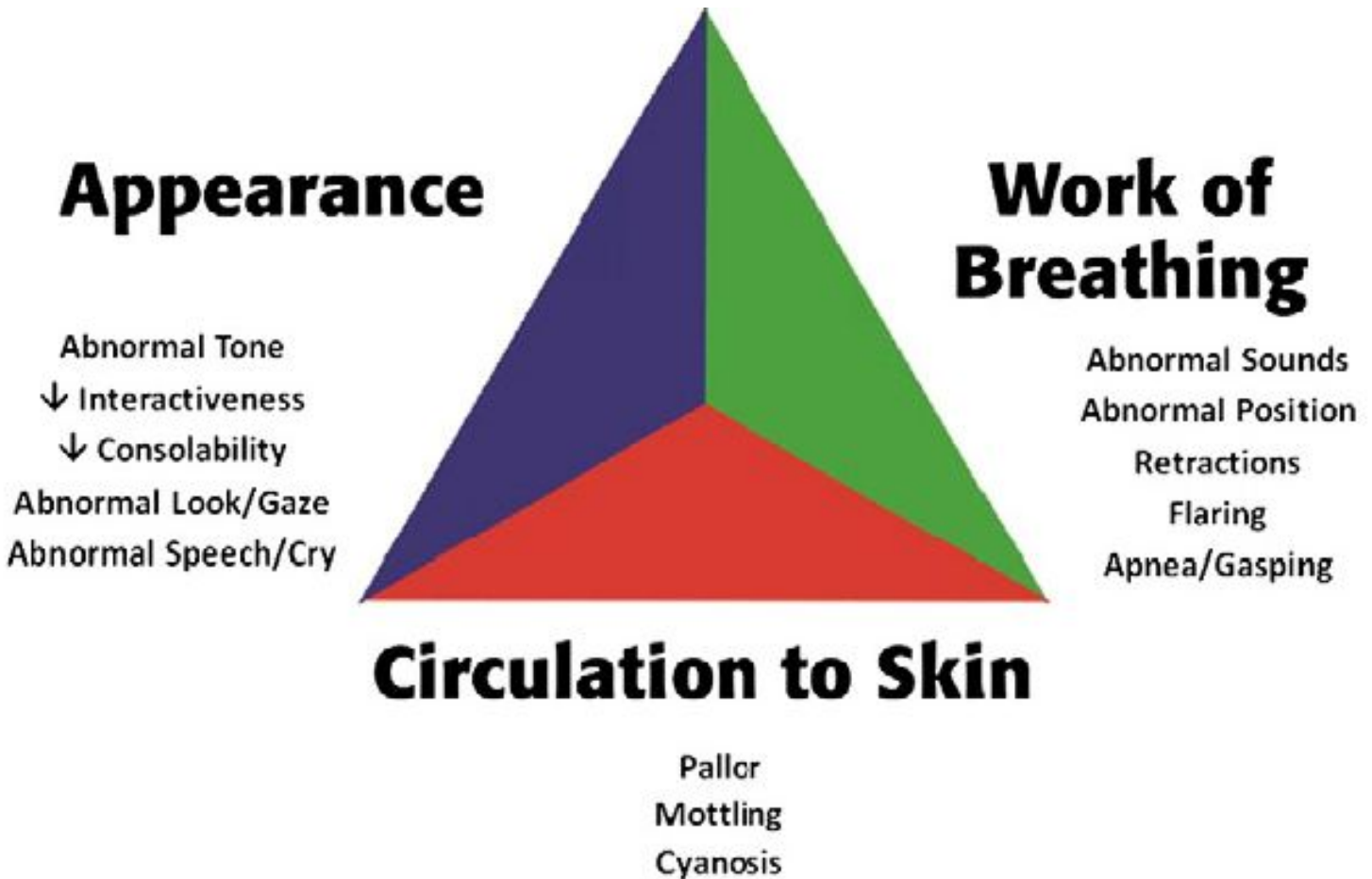


EMT-I/Paramedic

- Consider appropriate airway management adjuncts. Escalate as indicated.
- 12 lead ECG should be performed early in patients with potential cardiac complaints (goal within 5 minutes of patient contact).
- In patients with cardiac or respiratory complaints, perform continuous cardiac monitoring.



Pediatric Assessment



Includes: Patients with physical, sensory, mental health, and cognitive and/or intellectual disabilities affecting their ability to function independently without assistance.

EMT

- Identify the functional need by means of information from the patient, the patient's guardian, caretaker, bystanders, medic alert bracelets or documents, or the patient's adjunct assistance devices.
- The physical examination should not be intentionally cut short, although the manner in which the exam is performed may need to be modified to accommodate the specific needs of the patient.
- Medical care should not intentionally be reduced or abbreviated during the triage, treatment and transport of patients with functional needs, although the manner in which the care is provided may need to be modified to accommodate the specific needs of the patient.
- For patients with communication barriers (language or sensory), it may be desirable to obtain secondary confirmation of pertinent data (e.g. allergies) from the patient's family, interpreters, or written or electronic medical records.
- The family members, guardians, or caretakers can be an excellent source of information and they can have a calming influence on some of these patients.
- Transport patients with all assistance adjuncts, items of comfort, and service animals if feasible.

Adult & Pediatric

If an individual (or the parent or legal guardian of the individual) declines or refuses secondary care and/or ambulance transport to a hospital after EMS providers have been called to the scene, EMCTs should determine the decision maker's capacity to make medical decisions.

Decision-Making Capacity

An individual who is alert, oriented, and has the ability to understand the circumstances surrounding their illness or injury, as well as the possible risks associated with declining treatment and/or transport, typically is considered to have decision-making capacity. Decision-making capacity should be demonstrated and documented as defined by the presence of all 4 criteria. The patient must be able to:

- Receive and comprehend information needed to make a decision,
- Process and deliberate a decision and its potential consequences,
- Make and articulate a decision that is consistent over time,
- Justify that decision with logic that fits the individual's own value system.

The individual's judgement must not be impaired by illness, injury, or clinically apparent drug/alcohol intoxication. GCS score must be normal (15).

Individuals who have attempted suicide, verbalized suicidal intent, or who otherwise exhibit indicators that lead EMS providers to reasonably suspect suicidal intent may not decline transport to a receiving facility. In addition, patients with court order for psychiatric care may not refuse care.

All patients who request transport to the hospital will be transported.

EMT

- | | |
|---|---|
| <ul style="list-style-type: none">• Make all reasonable efforts to avoid putting yourself in danger.• Obtain a complete set of vital signs.• Complete an initial assessment with particular attention to neurologic and mental status.• Perform appropriate medical care with the consent of the individual. | <ul style="list-style-type: none">• It is preferable to have a parent/guardian consent to treatment on behalf of a minor. However, EMCTs may provide emergency care when a parent/guardian is not available to consent.• Parent/guardian can decline care on behalf of a minor unless abuse or neglect is suspected or in situations where treatment and transport are necessary to prevent death, disability, or serious harm. Notify law enforcement as necessary to facilitate transport to the hospital.• Emancipated minors must provide state-issued emancipated identification card. |
|---|---|



- Individuals must be advised of the risks and consequences resulting from refusal of medical care.
- Assess the individual's understanding of the medical emergency: the possible medical problems, the proposed medical care, the benefits of medical care and risks of refusal.
- *Contact online medical direction based on local protocol.*
- EMCT must document patient encounter.

Includes: Patients presenting with both abrupt loss of consciousness and loss of postural tone. Presyncope or prodromal symptoms may be described as “nearly blacking out” or “nearly fainting” and should be considered to have the same or similar risk for significant illness as any patient who has lost consciousness.

Excludes:

- Patients with trauma, refer to [Traumatic Brain Injury \(EPIC-TBI\)](#) and [General Trauma Management](#).
- Patients with ongoing mental status changes or coma should be treated per the [Altered Mental Status](#).
- Evidence of other alternate etiology. Refer to appropriate guideline: [Seizures](#), [Stroke](#), [Hypoglycemia](#).

EMT

- Initiate [Universal Care](#).
- Acquire blood glucose level. Refer to [Hypoglycemia](#) as indicated.
- IV access and initiate IV fluids as indicated. (STR for EMT)
- Acquire and transmit 12 lead ECG as indicated.

AEMT

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|---|---|
| <ul style="list-style-type: none"> • IO access as indicated. • If symptoms of poor perfusion, give 500 mL IO fluid bolus, and repeat as necessary. Max 30 ml/kg. Titrate to maintain MAP > 65 or SBP > 90. • Refer to Shock as needed. | <ul style="list-style-type: none"> • If symptoms of poor perfusion, give 20 mL/kg IV/IO fluid bolus, repeat as needed. Titrate to age appropriate SBP (Abnormal Vital Signs) using push-pull method. • Refer to Shock as needed. |
|---|---|



EMT-I/Paramedic

- Place on cardiac monitor. Treat arrhythmias if present:
 - [Bradycardia](#).
 - [Tachycardia with a Pulse](#).
 - [Cardiac Arrest \(VF/VT/Asystole/PEA\): Adult & Pediatric](#).
- Perform 12 lead ECG. Transmit when possible.

Chest Pain/Acute Coronary Syndrome/ST-segment Elevation Myocardial Infarction (STEMI): Adult

Includes: Chest pain or discomfort in other areas of the body (e.g. arm, jaw, epigastrium) of potential cardiac origin, shortness of breath, associated or unexplained sweating, nausea, vomiting, or dizziness. Also includes chest pain associated with sympathomimetic use (e.g. cocaine, amphetamines). Atypical or unusual symptoms are more common in women, the elderly and diabetic patients. Patients may also present with CHF, syncope, and/or shock.

EMT

- Initiate [Universal Care](#).
- Immediately address [Cardiac Arrest](#), symptomatic [Tachycardia](#), or symptomatic [Bradycardia](#)
- If short of breath, hypoxic, or with obvious signs of heart failure, administer oxygen and titrate to SPO2 of \geq 94%.
- Administer **Aspirin** 325 mg PO or 325 mg chewed.
- Acquire and transmit 12 lead ECG as indicated (goal within 5 minutes of patient contact).






AEMT

- Administer **Nitroglycerin** 0.4 mg SL tablets or 1 full spray if SBP > 100 mmHg.
 - May repeat every 3-5 minutes, until pain resolves and as blood pressure allows.
- CAUTION:** Do not give nitroglycerin to any patient within 48 hours of taking a PDE5-inhibitor medication (e.g., sildenafil, tadalafil, epoprostenol, treprostenil) for erectile dysfunction or pulmonary hypertension.

EMT-I/Paramedic

- For STEMI chest pain unresponsive to nitroglycerin:
 - **Fentanyl** 0.5 mcg/kg/dose IN/IV/IO, max total dose 200 mcg.
 - **Morphine** 0.05 mg/kg/dose IV, max of single dose of 3 mg. May repeat in 10 minutes to a total max of 10 mg if pain unresolved, if blood pressure allows. Morphine should be used with *caution* in unstable angina/non-STEMI due to an association with increased mortality.
- Location of infarct does not preclude use of **nitroglycerin**, however, continuously monitor hemodynamic status and be prepared to resuscitate if hypotension occurs.
- Transport patient to [Cardiac Receiving or Referral Center](#) *per local protocol*.
- Notify receiving facility immediately for STEMI.
- Transmit 12 lead ECG to receiving facility if possible.
- Performance of serial ECGs is recommended if not diagnostic or there is a change in patient condition.

Bradycardia: Adult & Pediatric

| | |
|--|---|
| <p>Includes: Heart rate < 60 with either symptoms (altered mental status, chest pain, congestive heart failure, seizure, syncope, shock, pallor, diaphoresis) or evidence of hemodynamic instability.</p> | |
| <p>EMT</p> | |
| <ul style="list-style-type: none"> Initiate Universal Care. | <ul style="list-style-type: none"> For age ≤ 6 months and heart rate <60 and signs of poor perfusion, initiate chest compressions and refer to Cardiac Arrest (VF/VT/Asystole/PEA).  |
| <p>AEMT</p> | |
| <p>EMT-I/Paramedic</p> | |
| <ul style="list-style-type: none"> Apply cardiac monitor. Perform 12 lead ECG. In cases of impending hemodynamic collapse (shock), proceed directly to transcutaneous pacing.  | |
| <ul style="list-style-type: none"> If bradycardia and symptoms of hemodynamic instability continue, consider the following: <ul style="list-style-type: none"> Epinephrine: <ul style="list-style-type: none"> Push dose 10-20 mcg boluses (1-2 mL) every 2 minutes (or) Drip 0.02 - 0.2 mcg/kg/min. Titrate to maintain MAP > 65 or SBP > 90 Atropine Sulfate: 1 mg IV/IO every 3-5 min, max total dose 3 mg. | <ul style="list-style-type: none"> If bradycardia and symptoms or hemodynamic instability continue, consider the following: <ul style="list-style-type: none"> Epinephrine: 0.1 mg/mL: 0.01 mg/kg (0.1 mL/kg) IV/IO every 3 to 5 minutes. Atropine Sulfate: 0.02 mg/kg IV/IO (min dose 0.1 mg), max initial dose 0.5 mg, max total dose 3 mg.  |
| <p>Push dose epinephrine preparation: mix 1 mL of 0.1 mg/mL epinephrine with 9 mL of NS. This results in 10 mcg/mL concentration.</p> | |
| <ul style="list-style-type: none"> If bradycardia and symptoms of hemodynamic instability continue, consider transcutaneous pacing. If pacing is performed, consider pharmacological management or pain control per Management of Acute Pain.  Use ETCO2 if available for all patients receiving pharmacological management. | |
| <ul style="list-style-type: none"> Pharmacological management (if age > 60 consider reducing dose by half): <ul style="list-style-type: none"> Midazolam: 1 mg IV slowly every 2-3 minutes, max dose 5 mg. Lorazepam: 1 mg IV every 5-10 minutes, max dose 4 mg. Refer to Management of Acute Pain. | <ul style="list-style-type: none"> Pharmacological management: <ul style="list-style-type: none"> Midazolam: 0.1 mg/kg IV slowly, every 2-3 minutes, max dose 5 mg. Lorazepam: 0.1 mg/kg IV every 10 minutes, max dose 4 mg. Refer to Management of Acute Pain.  |

Implantable Ventricular Assist Devices (VAD, LVAD): Adult & Pediatric

Includes: Patients that have had an implantable ventricular assist device (VAD), including a left ventricular assist device (LVAD), right ventricular assist device (RVAD), or biventricular assist device (BiVAD).

Excludes: Total artificial heart (TAH) patients, refer to [Total Artificial Heart \(TAH\)](#).

EMT

- Initiate [Universal Care](#).
- BP measurement will require manual cuff and doppler to obtain mean arterial pressure (MAP), assess patient for signs of hypoperfusion, pallor, altered LOC.
- Pulse is variable and not clinically significant in VAD patients.
- Pulse oximetry can be unreliable – look for physical signs and symptoms.
- Contact the patient's VAD program on-call coordinator using the phone number on the device; follow coordinator's guidance.
 - Banner University Phoenix VAD ----602-819-7910
 - Banner University Tucson VAD ----- 520-694-6000
 - Dignity St. Joseph's VAD----- 602-406-8000
 - Mayo VAD ----- 480-342-2999
 - Phoenix Children's Hospital VAD----- 602-933-8800
- Decision to perform CPR should be made in consultation with patient's VAD-trained companion and VAD coordinator. CPR may be initiated only where:
 - Confirmation that the pump has stopped and troubleshooting efforts have failed, and
 - Patient is unresponsive and has no detectable signs of life.
- Patient's travel bag with backup controller and spare batteries should ALWAYS accompany them.

- Assess for alarms.
- Assess for possible pump malfunction – mechanical hum should be present on auscultation.
- Assess for signs of hypoperfusion including pallor, diaphoresis, altered mental status.
- Contact the patient's VAD-trained companion, if available.
- Check all connections to the system controller; change batteries and/or controller as indicated.
- Follow appropriate cardiovascular condition-specific guideline(s) as indicated.
- If patient is experiencing VAD-related complications or cardiovascular problems, transport destination preference is 1) their VAD program, 2) nearest VAD-trained facility, 3) nearest appropriate facility.

AEMT

- Establish IV/IO.
- If patient has a functioning VAD and is hypoperfused (pale, diaphoretic, delayed capillary refill, altered mental status), administer 30 mL/kg IV/IO fluid bolus, maximum 1 L, over < 15 minutes, using push-pull method or pressure bag.
- May repeat up to 3 times based on patient's condition and clinical impression.
- **Do not administer nitroglycerin.**

EMT-I/Paramedic

- Apply cardiac monitor.
- Acquire 12 lead ECG.
- Patient's baseline may be arrhythmia. Consult with VAD coordinator prior to administering antiarrhythmics.

Total Artificial Heart (TAH): Adult & Pediatric

Includes: Patients that have had a total artificial heart device (TAH). Patients no longer have a native heart.

EMT

- Initiate [Universal Care](#).
- BP measurement may use auto-cuff or manual cuff.
- Patient will have a pulse if the device is working.
- Contact the patient's TAH/VAD program on-call coordinator using the phone number on the device; follow coordinator's guidance.
 - Banner University Phoenix TAH/VAD -----602-819-7910
 - Banner University Tucson TAH/VAD ----- 520-694-6000
 - Dignity St. Joseph's TAH/VAD----- 602-406-8000
 - Mayo TAH/VAD ----- 480-342-2999
 - Phoenix Children's Hospital TAH/VAD----- 602-933-8800
- **Never perform CPR for TAH patients.**
- Patient's travel bag with backup controller and spare batteries should ALWAYS accompany them.

- Assess for alarms.
- Assess for possible pump malfunction – pneumatic thumping sound should be audible.
- Assess for signs of hypoperfusion including pallor, diaphoresis, altered mental status.
- Contact the patient's TAH-trained companion, if available.
- If patient is experiencing TAH-related complications or cardiovascular problems, transport destination preference is 1) their TAH program, 2) nearest TAH-trained facility, 3) nearest appropriate facility.

AEMT

- Establish IV/IO.
- If patient has a functioning TAH and is hypoperfused (pale, diaphoretic, delayed capillary refill, altered mental status), administer 30 mL/kg IV/IO fluid bolus, maximum 1 L, over < 15 minutes, using push-pull method or pressure bag.
- May repeat up to 3 times based on patient's condition and clinical impression.
- **Nitroglycerin** may be administered after consultation with TAH coordinator.

EMT-I/Paramedic

- There will be no electrical activity on cardiac monitor/ECG.

Includes: Elevated heart rate for age, with or without associated symptoms such as palpitations, dyspnea, chest pain, syncope/near-syncope, hemodynamic compromise, altered mental status, or other signs of end organ malperfusion. Adults: HR > 100.

Excludes: Sinus tachycardia. Rate-related symptoms are uncommon when heart rate <150.

EMT

- Initiate [Universal Care](#). Search for underlying causes (medications, drugs, history of dysrhythmia, CHF, etc.).
- Acquire and transmit ECG.

AEMT

EMT-I/Paramedic

All Unstable tachycardias

- Deliver a synchronized cardioversion.

Consider the following if stable symptomatic tachycardia (if known WPW syndrome, contact online medical direction):

Stable SVT

- Perform vagal maneuvers.
- **Adenosine:**
 - 6 mg IV/IO.
 - If tachycardia continues, give 12 mg IV.
 - Always follow with 10 mL fluid bolus.
- **Diltiazem:** (Paramedic only)
 - 0.25 mg/kg IV/IO.
 - Give half of dose slowly over 2 minutes.
 - May give remainder of dose in 10 minutes as needed and as blood pressure allows.
 - Patients > 65 years old, max initial dose 10 mg.

Irregular narrow complex tachycardia (A-fib, A-flutter, multifocal atrial tachycardia), Stable

- **Diltiazem:** (Paramedic only)
 - 0.25 mg/kg IV/IO
 - Give half of dose slowly over 2 minutes.
 - May give remainder of dose in 10 minutes as needed and as blood pressure allows.
 - Patients > 65 years old, max initial dose 10 mg.

Regular wide complex tachycardia, Stable

- **Amiodarone:** (Paramedic only)
 - 150 mg IV/IO over 10 minutes; may repeat.
- **Lidocaine:**
 - 1-1.5 mg/kg IV/IO repeated every 5 minutes, max total dose 3 mg/kg. May repeat at half the original dose.


Irregular wide complex tachycardia, Stable

- **Amiodarone:** (Paramedic only)
 - 150 mg IV over 10 minutes; may repeat.

Torsades (In addition to above)

- **Magnesium sulfate:** (Paramedic only)
 - 1-2 g IV over 15 minutes.

Unstable SVT or unstable wide complex tachycardia

- Deliver a synchronized cardioversion 1 J/kg. 
- Repeat doses should be 2 J/kg.

Consider the following if stable symptomatic tachycardia (if known WPW syndrome, contact online medical direction):

Stable SVT

- Perform vagal maneuvers.
- **Adenosine:**
 - 0.1 mg/kg IV/IO, max 6 mg.
 - May repeat with 0.2 mg/kg IV/IO, max 12 mg.
 - Always follow with 10 mL fluid bolus.

Wide complex tachycardia, stable

- **Amiodarone:** (Paramedic only)
 - 5 mg/kg IV/IO over 10 minutes, max 150 mg over 10 minutes.

Unstable Tachycardia Signs & Symptoms

Is your patient unstable because of tachycardia?


| | |
|---|---|
| <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Consider Cardioversion</p> | <p>Most important factor is hemodynamic instability. These include signs of shock:</p> <ul style="list-style-type: none"> • Low Systolic Blood Pressure • Weak Pulse • Syncope or postural lightheadedness • General signs of poor perfusion <p>Note: Flash pulmonary edema from acute heart failure is also considered unstable.</p> |
| <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Withhold Cardioversion</p> | <p>Rates 100-150 are generally tolerable and often are appropriate compensatory response (sepsis, hemorrhage, tox, etc).</p> <p>These patients likely do not need cardioversion.</p> |
| <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Caution</p> | <p>Use caution with altered LOC alone, since this could be from poor perfusion (less likely without other signs) or some other medical problem associated with otherwise stable tachycardia.</p> <p>Remember to treat any ongoing hemodynamic shock regardless of if you have decided to cardiovert.</p> |

Stroke/Transient Ischemic Attack: Adult & Pediatric

Includes: Acute neurologic deficit such as facial droop, localized weakness, gait disturbance, difficulty speaking or slurred speech, altered mental status that fall within 24 hours of onset or last known well time eligible for stroke treatment and transport to a stroke center as *outlined by local protocol*.

Excludes: Patients with potential traumatic brain injury, refer to [Traumatic Brain Injury \(EPIC-TBI\)](#) and [General Trauma Management](#). If seizure activity present, refer to [Seizures](#).

EMT

- | | |
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| <ul style="list-style-type: none"> • Initiate Universal Care. • Use a validated Prehospital Stroke Screening Scales. • Document patient weight and last known well time or time of onset. • Acquire blood glucose level. Refer to Hypoglycemia as indicated. • Minimize on-scene time and ensure rapid transport to Stroke Center as outlined in <i>local protocol/medical direction</i>. • Notify receiving facility as soon as possible including any potential large vessel occlusion, link to Prehospital Stroke Screening Scales/FAST/VAN screening tool. • If altered mental status and SBP > 100, elevate head of bed to 15-30 degrees. • Obtain waveform capnography (ETCO₂) and SPO₂ as indicated. (ETCO₂ is STR for EMT) • IV access and initiate IV fluids as indicated. (STR for EMT) • Acquire and transmit 12 lead ECG as indicated. | <ul style="list-style-type: none"> • Although rare, pediatric patients can have strokes. • Higher risk in sickle cell anemia patients. • Stroke scales are not validated for pediatric patients. • <i>Per local protocols</i>, call receiving facility or base hospital to ensure appropriate destination decision. • Transport to most appropriate facility, <i>per local protocols</i>. • Notify receiving facility as soon as possible.  |
|--|--|

AEMT

EMT-I/Paramedic

Be aware of potential clues to abuse/maltreatment from caregivers, the general environment, and the patient's physical condition. Recognize any act, or series of acts of commission or omission by a caregiver or person in a position of power over the patient, that results in harm, potential for harm, or threat of harm to a patient.

EMS's role is to:

- Document concerns.
- Assess and stabilize potentially serious injuries.
- Disclose concerns to the appropriate authorities (hospital and law enforcement or state authorities).
- EMS personnel are **mandatory reporters** of any suspicion for abuse, maltreatment, neglect, or potential human trafficking or sex trafficking of a minor per A.R.S. §13-3620.A and A.R.S. §13-3212.
- Notify one of the following applicable entities:
 1. Law enforcement.
 2. Arizona Department of Child Safety 1-888-SOS-CHILD (1-888-767-2445).
 3. Adult Protective Services Central Intake Unit 1-877-SOS-ADULT (1-877-767-2385) Link to their online reporting form: <https://hssazapsprod.wellsky.com/assessments/?WebIntake=1F74FCDA-C6AB-4192-9CEE-F8D20DE98850>.
 4. A tribal law enforcement or social services agency for any Native American minor who resides on an Indian reservation.
- Leave the investigation to law enforcement.

NOTE: Reporting to hospital personnel does not qualify as having fulfilled the mandatory reporting requirement.

EMT

- Primary survey
 - Identify potentially life-threatening issues.
 - Refer to [General Trauma Management](#) as needed.
- Secondary survey
 - Assess physical issues, document any statements made spontaneously by patient. Avoid extensive investigation of the specifics of abuse.
- Report concerns immediately about caregivers impeding your ability to assess/transport patient or refusing care for the patient.
- Attempt to preserve the evidence, but the overriding concern should be providing emergency care to the patient.

- Scenarios that call for a high index of suspicion for abuse in children include:

- [Brief Resolved Unexplained Event \(BRUE\)](#)

- Any bruising on a patient ≤ 4 months, or any bruising on the torso, ears, neck on a patient < 4 years. (See TEN-4-FACESp below)



TEN-4-FACESp

Bruising Clinical Decision Rule for Children < 4 Years of Age

When is bruising concerning for abuse in children < 4 years of age?
If bruising in any of the three components (Regions, Infants, Patterns) is present without a reasonable explanation, strongly consider evaluating for child abuse and/or consulting with an expert in child abuse.

TEN

Torso | Ears | Neck



FACES

Frenulum
Angle of Jaw
Cheeks (*fleshy part*)
Eyelids
Subconjunctivae

REGIONS

4 months and younger



Any bruise, anywhere

INFANTS

Patterned bruising



Bruises in specific patterns like slap, grab or loop marks

PATTERNS

See the signs

Unexplained bruises in these areas most often result from physical assault. TEN-4-FACESp is not to diagnose abuse but to function as a screening tool to improve the recognition of potentially abused children with bruising who require further evaluation.



Agitated or Violent Patient/Behavioral Emergency: Adult & Pediatric

Includes: Patients who are exhibiting agitated, violent, or uncooperative behavior or who are a danger to self or others.

Address underlying medical conditions that may result in agitated or violent behavior. This includes but is not limited to:

- [Traumatic Brain Injury \(EPIC-TBI\)](#).
- [Hypoglycemia](#), hypoxia.
- Postictal state, [Seizures](#).
- [Hyperthermia](#).
- Acute drug intoxication or withdrawal.

EMT

- Dispatch law enforcement immediately when necessary to secure and maintain scene safety. Do not attempt to enter scene before safety is ensured.
- Initiate [Universal Care](#).
- Acquire blood glucose level as soon as possible.
- Attempt verbal reassurance and calm patient.
- Engage family members/loved ones to encourage patient cooperation if their presence does not exacerbate the patient's agitation.
- Consider physical restraints:
Body:
 - Sheets can be used in addition to stretcher straps; place around the lower lumbar region, below buttocks, or around the thighs, knees and legs.
 - Do not apply restraints that restrict the patient's chest wall motion.Extremities:
 - Soft or leather restraints should not require key.
 - Restrain all four extremities to stationary frame of stretcher.
- Place stretcher in sitting position. Do not prone patient.
- If the patient is in police handcuffs, you must have access to the key at all times.

AEMT

EMT-I/Paramedic

- | | |
|--|---|
| <ul style="list-style-type: none">• Apply cardiac monitor as soon as possible, particularly when pharmacological management has been administered.• Use ETCO₂ if available for all patients receiving pharmacological management.• Consider pharmacological management based upon patient's clinical condition. Use caution as all these medications can cause respiratory depression/compromise. Time intervals for repeat dosing will vary. Refer to specific drug profile.• Benzodiazepines:<ul style="list-style-type: none">– Midazolam: 5 mg IM/IN/IV/IO. Max total dose 20 mg. (or)– Lorazepam: 2-4 mg IM or 2 mg IV/IO. Max total dose 4 mg (or)• Ketamine (Paramedic only): Not indicated for postictal patients with agitation.<ul style="list-style-type: none">– 4 mg/kg IM/IN, max initial dose of 250 mg.– 2 mg/kg IV/IO, max initial dose 150 mg. | <ul style="list-style-type: none">• Pharmacological management should be a later consideration for pediatric patients, call for medical direction.• Consider pharmacological management based upon patient's clinical condition; use caution as all these medications can cause respiratory depression/compromise. Time intervals for repeat dosing will vary; refer to specific drug profile.• Benzodiazepines:<ul style="list-style-type: none">– Midazolam: 0.1-0.15 mg/kg IM or 0.05-0.1 mg/kg IV/IO or 0.3 mg/kg IN. Max initial dose 5 mg (or)– Lorazepam: 0.05 mg/kg IM/IV/IO. Max initial dose 2 mg IV/IO. Max initial dose 4 mg IM. |
|--|---|



Includes: Patients of all ages with known or potential allergic reaction and/or anaphylaxis.


EMT

- Initiate [Universal Care](#).
- Evaluate for patent airway and presence of oropharyngeal edema.
- Auscultate for wheezing and assess level of respiratory effort.
- Assess adequacy of perfusion.
- Obtain waveform capnography (ETCO2) and SPO2 as indicated. (ETCO2 is STR for EMT)
- IV access and initiate IV fluids as indicated. (STR for EMT)

Determine whether:


- Anaphylaxis:
 - severe and acute onset (and)
 - respiratory compromise (dyspnea, wheeze, stridor, hypoxemia)
 - decreased BP (SBP<90), (or)
 - combination of 2 of the following:
 - Urticaria
 - Swollen tongue and lips
 - Vomiting
 - Abdominal pain
 - Syncope
 - Incontinence
- Non-anaphylactic allergic reaction:
 - localized symptoms.
 - localized angioedema without airway or GI symptoms.
 - hives alone.

- For peds: Hypotension is minimum SBP = 70 + 2x (age in years.) Refer to [Abnormal Vital Signs](#).



- If signs of anaphylaxis and no auto-injector available, administer prepared kit **Epinephrine**: 1 mg/mL, 0.3 mg IM (anterolateral thigh). (STR for EMT)
- If signs of anaphylaxis persist, additional IM epinephrine can be repeated every 5 minutes.
- If respiratory distress with wheezing, consider administering **Albuterol**: 5 mg nebulized. (STR for EMT)


- If signs of anaphylaxis and no auto-injector available, administer prepared kit **Epinephrine**: 1 mg/mL (STR for EMT)
 - If < 25 kg, 0.15 mg IM (anterolateral thigh).
 - If ≥ 25 kg, 0.3 mg IM (anterolateral thigh).
- If signs of anaphylaxis persist, additional IM epinephrine can be repeated every 5 minutes.
- If respiratory distress with wheezing, consider administering **Albuterol**: 5 mg nebulized. (STR for EMT)



AEMT

- **Epinephrine**: 1 mg/mL, 0.3 mg IM. May repeat every 5 minutes as indicated.

- **Epinephrine**: 1 mg/mL, 0.01 mg/kg IM, max dose 0.3 mg. May repeat every 5 minutes as indicated.



- For severe respiratory distress with wheezing or stridor, consider administering Epinephrine: 1 mg/mL, 5 mL nebulized.
- Patients receiving inhaled epinephrine should be transported to definitive care.
- Assess for sign of [Shock](#). Fluid bolus IV/IO as indicated.

EMT-I/Paramedic

- For urticaria, rash, itching, or anaphylaxis, administer: **Diphenhydramine**: 1 mg/kg IV/IM/PO, max dose of 50 mg (IV preferred if patient in severe shock).
- If signs of cardiovascular collapse (persistent hypotension with altered mental status, pallor, diaphoresis, or delayed capillary refill) despite administration of IM epinephrine, refer to [Shock](#) for [push dose epinephrine administration](#).
- Consider administration of one of the following corticosteroids:
 - **Methylprednisolone**: 2 mg/kg IV/IM max dose 125 mg.
 - **Dexamethasone**: 0.6 mg/kg IV/IM/PO, max dose 16 mg.

Altered Mental Status: Adult & Pediatric

Excludes: [Traumatic Brain Injury \(EPIC-TBI\)](#).

Assess and evaluate for treatable causes. Refer to specific guidelines when applicable:

- [Shock](#).
- Dysrhythmia.
- [Hypoglycemia](#).
- [Hyperglycemia](#).
- Toxic ingestion or substance use.
- [Hyperthermia](#).
- [Opioid poisoning/Overdose](#).
- [Agitated or Violent Patient/Behavioral Emergency](#).
- [Seizures](#).

EMT

- Initiate [Universal Care](#).
- Refer to [Airway Management](#) as needed.
- Acquire blood glucose level. Treat [Hypoglycemia](#) or [Hyperglycemia](#), if indicated.
- Assess for potential stroke using a validated [Prehospital Stroke Screening Scales](#).
- Check temperature. Refer to [Sepsis](#) as needed.
- If potential opioid overdose, refer to [Opioid poisoning/Overdose](#).
- If potential non-opioid overdose, refer to [Poisoning/Overdose](#).
- Obtain waveform capnography (ETCO2) and SPO2 as indicated. (ETCO2 is STR for EMT)
- IV access and initiate IV fluids as indicated. (STR for EMT)
- Acquire and transmit 12 lead ECG as indicated.

AEMT

EMT-I/Paramedic

- Treat dysrhythmias as indicated.


Includes: Adult or pediatric patient with symptoms of hyperglycemia (e.g. polyuria, polydipsia, weakness, dizziness, abdominal pain, tachypnea). Adult or pediatric patient with history of diabetes and other medical symptoms.

Excludes: Patient in [Cardiac Arrest \(VF/VT/Asystole/PEA\): Adult & Pediatric](#).

EMT

- Initiate [Universal Care](#) and refer to [Airway Management](#) as indicated.
- Acquire blood glucose level.
- Assess GCS, mental status, [Prehospital Stroke Screening Scales](#), and refer to [Altered Mental Status](#) or [Stroke](#) accordingly.
- Evaluate for possible sepsis and septic shock. Refer to [Sepsis](#) or [Shock](#) as needed.
- Transport to closest appropriate receiving facility.
- Obtain waveform capnography (ETCO2) and SPO2 as indicated. (ETCO2 is STR for EMT)
- IV access and initiate IV fluids as indicated. (STR for EMT)
- Acquire and transmit 12 lead ECG as indicated.

• If hyperglycemia (glucose >250 mg/dL) with symptoms of dehydration, vomiting, or altered level of consciousness, give 20 mL/kg IV fluid bolus, maximum 2 L. (STR for EMT)

• If hyperglycemia (glucose >250 mg/dL) with symptoms of dehydration, vomiting, or altered level of consciousness, give 10 mL/kg IV fluid bolus, not to exceed adult dose. (STR for EMT) 

AEMT


- IO access as indicated.

EMT-I/Paramedic

- Acquire 12 lead ECG to assess for peaked T waves or other findings consistent with hyperkalemia. Refer to [ECG Changes in Hyperkalemia](#).

• If findings of hyperkalemia are present, maintain continuous cardiac monitoring, administer IV fluids and:

- **Calcium Gluconate:** (Paramedic only) 2 g IV/IO over 5 minutes (or)
- **Calcium Chloride:** (Paramedic only) 1 g IV/IO over 5 minutes, ensure IV patency and do not exceed 1 mL/minute (and)
- **Albuterol:** 5 mg nebulized.

• If findings of hyperkalemia are present, maintain continuous cardiac monitoring, administer IV fluids and: 

- **Calcium Gluconate:** (Paramedic only) 100 mg/kg IV/IO over 5 minutes , max dose 2 g (or)
- **Calcium Chloride:** (Paramedic only) 20 mg/kg (0.2 mL/kg) IV/IO over 5 minutes, max dose 1 g, ensure IV patency and do not exceed 1 mL/minute (and)
- **Albuterol:** 5 mg nebulized.

Includes: Adult or pediatric patient with blood glucose < 60 mg/dL with symptoms of hypoglycemia.

EMT

- Initiate [Universal Care](#).
 - Assess GCS, mental status, validated [Prehospital Stroke Screening Scales](#) and refer to [Altered Mental Status](#) or [Stroke](#) as needed.
- | | |
|--|--|
| <ul style="list-style-type: none"> • If hypoglycemia (glucose < 60 mg/dL), administer Glucose: 15-25 g PO (ONLY if alert level of consciousness). | <ul style="list-style-type: none"> • If hypoglycemia (glucose < 60 mg/dL), administer Glucose: 0.5-1 g/kg PO, max dose 25 g (ONLY if alert level of consciousness). |
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- Reassess vital signs, mental status, finger stick blood glucose.
- Document patient's current medications and doses.
- Criteria for release without transport:
 - Patient returns to normal mental status, with no focal neurologic signs/symptoms after receiving glucose/dextrose.
 - Repeat glucose is > 80 mg/dL.
 - Patient takes only short-acting insulin or metformin (Treat and Release is contraindicated in patients taking long-acting insulins or other oral diabetic medications).
 - Tolerating oral intake.
 - Patient or legal guardian refuses transport.
 - A reliable adult will be staying with patient.
 - No major comorbid symptoms exist (chest pain, dyspnea, seizures, intoxication).

AEMT

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| <ul style="list-style-type: none"> • If hypoglycemia (glucose < 60 mg/dL), administer: <ul style="list-style-type: none"> – Dextrose: (max single dose 25 g, repeat as needed) <ul style="list-style-type: none"> ▪ D₁₀ IV/IO: 1 mL/kg, max dose 250 mL (preferred) (or) ▪ D₅₀ IV/IO: 50 mL (or) – Glucagon: 1 mg IM/IN • Reassess VS, mental status, finger stick blood glucose. | <ul style="list-style-type: none"> • If hypoglycemia (glucose < 60 mg/dL), administer: <ul style="list-style-type: none"> – Dextrose: <ul style="list-style-type: none"> ▪ D₁₀ IV/IO: 1 mL/kg, max dose 250 mL (or) – Glucagon: <ul style="list-style-type: none"> ▪ 1 mg IM/IN (if > 20 kg or > 5 yo) ▪ 0.5 mg IM/IN (if < 20 kg or < 5 yo) |
|---|--|



- If continued altered mental status and hypoglycemia, may repeat dose of dextrose or glucagon until symptoms have resolved.
- Patients with an insulin pump:
 - ALOC/AMS: stop insulin pump or disconnect at insertion site.
 - GCS 15 and able to take oral glucose: leave connected with pump running.

EMT-I/Paramedic

Includes: Patients currently nauseated and/or vomiting.

EMT

- Initiate [Universal Care](#).
- Obtain waveform capnography (ETCO2) and SPO2 as indicated. (ETCO2 is STR for EMT)
- IV access and initiate IV fluids as indicated. (STR for EMT)
- Consider 10-20 mL/kg IV/IO fluid bolus, unless contraindicated (history of CHF, renal failure). (STR for EMT)
- May repeat as indicated to max of 30 mL/kg. (STR for EMT)

AEMT

EMT-I/Paramedic

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| <ul style="list-style-type: none">• Ondansetron: 4 mg PO/SL/IV/IM.• Contraindicated for known or potential prolonged QT syndrome. | <ul style="list-style-type: none">• Patients 6 mo. – 14 y.o.:<ul style="list-style-type: none">– Ondansetron: 0.15 mg/kg PO/SL/IV/IM. Max dose 4 mg.• Contraindicated for known or potential prolonged QT syndrome. |
|---|---|



Assess pain as part of general patient care in children and adults. Consider all patients as candidates for management of acute pain, regardless of transport interval.

Caution: Multi-system trauma patients.

Excludes:

- SPO2 < 90%.
- Active labor.

EMT

- Initiate [Universal Care](#).
- Use an age-appropriate pain scale to assess pain, such as a 0-10 Numeric Pain Rating Scale.
- If available, consider use of non-pharmaceutical pain management techniques:
 - Place patient in position of comfort, while adhering to safe transport recommendations.
 - Apply ice packs and/or splints.
 - Verbal reassurance (will lower anxiety).
- Apply a pulse oximeter and administer oxygen as needed to maintain SPO2 ≥ 94%.
- Consider OTC pain medications:
 - **Acetaminophen:** PO 12 years and older 650 mg.
 - (or)
 - **Ibuprofen** PO 12 years and older 400 mg.

- Use an age-appropriate pain scale to assess pain:
- Age <4 years: Consider using an observational scale such as [FLACC](#) (face, legs, activity, cry consolability) or [CHEOPS](#) (Children’s Hospital of Eastern Ontario Pain Scale).
 - Age 4-12 years: Consider using a self-report scale such as [Faces Pain Scale-revised](#) or [Wong-Baker FACES®](#).
 - Age >12 years: Consider using a self-report scale such as a 0-10 Numeric Pain Rating Scale.
 - Consider OTC pain medications:
 - **Acetaminophen:** PO <2-5 years, 10-15 mg/kg; 6-11 years 325 mg.
 - (or)
 - **Ibuprofen:** PO 6 mo to 6 years, 10 mg/kg; 6-10 years, 200 mg; 11 years old 300 mg.



AEMT

- **Morphine:** 0.1 mg/kg/dose IV/IO, max 2-5 mg increments, max total dose 15 mg.
 - Reassess pain every 5 minutes.
 - Evidence of serious adverse effects should preclude further morphine administration.
 - If still in significant pain, re-dose at the original dose.
- Additional analgesics *per local protocol*.
- Reassess pain every 5 minutes, observe for adverse effects, and re-dose as above.
- Use ETCO2 as an early predictor of hypoventilation.

EMT-I/Paramedic

- **Fentanyl:** 1 mcg/kg/dose IN/IV/IO, max initial dose 100 mcg, max total dose 200 mcg.
- **Ketamine:** (Paramedic only) 0.25 mg/kg IV/IO, max per dose 25 mg, max total dose 100 mg.
- Consider administration of antiemetic for [Nausea/Vomiting](#) as needed.

- Consider intranasal route for medication if available.
- **Fentanyl:** 1 mcg/kg/dose IN/IV/IO, max initial dose 100 mcg, max total dose 200 mcg. Refer to [Nausea/Vomiting](#) as needed.



Seizures: Adult & Pediatric

Includes: Ongoing seizure or seizure lasting > 5 minutes, more than two seizures in one hour (AKA status epilepticus).

Seizures during 3rd trimester of pregnancy or up to six weeks postpartum (regardless of the age of the patient) are managed with magnesium sulfate. See below.

EMT

- Initiate [Universal Care](#).
- Provide airway support as needed.
- Assess neurologic status (AVPU/GCS).
- If pregnant, place in left lateral recumbent position.
- Acquire blood glucose level. Refer to [Hypoglycemia](#) as needed.
- Obtain waveform capnography (ETCO2) and SPO2 as indicated. (ETCO2 is STR for EMT)
- IV access and initiate IV fluids as indicated. (STR for EMT)
- Acquire and transmit 12 lead ECG as indicated.

AEMT

- If blood glucose <60 mg/dL, refer to [Hypoglycemia](#).

EMT-I/Paramedic

- Administer benzodiazepines.
 - If age >60, consider reducing dose by half.
 - May repeat for a total of 2 doses regardless of route.
 - **Midazolam:** 0.2 mg/kg IM/IN
 - Max 5 mg if < 40 kg
 - Max 10 mg if ≥ 40 kg
 - **Lorazepam, Midazolam:** 0.1 mg/kg IV
 - Administer slowly over 2 minutes.
 - Max single dose 4 mg.
- If greater than 20 weeks of pregnancy or postpartum up to six weeks, administer **Magnesium sulfate:** (Paramedic only) 5 g slow push IV/IO over 5 -10 minutes. Refer to [Obstetrical/Gynecological Conditions](#). If unclear etiology, you may administer a benzodiazepine simultaneously with the magnesium.
- Initiate continuous cardiac and ETCO2 monitoring.
- Patients requiring pharmacological management for agitation in the postictal state, refer to [Agitated or Violent Patient/Behavioral Emergency](#). Ketamine is not indicated for postictal patients.

For shock due to potential trauma, refer to [General Trauma Management](#) section guidelines. For shock due to anaphylaxis, refer to [Anaphylaxis and Allergic Reaction](#).

Shock can present as:

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| <ul style="list-style-type: none"> • Tachycardia out of proportion to temperature • Delayed/flash capillary refill >2 seconds • Decreased urine output • Hypotension for age, refer to Abnormal Vital Signs • Cool/mottled or flushed/ruddy skin | <ul style="list-style-type: none"> • Altered mental status • Hypoxia • Tachypnea • Weak, decreased or bounding pulses |
|--|---|


EMT

- Initiate [Universal Care](#).
- Acquire blood glucose level. Treat per [Hypoglycemia](#) or [Hyperglycemia](#) as indicated.
- If pregnant, place in left lateral recumbent position.
- Obtain waveform capnography (ETCO2) and SPO2 as indicated. (ETCO2 is STR for EMT)
- IV access and initiate IV fluids as indicated. (STR for EMT)
- Acquire and transmit 12 lead ECG as indicated.
- Administer 30 mL/kg, IV fluid bolus rapidly. (STR for EMT)
- Administer in 10 ml/kg increments reassessing in between boluses, discontinue if vital signs / perfusion normalizes, patient develops rales/crackles or respiratory distress. (STR for EMT)
- Reassess after each IV fluid bolus.

AEMT

- IO access as indicated.

EMT-I/Paramedic

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| <ul style="list-style-type: none"> • For shock unresponsive to IV fluids, or cardiogenic shock with signs of fluid overload, consider vasopressors, refer to drip calculations to maintain MAP > 65 or systolic greater than 90: <ul style="list-style-type: none"> - Push Dose Epi: 10-20 mcg boluses (1-2 mL) every 2 minutes (push dose instructions below) - Epinephrine gtt: 0.05-0.3 mcg/kg/min IV/IO - Norepinephrine: (Paramedic Only) (Pump Only) 0.05-0.5 mcg/kg/min IV/IO - Dopamine: (Paramedic Only) 2-20 mcg/kg/min IV/IO | <ul style="list-style-type: none"> • If unresponsive to IV fluids, call for online medical direction. <div style="text-align: right; margin-top: 10px;">  </div> |
|--|--|

Epinephrine (push dose) preparation: mix 1 mL of 0.1 mg/mL (CARDIAC) epinephrine with 9 mL of NS. This results in 10 mcg/mL concentration.

- If history of adrenal insufficiency (congenital adrenal hyperplasia, daily steroid use): **Methylprednisolone:** 2 mg/kg IV/IO, max 125 mg.
- Dexamethasone is not indicated for adrenal insufficiency.

Includes: Patients meeting sepsis criteria (Elements from Boxes 1 and 2) as well as severe sepsis or septic shock (Elements from Boxes 1 + 2 + 3).

| | | | | | |
|---|---|---|---|---|----------------|
| 1 | <ul style="list-style-type: none"> Potential infection or immunosuppression Open wounds, sores, cellulitis UTI Pneumonia Meningitis Indwelling medical device Vomiting, diarrhea Recent surgery/procedure Chemotherapy < 6 weeks Chronic steroid use | <p><u>Potential Infection</u></p> <ul style="list-style-type: none"> Temperature abnormality on assessment or within 4 hours of assessment Open wounds, sores, cellulitis UTI or Pneumonia Meningitis <p><u>High-Risk Criteria</u></p> <ul style="list-style-type: none"> Malignancy Asplenia or sickle cell disease Bone marrow transplant Indwelling medical device Solid organ transplant Severe intellectual disability or cerebral palsy Immunocompromised, chronic steroid use | | | |
| 2 | <p><u>Two or more markers of Systemic Inflammatory Response Syndrome (SIRS)</u></p> <ul style="list-style-type: none"> Temp ≥ 100 or ≤ 97 HR ≥ 90 RR ≥ 20 Glucose > 140 in non-diabetic Altered mental status | <p><u>Exam Criteria</u> </p> | 0-2 y | $\geq 2-10$ y | $\geq 10-14$ y |
| | | HR | >190 | >140 | >100 |
| | | RR | >50 | >34 | >30 |
| | | Pulses | Decreased, weak, or bounding | | |
| | | Cap refill | Delayed (> 2 sec) or flash (< 1 sec) | | |
| | | Skin | Mottled, ruddy, petechiae | | |
| | | Mental status | Decreased, irritability, confusion, inappropriate crying, poor interaction, diminished arousability | | |
| | | 3 | <p><u>Findings of Shock</u></p> <ul style="list-style-type: none"> SBP < 90 or MAP < 65 or SBP drop of 40 mmHg from prior baseline ETCO₂ ≤ 25 O₂ sat $\leq 92\%$ on RA Mottled or cold extremities Central cap refill ≥ 3 seconds Purpuric rash No radial pulse | <p><u>Findings of Shock</u></p> <ul style="list-style-type: none"> SBP < 70 + (age in yr X 2) 3 or more exam criteria 2 or more exam criteria in patient meeting high-risk criteria | |
| | | | | | |

EMT

- Initiate [Universal Care](#).
- Provide pre-arrival notification of patient with possible sepsis.
- Obtain waveform capnography (ETCO₂) and SPO₂ as indicated. (ETCO₂ is STR for EMT)
- IV access and initiate IV fluids as indicated. (STR for EMT)
- Acquire and transmit 12 lead ECG as indicated.
- Administer 30 mL/kg IV fluid bolus. Refer to treatment for [Shock](#) as indicated.

AEMT


- IO access as indicated.
- Do not delay transport if unsuccessful.

Includes: Patients with cardiac arrest. For adult patients who obtain return of spontaneous circulation (ROSC), refer to [Post-Cardiac Arrest and Return of Circulation \(ROSC\): Adult](#).

Excludes:

- Newborns, refer to [Neonatal Resuscitation](#).
- Patients with identifiable Do Not Resuscitate (or equivalent) order, refer to [Do Not Resuscitate](#).
- Patients with traumatic cardiac arrest, refer to [General Trauma Management](#) and [Traumatic Cardiac Arrest TOR](#).



EMT

- Initiate chest compressions
 - Compression rate: 100-120/minute, perform 200 compressions per round (2 minutes).
 - Every 2 minutes, check rhythm (and pulse when indicated), defibrillate if indicated.
 - Chest compressions should resume immediately after defibrillation attempts with no pauses for pulse checks.
- Airway/Ventilation
 - Witnessed in patients \geq 8 years old: Initiate passive oxygenation with either nonrebreather mask plus oral airway or supraglottic airway (STR) plus O2 via passive oxygenation port.
 - If no response after 8 minutes, begin manual ventilation (BVM or supraglottic airway (STR)) at rate of 10 breaths per minute.
 - If unwitnessed or respiratory, overdose, trauma, drowning, pediatric patients <8 year old: immediately begin manual ventilation (BVM or supraglottic airway (STR)) at rate of 10 breaths per minute.
 - Airway management should not interrupt compressions – avoid excessive ventilation volume and pressure.
 - All ventilatory support can be administered asynchronously.
- Attach AED without interruption of chest compressions.
 - Immediately perform rhythm analysis and defibrillation, if appropriate. 
- Obtain waveform capnography (ETCO2) and SPO2 as indicated. (ETCO2 is STR for EMT)
- IV access and initiate IV fluids as indicated. (STR for EMT)

AEMT

- IO access as indicated, without interrupting chest compressions.

EMT-I/Paramedic

- Apply cardiac monitor/defibrillator, if shockable rhythm: 
 - Defibrillate per monitor settings
- | | |
|---|---|
| <ul style="list-style-type: none"> • Epinephrine: 1 mg (0.1 mg/mL) IV/IO every 3-5 minutes (max 3 total doses of epinephrine) | <ul style="list-style-type: none"> • Epinephrine: 0.01 mg/kg (0.1 mg/mL) IV/IO (max dose 1 mg) every 3-5 minutes (max 3 total doses of epinephrine)  |
|---|---|

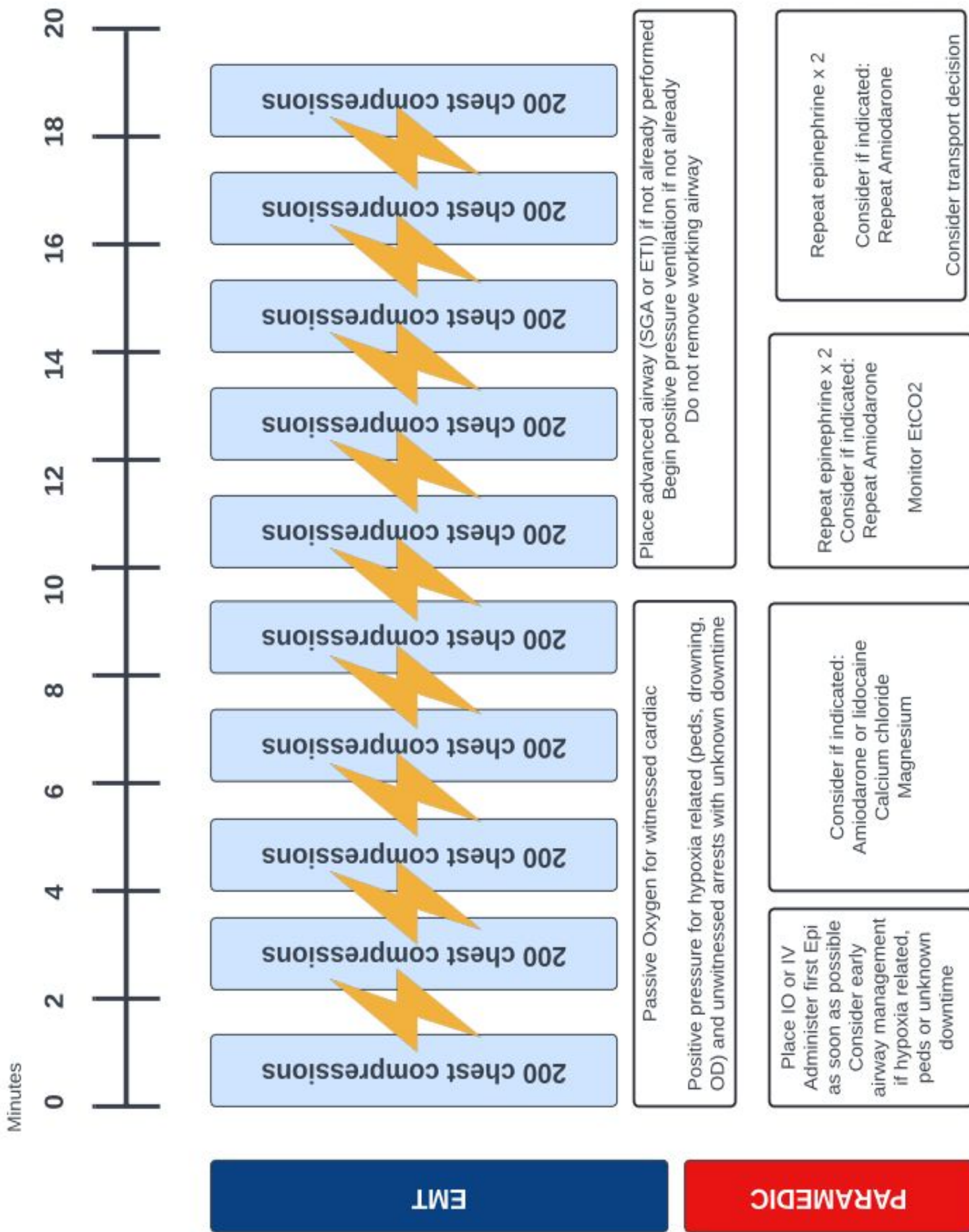
- For shock-refractory VF/Pulseless VT, consider:
 - **Amiodarone:** (Paramedic only) 5 mg/kg, max 300 mg IV/IO, may repeat at half the original dose at 5 minutes (or)
 - **Lidocaine:** 1 - 1.5 mg/kg IV/IO, max dose 100 mg. May repeat at half the original dose every 5 minutes (max total dose of 3 mg/kg).
- For Torsades de Pointes: **Magnesium sulfate:** (Paramedic only) 50 mg/kg IV/IO, max dose 2 g (adult dose) over 5 minutes.

Consider reversible causes of cardiac arrest:

- Hypothermia
- Hyperkalemia. Refer to [ECG Changes in Hyperkalemia](#).
- If findings of or concern for hyperkalemia are present, administer IV/IO fluids and:
 - **Calcium Gluconate:** 100 mg/kg IV/IO, max dose 2g over 5 minutes, IV/IO over 5 minutes (or)
 - **Calcium Chloride:** 20 mg/kg (0.2 mL/kg), max dose 1g IV/IO over 5 min, ensure IV/IO patency.
- Hypovolemia
- Overdose, refer to [Poisoning/Overdose Universal Care](#).
- Tension pneumothorax

If patient remains unresponsive to treatment after 4 rounds, make transport decision or refer to [Non-Traumatic TOR](#) as indicated.

Prehospital CPR Timeline




Post-Cardiac Arrest and Return of Spontaneous Circulation (ROSC) Care, Transport to Cardiac Receiving Center (CRC): Adult & Peds

Includes: Patients with return to spontaneous circulation following cardiac arrest resuscitation.

EMT

- Support Airway/Oxygenation/Ventilation
 - Maintain ventilation rate of 10 bpm if no spontaneous respirations. Avoid hyperventilation.
 - If ETCO₂ available, maintain at 35-45 mmHg. Avoid hyperventilation. (ETCO₂ is STR for EMT)
- Evaluate and treat hypoglycemia.
 - Acquire blood glucose level.
 - If hypoglycemic (BG <60 mg/dL), refer to [Hypoglycemia](#).
 - If hyperglycemic, notify hospital on arrival and refer to [Hyperglycemia](#).
- Acquire and transmit 12 lead ECG as indicated.
- Notify receiving facility as soon as possible.
- Transport to a recognized [Cardiac Receiving Center](#) (CRC) when feasible and resources available.
- Transport to the closest appropriate facility, if any of the following apply:
 - Traumatic cardiac arrest,
 - Ongoing CPR without ROSC,
 - If transport to CRC will add >15 additional minutes to transport time, (or)
 - Age < 15 years.
- IV access and initiate IV fluids as indicated. (STR for EMT)

AEMT

- Escalate airway management as indicated.
- Monitor ETCO₂ levels, maintain at 35-45 mmHg. Adjust ventilatory rate as needed.
 - ETCO₂ should remain > 20 mmHg, lower readings may be indicative of rearrest
- Perform 12-lead ECG as soon as possible.
- Maintain hemodynamic stability and prepare for potential rearrest.
 - Keep finger on pulse to detect loss of pulses and monitor ETCO₂ levels
 - Treat bradycardia per [Bradycardia](#) (bradycardia may precede rearrest)
 - Treat shock with IV fluids and Push Dose (PD) Epi per [Shock](#).
 - While administering fluid boluses, frequently reassess perfusion for improvement and/or fluid overload. If patient develops signs of fluid overload, discontinue IVF infusion.
- Rearrest:
 - Resume chest compressions & treat underlying rhythm
 - If PEA, likely due to shock
 - Resume chest compressions
 - Treat shock (IV fluids, push dose Epi)
- If VF/VT, defibrillate and resume compressions 
- Prevent hyperthermia.
- Do not warm patient unless environmental hypothermia is suspected.

EMT-I/Paramedic

- Administer push dose epi (14 years old and older) if heart rate or blood pressure downtrending or signs of shock. Refer to [Shock](#).
 - Less than 14 years old, call for Medical Direction.
- Avoid transcutaneous pacing for bradycardia.

Obvious/Apparent Death: Adult & Pediatric

At a likely crime scene, disturb as little potential evidence as possible.

Excludes: If patient does not meet the criteria below, refer to [Traumatic Cardiac Arrest TOR](#) or [Non-Traumatic TOR](#) or [Do Not Resuscitate Status/Advanced Directives/Healthcare Power of Attorney \(POA\) Status](#) as indicated.

EMT

- If the patient meets the criteria listed below, no resuscitative efforts need to be initiated. Online medical direction is NOT necessary. Contact law enforcement and initiate grief support. An EMS provider must remain with the patient until released to law enforcement, medical examiner, crisis response, or other authorized personnel.
- For these conditions, documentation of pulseless and apneic state IS NOT REQUIRED:
 - Decapitation.
 - Decomposition.
 - Transection of the torso.
 - Incineration: 90% of body surface area with full thickness burns as exhibited by ash rather than clothing and complete absence of body hair with charred skin.
- For these conditions, documentation of pulseless and apneic state IS REQUIRED:
 - Currently pulseless, presumed pulseless time of greater than 30 mins, and nonshockable rhythm.
 - Dependent lividity.
 - Rigor mortis.
 - Injuries incompatible with life (e.g., massive crush injury, complete exsanguination, severe displacement of brain matter).
- For all others that do not meet above criteria:
 - Refer to [Traumatic Cardiac Arrest TOR](#) or [Non-Traumatic TOR](#) or [Do Not Resuscitate Status/Advanced Directives/Healthcare Power of Attorney \(POA\) Status](#) as indicated.

1. Patients must have one of the following documents or a valid alternative (such as identification bracelet indicating wishes) immediately available:
 - **Orange Form/Prehospital Medical Care Directive/Do Not Resuscitate (DNR)** order identifies that CPR and intubation are not to be initiated if the patient is in arrest.
 - **Provider Orders for Life Sustaining Treatment (POLST) or Medical Orders for Life Sustaining Treatment (MOLST)** explicitly describes acceptable interventions for the patient in the form of medical orders, must be signed by a physician or other licensed medical provider to be valid. The interventions covered by this order and the details around when to implement them can vary widely.
 - **Advanced directives** describe acceptable treatments under a variable number of clinical situations including some or all of the following: what to do for cardiac arrest, whether artificial nutrition is acceptable, organ donation wishes, dialysis, etc. Frequently does not apply to emergent or potentially transient medical conditions.
 - In the absence of formal written directions (MOLST, POLST, DNR, advanced directives), a person on scene with power of attorney for healthcare, or healthcare proxy, may prescribe limits of treatment.
2. Any of the documents described above are valid when they meet all of the following criteria:
 - Intact condition; it should not have been cut, broken or show signs of being repaired (and)
 - Displays the patient's name and the physician's name.
3. If there is a question about the validity of the document/instrument, the best course of action is to proceed with the resuscitation until additional information can be obtained to clarify the best course of action and contact online medical direction.

EMT

- If the patient has a valid DNR, no CPR or airway management should be attempted. If resuscitative efforts were initiated and a valid DNR was recovered later, efforts may be discontinued.
- If the patient has a MOLST, POLST, or advanced directive, initiate CPR and airway management and contact online medical direction for consideration or termination of resuscitation.
- If there is a valid DNR and there are signs of life (pulse and respirations), EMS providers should provide standard, appropriate treatment under existing protocols according to the patient's condition.
- If the patient has a MOLST or POLST, contact online medical direction for specific guidance on how to proceed in this situation.
- Contact online medical direction if for any reason an intervention that is prohibited by an advanced directive is being considered.

Non-Traumatic Termination of Resuscitative Efforts (TOR): Adult & Pediatric

Includes:

- Any **non-traumatic** cardiac arrest patient that has received resuscitation in the field, but has not responded to treatment.
- After termination, do not alter body condition in any way or remove equipment (lines, tubes, etc.). Doing so may compromise potential Medical Examiner investigation.

Excludes:

- Patients in cardiac arrest associated with medical conditions that may have better outcome despite prolonged efforts, such as hypothermia, lightning strikes, submersion/drowning. Consider continuing efforts in such cases or contact online medical direction.
- Patients meeting criteria for [Obvious/Apparent Death](#).

EMT

- Initiate resuscitation, refer to [Cardiac Arrest \(VF/VT/Asystole/PEA: Adult & Pediatric\)](#). If a valid DNR is available refer to [Do Not Resuscitate Status/Advanced Directives/Healthcare Power of Attorney \(POA\) Status](#).
- Perform 4 rounds of chest compressions. Focus on resuscitation on-scene versus “load and go.”
- Apply AED and follow prompts.
- Consider Termination of Resuscitation (TOR) if the all of the following three criteria are met:
 - Not Witnessed,
 - No shock advised by AED,
 - No ROSC (return of spontaneous circulation).
- If patient meets all 3 TOR criteria after 4 rounds of chest compressions, consider TOR. TOR requires online medical direction. If ROSC is achieved, continue treatment and refer to [Post Cardiac Arrest and Return of Spontaneous Circulation \(ROSC\) Care, Transport to Cardiac Receiving Center \(CRC\)](#).
- Contact online medical direction if patient does not meet all TOR criteria or other special circumstances surround resuscitation or if the patient is < 18.
- Acquire IV access as soon as possible without interrupting chest compressions. (STR for EMT)

AEMT

- IO access as indicated without interrupting chest compressions.

EMT-I/Paramedic

- Apply cardiac monitor/defibrillator.
- For narrow complex PEA with rate > 40 or refractory VF/VT, consider resuscitation for up to 60 minutes from time of dispatch.
- In addition to above criteria for TOR, consider TOR if the following:
 - Witnessed arrest, 20 minutes of resuscitation, ETCO₂ < 20, and non-shockable rhythm (PEA/Asystole).

Traumatic Cardiac Arrest - Withholding/Termination of Resuscitative (TOR) Efforts: Adult & Pediatric

Includes: Any patient found in **traumatic** cardiac arrest.

Excludes:

- Patients meeting criteria for [Obvious/Apparent Death](#).
- Patients who lose pulses during EMS transport should have full resuscitation and transport.
- Patients in cardiac arrest associated with medical conditions that may have better outcome despite prolonged efforts, such as hypothermia, lightning strikes, submersion/drowning. Consider continuing efforts in such cases or contact online medical direction.
- When the mechanism does not correlate with the clinical condition (suggesting a non-traumatic cause of cardiac arrest) standard resuscitative measures should be followed.

EMT

- Resuscitation efforts may be withheld in any blunt traumatic cardiac arrest patient who is found apneic and pulseless.
- Provide resuscitation according to [Cardiac Arrest \(VF/VT/Asystole/PEA\): Adult & Pediatric](#), if indicated.

AEMT

EMT-I/Paramedic

- Penetrating Trauma:
 - Consider transport to highest-level Trauma Center if time less than 15 minutes from time of loss of pulses.
- Blunt Trauma:
 - If patient arrests with EMS on scene, treat suspected airway obstruction with OPA/NPA and consider bilateral needle thoracostomy for potential tension pneumothorax.
 - If pulses are not restored, Termination of Resuscitation (TOR) is appropriate.
- Contact online medical direction when:
 - patient is <14 years old
 - or
 - other special circumstances surround resuscitation.

**Includes:**

An infant with a sudden, brief episode, that is frightening to the observer which is unexplained and completely resolved upon arrival of EMS with some combination of the following:

- Absent, decreased or irregular breathing (apnea: central or obstructive) including choking or gagging.
- Color change, usually cyanosis or pallor, not including only redness (face) or isolated hands/feet cyanosis.
- Marked change in muscle tone (flaccid or rigid).
- Altered level of responsiveness (increased or decreased, irritability).

Excludes:

- Age > 12 months.
- [Seizures](#).
- [Respiratory distress](#).
- Cardiopulmonary arrest. Refer to [Cardiac Arrest \(VF/VT/Asystole/PEA\)](#).
- Trauma with known mechanism of injury. Refer to [General Trauma Management](#).
- History or exam concerning for child abuse or maltreatment. Refer to [Abuse and Maltreatment](#).

EMT

- Initiate [Universal Care](#).
- Have high index of suspicion for abuse in children presenting with BRUE.
- Acquire blood glucose level. Refer to [Hypoglycemia](#) if appropriate.
- Regardless of patient appearance, all patients with a history of signs or symptoms of BRUE should be transported for further evaluation.
 - Given possible need for intervention, all patients should be transported to facilities with baseline readiness to care for children, where available, *per local protocol*.
 - Consider a facility with pediatric critical care capability, if available, for patients with any **high-risk criteria**:
 - Less than 2 months of age.
 - History of prematurity (≤ 32 weeks gestation).
 - More than 1 BRUE, now or in past.
 - Event duration > 1 minute.
 - CPR or resuscitation by caregivers to trained rescuers.
- Contact medical direction if parent/guardian refusing medical care and/or transport especially with high-risk criteria.

AEMT

- IVs should only be placed in children for clinical concerns of shock or when administering IV medications.
- Supraglottic devices and intubation should be used only if BVM ventilation fails in setting of respiratory failure or apnea. The airway should be managed in the least invasive way possible.
- For severe respiratory distress, refer to [Airway Management](#).

Pediatric Respiratory Distress – Wheezing

< 2 Years Old (Bronchiolitis)



Includes: Child < 2 yo with wheezing or diffuse rhonchi with a viral or other undifferentiated illness characterized by rhinorrhea, cough, fever, tachypnea and/or respiratory failure.

Excludes: Potential [Anaphylaxis](#), [Pediatric Stridor](#), epiglottitis, foreign body aspiration, submersion/drowning.

EMT

- Initiate [Universal Care](#) and refer to [Airway Management](#) as indicated.
- Suction the nose and/or mouth (via bulb, Yankauer or catheter) if excessive secretions are present.
- Supplemental oxygen: escalate from nasal cannula to face mask to nonrebreather mask as needed to maintain oxygenation greater than or equal to SPO2 94%.
- BVM ventilation for children with respiratory failure or impending respiratory failure.
- Obtain waveform capnography (ETCO2) and SPO2 as indicated. (ETCO2 is STR for EMT)
- IV access and initiate IV fluids as indicated. (STR for EMT)
- The airway should be managed in the least invasive way possible.
- Consider CPAP. (STR for EMT)

AEMT

- IV should only be placed for clinical concerns of severe dehydration requiring immediate treatment or for administration of IV medications.
- ETCO2 should be routinely used as an adjunct to other forms of respiratory monitoring.
- For severe respiratory distress, refer to [Airway Management](#).
- Do not delay administration of medication to administer non-invasive positive pressure ventilation.
- Advanced airway should be used only if BVM ventilation fails.
- The airway should be managed in the least invasive way possible.
- For severe respiratory distress, if suctioning and oxygen fail to result in clinical improvement, administer:
 - **Epinephrine:** 1 mg/mL, 5 mg (5 mL of 1 mg/mL solution) nebulized.
 - Patients receiving inhaled epinephrine should be transported to definitive care.

EMT-I/Paramedic

- Consider high flow nasal cannula for severe respiratory distress.



Includes: History of stridor or barking cough.

Excludes: Potential [Anaphylaxis](#), foreign body aspiration, submersion/[Drowning](#), [Bronchospasm](#), [Pediatric Respiratory Distress](#).

EMT

- Initiate [Universal Care](#).
- Suction the nose and/or mouth (via bulb, Yankauer or catheter) if excessive secretions are present.
- Supplemental oxygen: escalate from nasal cannula to face mask to nonrebreather mask as needed in order to maintain normal oxygenation (SPO2 94-98%).
- Monitor pulse oximetry and ETCO₂ (ETCO₂ - STR for EMT).
- Initiate BVM ventilation for children with respiratory failure.

AEMT

- For severe respiratory distress with stridor at rest, if suctioning and oxygen fail to result in clinical improvement, administer:
 - **Epinephrine:** 1 mg/mL, 5 mg (5 mL of 1 mg/mL solution) nebulized.
 - Repeat epinephrine at the above dose in 20 minutes as needed or with unlimited frequency for ongoing distress.
 - Patients receiving inhaled epinephrine should be transported to definitive care.
- For severe respiratory distress, refer to [Airway Management](#).
- Do not delay administration of medication to administer non-invasive positive pressure ventilation.
- Advanced airway should be used only if BVM ventilation fails.
- The airway should be managed in the least invasive way possible.
- For severe respiratory distress, if suctioning and oxygen fail to result in clinical improvement, administer:
 - **Epinephrine:** 1 mg/mL, 5 mg (5 mL of 1 mg/mL solution) nebulized.
- Patients receiving inhaled epinephrine should be transported to definitive care.

EMT-I/Paramedic

- **Dexamethasone:** 0.6 mg/kg PO/IM/IV/IO, max dose 10 mg.



Includes: All neonates immediately following birth.

EMT

- Wait at least 60 seconds post-delivery before clamping and cutting the umbilical cord: clamp cord in 2 places and cut between clamps.
- Warm, dry, and stimulate baby for 30 seconds.
- Wrap infant in dry towel and keep as warm as possible during resuscitation. Keep head covered if possible. If gestational age is less than 32 weeks, additional thermoregulation interventions are recommended (plastic wrap or bag).
- If strong cry, regular respiratory effort, good tone, and term gestation, infant should be placed skin to skin with mother and covered with dry linen.
- If weak cry, signs of respiratory distress, poor tone, or preterm gestation, then position airway (sniffing position) and clear airway as needed. If signs of respiratory distress with airway obstruction, suction mouth then nose; routine suctioning is not recommended.
- Consider checking blood glucose level for ongoing resuscitation, maternal history of diabetes, ill appearing, or unable to feed. Refer to [Hypoglycemia](#) as needed.

First 30-60 seconds:

If heart rate > 100 beats per minute:

- Monitor for central cyanosis and provide blow-by oxygen as needed.
- Monitor for signs of respiratory distress. If apneic or in significant respiratory distress, initiate BVM ventilation with room air at 20 breaths per minute. Goal SPO₂ at 10 minutes is 85-95%.

If heart rate < 100 beats per minute:

- Initiate BVM ventilation with room air at 20 breaths per minute while monitoring heart rate closely.
- If no improvement after 90 seconds, change O₂ delivery to 100% FiO₂ until heart rate normalizes.

If heart rate < 60 beats per minute:

- Ensure effective ventilations with supplementary oxygen and adequate chest rise.
- If no improvement after 30 seconds, initiate chest compressions (2 thumb technique preferred).
- Coordinate chest compressions with BVM ventilations (3:1 ratio, 90 compressions and 30 breaths/min).

Reevaluate heart rate every 30 seconds.

AEMT

- IVs should only be placed in children for clinical concerns of shock or when administering IV medications.
- Supraglottic devices should be used only if BVM ventilation fails in setting of respiratory failure or apnea. The airway should be managed in the least invasive way possible.
- If apneic or in significant respiratory distress, refer to [Airway Management](#).
- Administer 20 mL/kg IV/IO fluid bolus for signs for shock or post-resuscitative care.

EMT-I/Paramedic

- Advanced airway is recommended prior to beginning chest compressions.
- Administer Epinephrine after 30 seconds of positive pressure ventilations and heart rate remains less than 60 beats per min.
 - **Epinephrine:** every 3-5 minutes if heart rate remains <60 beats/min
 - 0.1 mg/mL, 0.01 mg/kg IV/IO.

Includes: Imminent delivery with crowning.

Excludes: Vaginal bleeding in any stage of pregnancy without signs of imminent delivery, refer to [Obstetrical/Gynecological Conditions](#). Emergencies in first or second trimester of pregnancy, refer to [Obstetrical/Gynecological Conditions](#). Seizure from eclampsia, which can occur up to 6 weeks postpartum, refer to [Seizures](#).

EMT

- Delivery should be controlled and support the newborn's head.
- Check the umbilical cord. If surrounding the neck, slip it over the head. If unable to free the cord from the neck, double clamp the cord and cut between the clamps.
- Do NOT routinely suction the infant's airway (even with a bulb syringe) during delivery.
- Grasping the head with hand over the ears, gently guide head down to allow delivery of the anterior shoulder.
- Gently guide the head up to allow delivery of the posterior shoulder.
- Slowly deliver the remainder of the infant.
- Wait at least 1 minute post delivery before clamping and cutting the umbilical cord.
- Clamp cord 5-6 inches from the abdomen with 2 clamps and cut the cord between the clamps.
- Record APGAR scores at 1 and 5 minutes. After delivery of infant, suctioning (including suctioning with a bulb syringe) should be reserved for infants who have obvious obstruction to the airway or require positive pressure ventilation. Refer to [Neonatal Resuscitation](#) for further care of the infant.

If complications of delivery are identified, apply high-flow oxygen to mother and perform the following steps:

- **Shoulder Dystocia:** if delivery fails to progress after head delivers, quickly attempt the following:
 - Hyperflex mother's hips to severe supine knee-chest position (ie. McRobert's maneuver).
 - Apply firm suprapubic pressure to attempt to dislodge shoulder. This often requires 2 EMS providers to perform and allows for delivery in up to 75% of cases.
 - Attempt to angle the baby's head as posteriorly as possible but never pull.
 - Continue with delivery as normal once the anterior shoulder is delivered
- **Prolapsed Umbilical Cord:**
 - Place gloved fingers into vagina and gently lift head/body off the cord.
 - Assess for pulsations in cord, if no pulses felt, lift the presenting part off the cord.
 - Wrap the prolapsed cord in moist sterile gauze.
 - If previous techniques are not successful, mother should be placed in prone knee-chest position or extreme Trendelenburg with hips elevated.
- **Maternal cardiac arrest:**
 - Apply manual pressure to displace uterus from right to left.
 - Refer to [Cardiac Arrest \(VF/VT/Asystole/PEA\): Adult and Pediatric](#).
 - Transport as soon as possible if infant is estimated to be over 24 weeks gestation (perimortem Cesarean section at receiving facility is most successful if done within 5 minutes of maternal cardiac arrest).
- **Breech birth – if head fails to deliver:**
 - Place gloved hand into vagina with fingers between infant's face and uterine wall to create an open airway.
 - Place your index and ring fingers on the baby's cheeks forming a "V" taking care not to block the mouth and allowing the chin to be tilted toward the chest flexing the neck.
 - Transport as soon as possible and contact online medical direction and/or closest appropriate receiving facility for direct medical oversight and to prepare team.

- The placenta will deliver spontaneously, often within 5-15 minutes of the infant. Do not force the placenta to deliver. Contain all tissue in plastic bag and transport.
- Postpartum hemorrhage: After delivery, massaging the uterus (fundal massage) and allowing the infant to nurse will promote uterine contraction and help control bleeding.

EMT-I/Paramedic

- Postpartum hemorrhage: After delivery, massaging the uterus (fundal massage) and allowing the infant to nurse will promote uterine contraction and help control bleeding. If bleeding continues, consider:
 - **TXA:** (Paramedic Only) 1-2 g IV bolus followed by
 - **Oxytocin:** 10 units IM or 20 units diluted in 500 mL normal saline IV bolus.
- If signs or symptoms of preeclampsia (BP >140/90 and blurred vision, spots, floaters, vision loss, dizziness, headache, altered mental status, peripheral edema, abdominal pain, nausea, or vomiting):
 - Treatment with **Magnesium sulfate:** (Paramedic Only)
 - **Seizure prophylaxis:** 4 g IV over 10-15 minutes, followed by 2 g/hr IV if available
 - **Seizure management:** 5 g IV over 5-10 minutes.
 - For active seizure not responding to magnesium, refer to [Seizure](#), and treat with benzodiazepines.

Includes:

- Female patient with vaginal bleeding in any trimester of pregnancy,
- Female patient with pelvic pain or possible ectopic pregnancy,
- Maternal age at pregnancy may range from 10 to 60 years of age.

Excludes:

- Childbirth and active labor. Refer to [Childbirth](#).
- Seizure related to pregnancy/eclampsia, which can occur up to 6 weeks postpartum, refer to [Seizures](#).
- Postpartum hemorrhage, refer to [Shock](#).

EMT

- Initiate [Universal Care](#).
- Acquire blood glucose level. Refer to [Hypoglycemia](#) if needed.
- Monitor pulse oximetry if signs of hypotension or respiratory symptoms.
- If signs of [Shock](#) or orthostasis are present, position patient supine or in the left lateral recumbent position if third trimester and keep patient warm.
- Patients in third trimester of pregnancy should be transported on left side or with uterus manually displaced to left if hypotensive.
- Do not place hand/fingers into vagina of bleeding patient except in cases of prolapsed cord or breech birth that is not progressing. Refer to [Childbirth](#).
- IV access and initiate IV fluids as indicated. (STR for EMT)

AEMT

- If signs of shock or orthostasis, refer to [Shock](#).
- Reassess vital signs and response to fluid resuscitation.

EMT-I/Paramedic

- Initiate cardiac monitoring and obtain 12-lead ECG if there is history of syncope or lightheadedness.
- Pre-eclampsia/Eclampsia symptoms:
 - BP >140/90 and any of the following:
 - visual disturbances (e.g. blurred vision, spots, floaters, vision loss)
 - dizziness
 - headache
 - altered mental status
 - peripheral edema
 - abdominal pain
 - nausea or vomiting
 - seizure
- Any pregnant patient more than 20 weeks gestation who is seizing should be assumed to have eclampsia and treated as such until arrival at the hospital.
- Treatment with **Magnesium sulfate:** (Paramedic Only)
- [Seizure prophylaxis:](#) 4 g IV over 10-15 minutes, followed by 2 g/hr IV if available.
- [Seizure management:](#) 5 g IV over 5-10 minutes.
- For active seizure not responding to magnesium, refer to [Seizure](#), and treat with benzodiazepines.

Includes:

- Children and adults with signs of severe respiratory distress/respiratory failure.
- Patients with evidence of hypoxemia or hypoventilation.
- If known/potential highly infectious airborne respiratory illness, influenza, etc., refer to [Highly Infectious Airborne Respiratory Illness/COVID](#).

Excludes:

- Patients with tracheostomies.
- Chronically ventilated patients.
- Newborn patients.
- Patients in whom oxygenation and ventilation is adequate with supplemental oxygen via nasal cannula or face mask alone.

EMT

- Use BVM ventilation with appropriate size mask in the setting of respiratory failure or arrest.
- Consider the addition of oropharyngeal airway (OPA) or nasopharyngeal airways (NPA) or supraglottic airway (STR for EMT) for effective BVM.
- Avoid excessive pressures or volumes during BVM ventilation.
- Elevate head of bed 30 degrees when possible.
- Obtain waveform capnography (ETCO2) and monitor SPO2 as indicated. (ETCO2 is STR for EMT)
- Non-Invasive Positive Pressure Ventilation (NIPPV) techniques for severe respiratory distress or impending respiratory failure without decreased level of consciousness:
 - Continuous positive airway pressure (CPAP) (STR for EMT)
- Consider the use of a supraglottic airway (SGA) (STR for EMT) if NIPPV is not effective in maintaining oxygenation or ventilation.
- Use least invasive means of airway management.

AEMT

EMT-I/Paramedic

- NIPPV for severe respiratory distress or impending respiratory failure **without** decreased level of consciousness:
 - Bi-level positive airway pressure/B-PAP & high flow nasal cannula (Paramedic only).
- Endotracheal intubation should be considered only when less invasive methods fail.
 - Cuffed endotracheal tube should be used for all patients.
 - Tubes should be continuously secured with a commercial tube holder or tape.
 - Continuously monitor clinical signs and ETCO2 for the intubated patient.
 - ETCO2 should be used to verify tube placement and prevent hyper- or hypoventilation.
- Gastric decompression may improve oxygenation and ventilation.

Consider cricothyroidotomy (Paramedic only) when patient cannot be oxygenated/ventilated with above interventions and the risk of death seems to outweigh the risk of a procedural complication.

For children < 8 years old, the only option for cricothyroidotomy (Paramedic only) is needle cricothyroidotomy.



Respiratory distress with wheezing or decreased air entry in patients ≥ 2 years of age. Patients < 2 years old, refer to [Pediatric Respiratory Distress - Wheezing < 2 years old \(Bronchiolitis\)](#). If potential COVID, influenza, etc., refer to [Highly Infectious Airborne Respiratory Illness/COVID](#).

Includes: Asthma exacerbation, COPD exacerbation, wheezing from potential pulmonary infection (e.g., pneumonia, bronchitis).

Excludes: Anaphylaxis, bronchiolitis, croup, epiglottitis, foreign body aspiration, drowning, congestive heart failure, trauma.

EMT

- Initiate [Universal Care](#).
- Obtain waveform capnography (ETCO₂) and SPO₂ as indicated. (ETCO₂ is STR for EMT)
- Provide supplemental oxygen as needed to maintain SPO₂ $\geq 94\%$.
- Maintain position of comfort.
- Suction the nose and/or mouth (via bulb, Yankauer, catheter) if excessive secretions are present.
- **Albuterol:** by nebulization or metered dose inhaler. 5 mg nebulized or inhaled. Repeat as needed.
- **Ipratropium:** 0.5 mg nebulized with albuterol. May repeat x 2.
- NIPPV: Non-invasive positive pressure ventilation (STR for EMT)
 - CPAP Should be administered for severe respiratory distress or if not improving with less invasive support.
 - Discontinue NIPPV for shock or altered LOC.
 - If NIPPV is contraindicated or if no improvement with less invasive support, refer to Airway Management.
- Obtain waveform capnography (ETCO₂) and SPO₂ as indicated. (ETCO₂ is STR for EMT)
- IV access and initiate IV fluids as indicated IF (STR for EMT)
 - Clinical evidence of dehydration.
 - Need for IV medication(s).
- BVM ventilation is reasonable for pediatric patients or when NIPPV is not available.

AEMT

- **Epinephrine:** (consider for severe respiratory distress without clinical improvement)
 - 1 mg/mL, 0.01 mg/kg IM, max dose 0.3 mg.
- IO placement as indicated IF:
 - Clinical evidence of dehydration.
 - Need for IV medication(s).
- Advanced airway should be used only if BVM ventilation fails.

EMT-I/Paramedic

- Steroids:
 - **Methylprednisolone:** 2 mg/kg IV/IM, max dose 125 mg (or)
 - **Dexamethasone:** 0.6 mg/kg IV/IM/PO, max dose 16 mg
- **Magnesium sulfate:** (consider for severe respiratory distress) (Paramedic only) 40 mg/kg. Max dose 2 g IV over 5-10 minutes.
- NIPPV for severe respiratory distress or impending respiratory failure without decreased level of consciousness:
 - Bi-level positive airway pressure/B-PAP & high flow nasal cannula (Paramedic only).

Includes:

- Respiratory distress with signs of pulmonary edema and fluid overload.
- If known/potential highly infectious airborne respiratory illness, influenza, etc., refer to [Highly Infectious Airborne Respiratory Illness/COVID](#).

Excludes:

- Clinical impression consistent with infection (e.g., fever).
- Clinical impression consistent with asthma/COPD.

EMT

- Initiate [Universal Care](#).
- Obtain waveform capnography (ETCO2) and SPO2 as indicated. (ETCO2 is STR for EMT)
- Provide supplemental oxygen as needed to maintain SPO2 ≥ 94%.
- Maintain position of comfort.
- Suction the nose and/or mouth (via bulb, Yankauer or catheter) if excessive secretions are present.
- Acquire and transmit 12 lead ECG as indicated, goal within 5 minutes of patient contact.
- Non-Invasive Positive Pressure Ventilation (NIPPV) techniques for severe respiratory distress or impending respiratory failure without decreased level of consciousness:
 - Continuous positive airway pressure (CPAP) (STR for EMT)
- IV access and initiate IV fluids as indicated. (STR for EMT)

AEMT

- **Nitroglycerin:** 0.4 mg SL tablets or 1 full spray if SBP > 100. Repeat every 3 minutes as blood pressure allows.
- CAUTION:** Do not give nitroglycerin to any patient within 48 hours of taking a PDE5-inhibitor medication (e.g., sildenafil, tadalafil, epoprostenol, treprostenil) for erectile dysfunction or pulmonary hypertension.

- Nitroglycerin is not indicated in pediatric patients.



EMT-I/Paramedic

- Initiate continuous cardiac monitoring.
- NIPPV: Non-invasive positive pressure ventilation
 - B-PAP (Paramedic only) or high flow nasal cannula (Paramedic only) Should be administered for severe respiratory distress or if not improving with less invasive support.
 - Discontinue NIPPV for shock or development of altered LOC.
- If NIPPV is contraindicated or if no improvement with less invasive support, refer to [Airway Management](#).

Highly Infectious Airborne Respiratory Illness/COVID

Clinical concern for highly infectious airborne illness requiring EMS Treatment and Transport.

Don Enhanced PPE**.
Place surgical mask on patient (may use NC under mask).

Stabilizing Measures

1. Perform all basic and advanced airway procedure in enhanced PPE **.
 - Administer oxygen as indicated, up to via nonrebreather mask at 15 LPM.
 - Place surgical mask over nasal cannula or oxygen mask.
2. Acquire IV/IO access as indicated.
3. Treat Shock as indicated. Refer to [Shock](#).
4. Minimize aerosolization*.
5. When available, insert viral filter between BVM/SGA/ETT and bag/ventilator.

1. Transport to the closest appropriate receiving facility.
2. Provide receiving facility notification:
 - “Possible Highly Infectious Airborne Respiratory Illness” and Primary Symptoms.
 - If any aerosolizing measures (SVN, CPAP, BVM, CPR) are in use.

*Medications:

- If nebulizer is necessary for concurrent wheezing, this should be administered in open air space and discontinued prior to entering any enclosed space, including hospital hallways.
- Consider using patient's own MDI, 1-2 puffs every 5 minutes.

*Noninvasive Positive Pressure Ventilation (NIPPV):

- Use CPAP/B-PAP when necessary and discontinue prior to entry into a public space, including hospital hallways. If the patient has impending respiratory failure and cannot be safely transitioned to a nonrebreather, coordinate with receiving facility prior to entering. If viral filter is available, place between the mask and oxygen delivery port.

*Advanced Airway Management:

- In patients with potential/known highly infectious airborne respiratory illness, supraglottic airway is preferred to endotracheal intubation.

****Enhanced PPE:** Prioritize use of masks blocking aerosolized particles (N95, P100, etc.) when any medication or procedure is being provided that generates aerosolized particles (nebulizers, PPV, airway suction, etc.) and, when available, wear gown, gloves and eye protection.

Rapid Sequence Intubation (RSI): Age ≥15

Special Training Required (STR)

Indications: Respiratory failure, facial/airway burns, inability to maintain airway/ventilation. If potential COVID, influenza, etc., refer to [Highly Infectious Airborne Respiratory Illness/COVID](#).

Relative Contraindications: Known or presumed difficult airway, RSI would delay transport to definitive care. Always consider transport time to hospital.

Contraindications: History of neuromuscular disease, known or potential renal failure, history of malignant hyperthermia, during management of patient in cardiac arrest, scenarios where intubation can be performed without drug assistance.

STR for Paramedic

- Initiate [Universal Care](#).
- Initiate continuous cardiac monitoring, pulse oximetry, and waveform capnography.
- Establish 2 points IV/IO access.
- **Pre-oxygenate** with high flow oxygen by:
 - Nasal cannula plus BVM with high flow oxygen
 - (or)
 - Nasal cannula plus nonrebreather mask with high flow oxygen.
 - Use 2 person BVM technique and elevate head to 30 degrees when possible.
- Apneic oxygenation: Place nasal cannula with supplemental oxygen from second source set to max flow. Maintain throughout the procedure.
- **Sedate:**
 - **Etomidate:** 0.3 mg/kg IV/IO push (one-time only dose).
 - (or)
 - **Ketamine:** 1.5 mg/kg IV/IO push, max dose 150 mg.
- **Paralyze:**
 - **Succinylcholine:** 1.5 mg/kg IV/IO push (one-time only dose).
 - (or)
 - **Rocuronium:** 1 mg/kg IV/IO push (one-time only dose).
- **Intubate:**
 - Maximum 2 attempts. Oxygenate/ventilate patient between attempts.
 - If unable to intubate, place OPA or supraglottic airway (SGA) and ventilate via BVM.
 - Perform cricothyrotomy if unable to intubate or oxygenate/ventilate via OPA/SGA and BVM.
- **Airway confirmation and documentation:**
 - Continuous pulse oximetry and ETCO₂ waveform monitoring.
- **Post-Intubation:**
 - Place patient on mechanical ventilator, if available.
 - Place NG/OG tube for gastric decompression when advanced airway adjuncts are placed.
 - Repeat vital signs post intubation.
 - If SBP < 100 mmHg, give IV/IO fluid bolus prior to administering additional sedation medication.
 - Assess sedation and pain during transport. Use lower dose for potential TBI. Refer to [Traumatic Brain Injury \(EPIC-TBI\): Adult & Pediatric](#). Use one of the following as indicated:
 - **Fentanyl:** 1 mcg/kg IV/IO, incremental doses 25-50 mcg, may repeat every 5-10 minutes.
 - (or)
 - **Morphine:** 2-5 mg IV/IO, may repeat every 5-10 minutes.
 - (or)
 - **Midazolam:** 2-5 mg IV/IO, may repeat every 5-10 minutes.
 - (or)
 - **Lorazepam:** 1-2 mg IV/IO, may repeat every 5-10 minutes.
 - (or)
 - **Ketamine:** 1 mg/kg IV/IO, Max dose 150mg, may repeat every 5 minutes.
- Do not reparalyze patient.
- Document ETCO₂ reading upon arrival at hospital/transfer of care.

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


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

| | |
|---|--|
| <p>Includes:</p> <ul style="list-style-type: none"> • Blunt trauma. • Penetrating trauma. • Burns. | |
| <p>EMT</p> | |
| <ul style="list-style-type: none"> • Initiate Universal Care. <p>Primary survey</p> <ul style="list-style-type: none"> • Hemorrhage control, refer to External Hemorrhage Management. <ul style="list-style-type: none"> – Apply direct pressure or tourniquet (if extremity hemorrhage) as needed to control bleeding. • Establish patent airway with cervical spine precautions. Refer to Airway Management and Spinal Motion Restriction as needed. • Monitor oxygen saturation, provide supplemental oxygen. • For open chest wound, place occlusive dressing. • If pelvis is unstable and patient is hypotensive, place pelvic binder or sheet to stabilize pelvis. • Maintain spine precautions per Spinal Motion Restriction. • Splint extremity deformities per Extremity Trauma. • If potential traumatic brain injury, refer to Traumatic Brain Injury (EPIC-TBI). • Evaluate for increased risk for bleeding, see Blood Thinner List. • Acquire IV access as needed. (STR for EMT) | |
| <p>AEMT</p> | |
| <ul style="list-style-type: none"> • If SBP < 90 mmHg or HR > 120, give 1 L IV/IO fluid bolus, may repeat as indicated. • Provide pain medications per Management of Acute Pain. | <ul style="list-style-type: none"> • If tachycardia for age with signs of poor perfusion, give 20 mL/kg IV/IO fluid bolus, may repeat as indicated. • Provide pain medications per Management of Acute Pain.  |
| <p>EMT-I/Paramedic</p> | |
| <ul style="list-style-type: none"> • If absent or diminished breath sounds in a hypotensive patient, consider tension pneumothorax. Perform needle decompression (NDC). Link to NDC procedure. • Avoid hypothermia. • Transport to most appropriate facility per local protocol. | |
| <ul style="list-style-type: none"> • Consider administration if potential hemorrhagic shock and within 3 hrs of injury: TXA: (Paramedic only) <ul style="list-style-type: none"> – 1 to 2 g bolus | <ul style="list-style-type: none"> • Consider administration if potential hemorrhagic shock and within 3 hrs of injury: TXA: (Paramedic only) <ul style="list-style-type: none"> – 15-30 mg/kg, max 1-2 g bolus |

Includes:

- Anterior and/or posterior thoracic injuries, such as flail segment, penetrating, or sucking chest wound.
- Signs/symptoms of potential tension pneumothorax may include: chest pain, dyspnea, decrease in SPO₂, unilateral diminished/absent breath sounds, tachycardia, tachypnea, resistance to BVM ventilations, decompensated shock, traumatic cardiac arrest.

Note: Tracheal deviation, neck vein distention and cyanosis are late and unreliable sign of tension pneumothorax.

EMT

- Initiate [Universal Care](#) and [General Trauma Management](#).
- Seal open thoracic wounds with occlusive dressings.
- Administer high flow oxygen.
- Place patient in position of respiratory comfort if no spinal injury suspected.
- Rapid transport to trauma center.

EMT-I/Paramedic

- Should the patient develop pre-terminal signs of tension pneumothorax, perform immediate needle decompression (NDC). These signs include respiratory distress, deteriorating level of consciousness, hypotension, SPO₂ less than 92% despite high flow oxygen.
- These signs develop more rapidly in patients undergoing positive pressure ventilation leading to sudden cardiac arrest.
- Consider NDC in trauma code patients with thoracic injuries.
- In the absence of diagnostic equipment such as during an ASHE (Active Shooter/Hostile Event), consider immediate NDC for thoracic trauma when severe respiratory distress, altered mentation, and/or signs of shock are present. [Link to NDC procedure.](#)

Burns: Adult & Pediatric

Includes:

- Patients sustaining thermal burns.
- Patients who are exposed to electrical current (AC or DC).
- Patients of all ages who have been the victim of lightning strike injury.

Excludes:

- Chemical and radiation burns, refer to [Dermal Chemical Burns](#) or [Radiation Exposure](#), as needed.

EMT

- Verify scene is secure.
- Initiate [Universal Care](#) and refer to [Airway Management](#), as indicated. Do not use supraglottic for airway burns.
- Assess for cardiac arrest.
 - Even patients who appear dead may have good outcomes with prompt intervention, refer to [Cardiac Arrest \(VF/VT/Asystole/PEA\): Adult & Pediatric](#).
- Determine characteristics of source if possible. AC or DC, voltage, amperage, time of injury.
- Consider pain management. Refer to [Management of Acute Pain](#).
- Monitor oxygen saturation, provide supplemental oxygen as needed. Place on high flow oxygen nonrebreather mask if patient rescued from confined space.
- Refer to [Carbon Monoxide/Smoke Inhalation](#), [Cyanide Poisoning](#) as needed.
- Assist respirations as needed.
- Stop the burning:
 - Soak clothing and skin with water if burning or smoldering.
 - Remove clothing if not stuck to patient.
 - Remove jewelry.
- Evaluate for high risk burn injuries, refer to [Burn Triage](#).
- Leave blisters intact.
- Cover burns with dry dressing or clean sheet.
- Keep patient warm.
- Estimate BSA burned and depth of burn, refer to [Burn Estimation Charts](#).
- IV access and initiate IV fluids as indicated. (STR for EMT) Avoid placement through burned skin, if feasible.
 - Initiate fluid resuscitation:
 - 20 mL/kg IV/IO fluid bolus, repeat as needed.
 - If patient in shock, give fluid per [Shock](#).
- Manage pain appropriately, refer to [Management of Acute Pain](#).
- Obtain waveform capnography (ETCO2) and SPO2 as indicated. (ETCO2 is STR for EMT)

AEMT

EMT-I/Paramedic

Burn Triage

[TOC](#)

Does The Patient Have Any Of The Following?

1. Partial thickness burns \geq 10% Total Body Surface Area
2. Any full thickness burns of any age group
3. Burns that involve the face, hands, feet, genitalia, perineum, or major joints
4. Circumferential Burns
5. Electrical burns including lightning injury
6. Chemical burns
7. Radiation Burns
8. Inhalation injury or airway compromise
9. Burn injury with pre-existing medical disorders: CHF, ESRD, COPD, or cardiac that could complicate management, prolong recovery, and affect mortality
10. Burns with concomitant trauma (such as fractures)
11. Pediatric burns, especially requiring ICU care
12. Burn injury in patients who will require special social, emotional or long-term rehabilitation

No

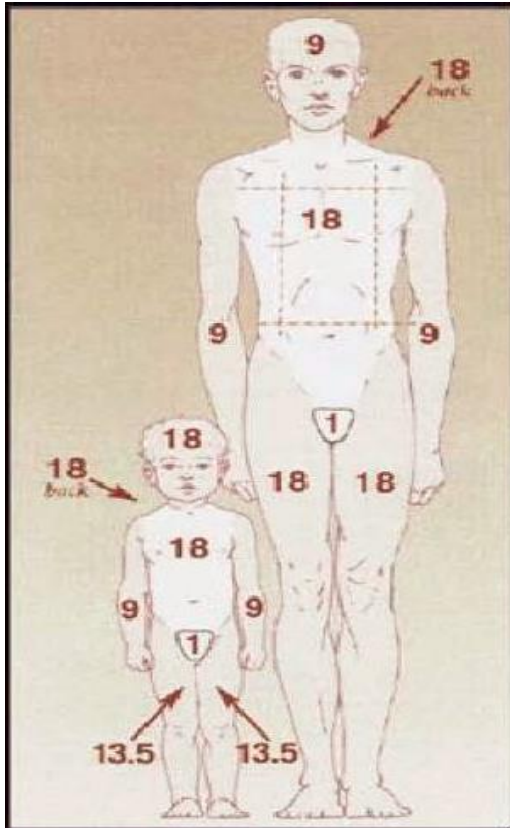
Courtesy notification to receiving facility of patient's choice.


Yes

Prepare patient for transport to burn or trauma center based on *regional guidelines*.

Burn Size Chart 1

Burn Size Chart 2

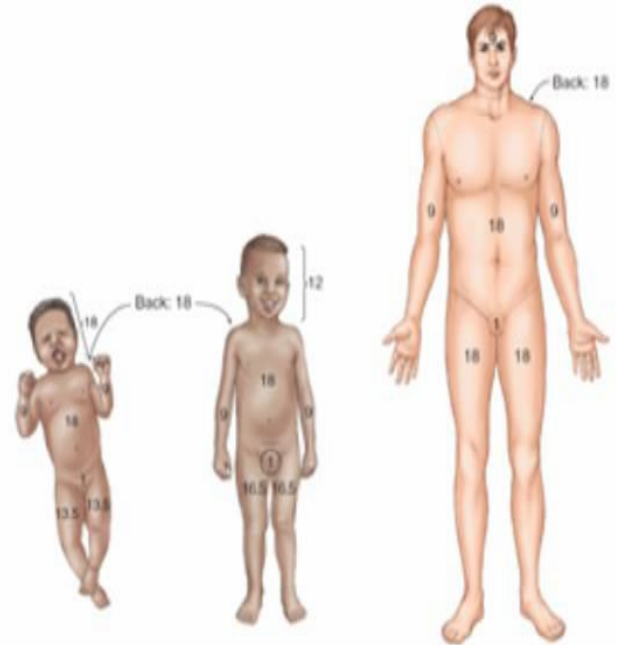


 Patient's hand = 1% Total Body Surface Area

Source: University of Utah Burn Center

Burn Size Estimation

- Rule of 9's.
- The "rule of palm" is another way to estimate the size of a burn. The patient's palm to tip of fingers is about 1% of the body. Use the person's palm to measure the body surface area burned.



| Percentage of Total Body Surface Area by Age and Anatomic Structure | | | |
|--|----------------|-------|-------|
| | Infant < 10 kg | Child | Adult |
| Head and neck | 20% | | |
| Anterior head | | 9% | 4.5% |
| Posterior head | | 9% | 4.5% |
| Anterior torso | 16% | 18% | 18% |
| Posterior torso | 16% | 18% | 18% |
| Leg, each | 16% | | |
| Anterior leg, each | | 6.75% | 9% |
| Posterior leg, each | | 6.75% | 9% |
| Arm, each | 8% | | |
| Anterior arm, each | | 4.5% | 4.5% |
| Posterior arm, each | | 4.5% | 4.5% |
| Genitalia/perineum | 1% | 1% | 1% |

Includes: Patients with amputations or potential extremity fractures or dislocations.

EMT

- For active bleeding, refer to [External Hemorrhage Management](#).
- Evaluate for:
 - Deformity or instability.
 - Neuro status of extremity.
 - Pallor.
 - Pulse.
 - Capillary refill.
 - Degree of bleeding/blood loss, with assessment of the color of the blood and if it is pulsatile or not.
- Stabilize potential fractures/dislocations.
- Apply splint to limit movement of potential fracture.
 - Reassess distal neurovascular status after any manipulation or splinting.
- Elevate extremity fractures above heart level whenever possible to limit swelling.
- Apply ice/cool packs to limit swelling in potential fractures or soft tissue injury; do not apply ice directly to skin.
- Amputation:
 - Transport amputated part(s) wrapped in a dry, sterile dressing.
 - Place in a water tight container or plastic bag.
 - Keep cool, but do not place directly on ice.
- To manage pain, refer to [Management of Acute Pain](#).

AEMT

- Strongly consider administering pain medication according to [Management of Acute Pain](#) before attempting to move a potential fracture.

EMT-I/Paramedic

Crush Injury:

- High flow oxygen.
- Initiate 10-15 mL/kg IV/IO fluid bolus prior to extrication if possible.
- Apply cardiac monitor to assess for peaked T waves or other findings consistent with hyperkalemia. Refer to [ECG Changes in Hyperkalemia](#) as needed.

- If findings suggestive of hyperkalemia, continue fluid resuscitation with 500-1000 mL/hr IV/IO fluid infusion.
- If findings of hyperkalemia are present, maintain continuous cardiac monitoring, administer IV fluids and:
 - **Calcium Gluconate:** (Paramedic only) 2 g IV/IO over 5 minutes
 - (or)
 - **Calcium Chloride:** (Paramedic only) 1 g IV/IO over 5 minutes, ensure IV patency and do not exceed 1 mL/minute
 - (and)
 - **Albuterol** 5 mg nebulized.

- If findings suggestive of hyperkalemia, continue fluid resuscitation with 10 mL/kg/hr IV/IO fluid infusion.
- If findings of hyperkalemia are present, maintain continuous cardiac monitoring, administer IV fluids and:
 - **Calcium Gluconate:** (Paramedic only) 100 mg/kg IV/IO over 5 minutes, max dose 2 g
 - (or)
 - **Calcium Chloride:** (Paramedic only) 20 mg/kg (0.2 mL/kg) IV/IO over 5 minutes, max dose 1 g, ensure IV patency and do not exceed 1 mL/minute
 - (and)
 - **Albuterol** 5 mg nebulized.



- For significant crush injury or prolonged entrapment of extremity, consider **Sodium Bicarbonate:** 1 mEq/kg IV/IO, maximum dose 50 mEq bolus over 5 minutes.



External Hemorrhage Management: Adult & Pediatric

Includes: Patients with uncontrolled bleeding.

EMT

- Apply direct pressure/pressure dressing/wound packing to injury.
- If direct pressure ineffective or impractical (hemorrhage not controlled) for extremity wound, apply a tourniquet.
 - Use a commercially available, windlass, pneumatic, or ratcheting device that has been demonstrated to reliably occlude arterial flow.
 - Avoid applying narrow, elastic, or bungee-type devices.
 - Use improvised tourniquets only if no commercial device is available.
 - Do not release a properly-applied tourniquet until the patient reaches definitive care.
- If hemorrhage is not controlled (e.g. junctional injury)
 - Apply a topical hemostatic agent with direct pressure or commercially available junction hemorrhage control device.
- Apply a topical hemostatic agent, in combination with direct pressure, for wounds in anatomic areas where tourniquets cannot be applied and sustained direct pressure alone is ineffective or impractical.
 - Only apply topical hemostatic agents in a gauze format that supports wound packing.

Traumatic Brain Injury (EPIC-TBI): Adult & Pediatric

| | |
|---|--|
| <p>Includes: Adult or pediatric patient with potential of Traumatic Brain Injury (EPIC-TBI) by mechanism, GCS, or exam.</p> | |
| EMT | |
| <p><u>Airway/Breathing:</u></p> <ul style="list-style-type: none"> Continuously monitor pulse oximetry. High flow oxygen supplementation with nonrebreather mask, target SPO2 100%. Aggressively prevent any desaturation < 90%. BLS airway maneuvers as indicated. DO NOT hyperventilate/over-ventilate patient. Initiate ETCO2 monitoring for hypoventilation and apnea; target ETCO2 40mmHg (Range 35-45 mmHg). (ETCO2 STR for EMT) | |
| <ul style="list-style-type: none"> Adult BVM rate 10 breaths/min as needed to maximize SPO2 | <ul style="list-style-type: none"> Peds BVM rates as indicated: <ul style="list-style-type: none"> <u>Infants</u> (0-24 mo): 25 breaths/min. <u>Children</u> (2-14 yrs): 20 breaths/min. <u>Adolescents</u> (15-17 yrs): 10 breaths/min.  |
| <p><u>Circulation:</u></p> <ul style="list-style-type: none"> Frequent blood pressure, SPO2, HR measurement (at least every 5 minutes). Watch for early signs of shock such as tachycardia, falling systolic blood pressure. Be aware that "near-hypotension" (i.e., SBP 90-110) may be detrimental, especially if dropping. <p><u>Disability:</u></p> <ul style="list-style-type: none"> Acquire blood glucose level. Refer to Hypoglycemia. Maintain cervical stabilization. Refer to Spinal Motion Restriction. Control bleeding with direct pressure if no potential open skull injury. Trend neurologic status assessment (GCS). Obtain waveform capnography (ETCO2) and SPO2 as indicated. (ETCO2 is STR for EMT) IV access and initiate IV fluids as indicated. (STR for EMT) | |
| AEMT | |
| <ul style="list-style-type: none"> IO access as indicated. Avoid hypotension. For SBP approaching < 100 mmHg or other signs of shock: <ul style="list-style-type: none"> Initial treatment: 1 L IV/IO fluid bolus. Repeat 500 mL IV/IO fluid bolus until SBP > 100 mmHg. | <ul style="list-style-type: none"> Approaching hypotension in children: <ul style="list-style-type: none"> 0-9 yrs: SBP < [70 + (age in years x 2)]. ≥ 10 yrs: SBP < 90 mmHg. For hypotension or other signs of shock: <ul style="list-style-type: none"> 20 mL/kg IV/IO fluid bolus. Repeat until hypotension resolves.  |
| EMT-I/Paramedic | |
| <ul style="list-style-type: none"> If O₂ saturation < 90% despite BLS airway, consider advanced airway: <ul style="list-style-type: none"> Pre-oxygenate with 100% oxygen BVM at age appropriate rate (Avoid hyperventilation even before advanced airway is obtained). Use with caution and monitor blood pressure if administering medications for intubation/sedation and/or for pain control. Be aware how detrimental decreased perfusion is to the injured brain. Avoid nasal intubation. | |

Includes: Adult or pediatric patient with potential for spinal injury due to blunt traumatic injury.

Excludes: Adult or pediatric patient with penetrating spinal injury (SMR not indicated).

EMT

Apply SMR if ANY of the following are present:

- Any altered mental status (GCS < 15) including possible intoxication from alcohol or drugs, agitation.
- Pediatric patients may demonstrate altered mental status with agitation, apnea, hypopnea, or somnolence (drowsiness).
- Midline neck or back pain and/or tenderness.
- Focal neurologic signs and/or symptoms (ie. weakness, tingling, or numbness).
- Anatomic deformity of the spine.
- Torticollis (self-splinting or painful rotation/tilt of the neck).
- Unreliable patient interaction including distraction from painful injury or distressing circumstances.
- Communication/language barrier that prevents accurate assessment.
- Lack of cooperation or contribution during exam.

Consider SMR with ANY high risk characteristics:

- [Guideline for Field Triage](#) mechanism criteria
- Age > 65,
- Axial load injuries (diving injuries, spearing tackle),
- Sudden acceleration/deceleration, lateral bending forces to neck/torso.

Apply SMR with ANY high risk mechanisms of injury:

- High speed MVC or rollover,
- Axial load injuries (diving injuries, spearing tackle),
- Sudden acceleration/deceleration, lateral bending forces to neck/torso.



• Patients without any of the above findings may be transported without the use of a cervical collar or any other means to restrict spinal motion. Low risk characteristics include:

- Simple rear end collision,
- No neck pain on scene,
- No midline cervical tenderness,
- Ambulatory on scene at any time.

• Low risk characteristics have not been studied in pediatric patients are should not be used alone to determine need for SMR.



- SMR may be achieved by use of a scoop stretcher, vacuum splint, ambulance stretcher, or long spine board with the patient safely secured.
- Minimize time on backboards.
- SMR cannot be safely performed with a patient in a sitting position.
- If elevation of the head is required, the device used to stabilize the spine should be elevated at the head while maintaining alignment of the neck and torso.

- Children may require additional padding under the shoulders to avoid excessive cervical spine flexion with SMR.



Presentation may vary depending on the concentration and type of poison or medication and duration of exposure. Poisoning may occur by: skin or mucous membrane absorption, ingestion, inhalation, or injection.

- Refer to guidelines for specific agents as indicated: [Agitated or Violent Patient/Behavioral Emergency](#), [Riot Control Agents](#), [Acetylcholinesterase Inhibitor Poisoning](#), [Radiation Exposure](#), [Dermal Chemical Burns](#), [Stimulant Toxicity](#), [Cyanide Poisoning](#), [Carbon Monoxide/Smoke Inhalation](#), [Hydrogen Sulfide Poisoning](#), [Hydrocarbon Poisoning](#), [Methemoglobin Toxicity](#), [Opioid Poisoning/Overdose](#), [Bites and Envenomations](#).
- Call the Poison Control Center 800-222-1222.
- Arizona Opioid Assistance and Referral Line (OAR) 1-888-688-4222.
- Transport patient to hospital if suicidal.

EMT

- Ensure scene is safe.
- Consider Body Substance Isolation (BSI) or appropriate skin and respiratory personal protective equipment (PPE).
- Safely remove patient from hazardous material environment.
- Remove clothing and decontaminate skin if contaminated.
- Prevent hypothermia when performing wet decontamination.
- Initiate [Universal Care](#) including pulse oximetry monitoring for respiratory decompensation.
- Maintain or normalize patient temperature.
- Record and obtain all medications or products on scene. Bring in medication containers or take pictures with camera-equipped, agency-owned device.
- Identify intoxicating agent by history, toxidrome, or environmental testing.
- Identify antidote or mitigating agent.
- Acquire IV access. (STR for EMT)
- Administer 20 mL/kg IV fluid bolus if there is evidence of hypovolemia/hypoperfusion.
- Acquire and monitor ETCO2 for respiratory decompensation. (STR for EMT)

- Children often show signs of poisoning before adults due to increased absorption of poisons.
- Wet infants are slippery; care should be exercised during decontamination to avoid additional injuries.



AEMT

- Acquire IO access.
- Administer 20 mL/kg IV/IO fluid bolus if there is evidence of hypovolemia/hypoperfusion.

EMT-I/Paramedic

- Initiate cardiac monitoring and consider 12 lead ECG (special attention to abnormal rate, rhythm, QRS and QT prolongation).
- Consider blood samples if EMS management might change value (e.g. carbon monoxide, glucose, cyanide).
- Use pharmacological management for agitated or violent patients (combativeness, tachycardia, hyperthermia). Refer to [Agitated or Violent Patient/Behavioral Emergency](#).
- Supraglottic devices and intubation should be used only if BVM ventilation fails. The airway should be managed in the least invasive way possible.

Acetylcholinesterase Inhibitor Poisoning (Nerve Agents, Organophosphates (OPs), and Carbamates): Adult & Pediatric

DUMBBELLS mnemonic used to describe the signs and symptoms of cholinergic excess/organophosphate toxicity:

- D** - Diarrhea
- U** - Urination
- M** - Miosis (pinpoint pupils)/Muscle weakness
- B** - Bronchospasm/Bronchorrhea
- B** - Bradycardia
- E** - Emesis
- L** - Lacrimation/Laryngospasm
- L** - Lethargy
- S** - Salivation/Sweating/Seizures

Central nervous system effects can manifest with seizures, coma, and/or apnea.

EMT

- Initiate [Universal Care](#).
- For decontamination, refer to [Poisoning/Overdose Universal Care](#).
- ABCDE assessment including pupils.
- When wet decontaminating, avoid hypothermia.
- Obtain waveform capnography (ETCO₂) and SPO₂ as indicated. (ETCO₂ is STR for EMT)
- IV access and initiate IV fluids as indicated. (STR for EMT)
- Acquire and transmit 12 lead ECG as indicated.

AEMT

- Establish IO access.

EMT-I/Paramedic

- Initiate continuous cardiac and ETCO₂ monitoring.

- **Atropine Sulfate:** 2 mg IV/IO. Repeat 2x initial dose as needed every 3-5 minutes until patient's dyspnea resolves or is easy to ventilate.
- **Pralidoxime (2-PAM):** (Tox medics only) 1-2 g IV/IO over 10-15 mins. Reconstitute with 20 cc sterile water. Consider 2-PAM drip for severe cases after initial dose.

- **Atropine Sulfate:** 0.1 mg/kg IV/IO, up to 2 mg. Repeat 2x initial dose as needed every 3-5 minutes, until patient's dyspnea resolves or is easy to ventilate.
- **Pralidoxime (2-PAM):** (Tox medics only) 30-50 mg/kg, max dose 1-2 g, IV/IO over 10-15 mins. Reconstitute with 20 cc sterile water.
- Sudden-onset apnea may occur in infants, usually after the second dose.
- Consider 2-PAM drip for severe cases after initial dose.



- Clinical improvement should be based upon the drying of secretions, improved respiratory effort and improved oxygenation.
- Continuous and ongoing patient reassessment is critical.
- For patients with seizure activity, refer to [Seizures](#) as needed.
- Nerve agents typically require lower doses of atropine than insecticide OPs/Carbamates.

Radiation Exposure: External and/or Internal Contamination: Adult & Pediatric

Includes: Patients exposed to a known or potential source of radiation or contaminated with a radioactive source, signs and symptoms of acute radiation syndrome are typically delayed (hours to days) but may include:

- Nausea.
- Vomiting.
- Diarrhea.
- Headache.
- Confusion, altered level of consciousness.

Most patients will be asymptomatic initially. Early nausea and vomiting is a poor prognostic indicator. All body fluids from patients receiving *systemic radiation therapy (particularly radioactive iodine)* carry a potential risk of minor exposure, usually to primary caregivers and family members. Use Body Substance Isolation techniques, personal protective equipment (PPE), and Universal Precautions when caring for these patients.

Standard PPE does not protect against penetrating radiation from a radioactive source; it only mitigates contamination. Limit radiation exposure effectively by limiting time around, maintaining distance from, and using effective shielding against the source. Turnout gear and paper coveralls can be potentially adequate PPE to prevent contamination.

Excludes: Patients exposed to normal dose of ionizing radiation from medical imaging studies and therapeutic medical procedures.

EMT

- Ensure scene safety. For decontamination, initiate [Poisoning/Overdose Universal Care](#).
- Don appropriate personal protective equipment.
- Exercise universal precautions at all times.
- Decontamination should not delay stabilization of limb- or life-threatening traumatic injuries.
- Place contaminated towels, wastewater, and body fluids in secured containers denoted for radioactive waste materials.
- For skin contaminated with radioactive sources:
 - Remove patient's clothing and wash the skin with wet gauze, skin wipes, or soap and water.
 - Collect the wastewater, if possible.
- For inhalation contamination:
 - Administer oxygen as appropriate.
 - Maintain the airway as needed.
- When wet decontaminating, attempt to prevent hypothermia.
- Trauma patients who have been exposed to radiation or contaminated with radioactive sources should be triaged and treated on the basis of the severity of their conventional traumatic injuries. If possible, decontamination of the patient and wounds in particular should occur prior to arrival into a trauma bay (on scene, outside of the ED). Refer to [General Trauma Management](#).
- Consider transport to a burn center in cases of severe radiation exposure.

Includes: Patients exposed to a chemical that causes caustic injury to skin, eyes, and mucous membranes.

EMT

- Ensure scene safety. Initiate [Universal Care](#).
- Don appropriate personal protective equipment.
- Remove the patient's clothing, if necessary.
- Contaminated clothing should preferably be placed in impermeable bags.
- Carefully brush off solid chemicals and/or blot off liquid chemicals prior to flushing with copious amounts of water.
- Flush the patient's skin (and eyes, if involved) with copious amounts of tepid (body temperature) water or normal saline.
- Take measures to minimize hypothermia.
- Calculate the estimated total body surface area that is involved. Refer to [Burn Estimation Charts](#).
- For hydrofluoric acid exposure: after irrigating with water for 3 minutes, apply generous amounts of calcium gluconate.
- Refer to [Management of Acute Pain](#) as needed.
- IV access and initiate IV fluids as indicated. (STR for EMT)

AEMT

EMT-I/Paramedic


- For chemical burns of the eye:
 - [Proparacaine](#) or [Tetracaine](#) eye drops for pain control: 1-2 drops in affected eye(s). Wait 30-60 seconds for anesthetic effect. May reapply as indicated.
 - Continuous irrigation with water or saline. Consider eye irrigation device to facilitate decontamination.
- For wide complex tachycardia, refer to [Tachycardia](#) for magnesium dosing.

- For hydrofluoric acid exposure: Apply cardiac monitor due to risk of hyperkalemia and hypocalcemia. Refer to [ECG Changes in Hyperkalemia](#). If findings of hyperkalemia are present, maintain continuous cardiac monitoring, administer IV fluids and:
 - [Calcium Gluconate](#): (Paramedic only) 2 g IV/IO over 5 minutes (or)
 - [Calcium Chloride](#): (Paramedic only) 1 g IV/IO over 5 minutes, ensure IV patency and do not exceed 1 mL/minute (and)
 - [Albuterol](#): 5 mg nebulized.
- If clinically significant signs and symptoms of hypocalcemia:
 - [Calcium Chloride](#): (Paramedic Only) 1 g IV/IO over 5 minutes, ensure IV patency and do not exceed 1 mL/minute.

- For hydrofluoric acid exposure: Apply cardiac monitor due to risk of hyperkalemia and hypocalcemia. Refer to [ECG Changes in Hyperkalemia](#). If findings of hyperkalemia are present, maintain continuous cardiac monitoring, administer IV fluids and:
 - [Calcium Gluconate](#): (Paramedic only) 100 mg/kg IV/IO over 5 minutes, max dose 2 g (or)
 - [Calcium Chloride](#): (Paramedic only) 20 mg/kg (0.2 mL/kg) IV/IO over 5 minutes, max dose 1 g, ensure IV patency and do not exceed 1 mL/minute (and)
 - [Albuterol](#): 5 mg nebulized.
- If clinically significant signs and symptoms of hypocalcemia:
 - [Calcium Chloride](#): (Paramedic Only) 0.2 mL/kg IV/IO slowly.



Stimulant Toxicity: Adult & Pediatric

| | |
|---|---|
| Includes: Cocaine, amphetamines, MDMA (Ecstasy), phencyclidine (PCP), synthetic cathinones (bath salts), etc. | |
| EMT | |
| <ul style="list-style-type: none"> • Initiate Universal Care. • Refer to Hyperthermia/Heat Exposure as needed. • Check for trauma or self-inflicted injury. • Ask about chest pain and difficulty breathing. • For chest pain, refer to Chest Pain/Acute Coronary Syndrome/ST-segment Elevation Myocardial Infarction (STEMI). • Refer to Agitated or Violent Patient/Behavioral Emergency as needed. | <ul style="list-style-type: none"> • Children may experience acute coronary syndrome due to coronary artery vasospasm caused by cocaine. • Seizures are a more common serious event due to stimulant poisoning.  |
| <ul style="list-style-type: none"> • IV access and initiate IV fluids as indicated. (STR for EMT) • Acquire and transmit 12 lead ECG as indicated. | |
| AEMT | |
| <ul style="list-style-type: none"> • IO access as indicated. • Initiate IV fluid resuscitation if necessary to obtain hemodynamic stability or to treat dehydration and hyperthermia. | |
| EMT-I/Paramedic | |
| <ul style="list-style-type: none"> • Initiate cardiac monitor and examine rhythm strip for arrhythmias. • Monitor ETCO2 for respiratory decompensation. • Refer to Agitated or Violent Patient/Behavioral Emergency as needed. Benzodiazepines are preferred over ketamine for this patient population. | |

Includes: Occupational or smoke exposures (e.g., firefighting), industrial or laboratory accidents, natural catastrophes, suicide and murder attempts, chemical warfare and terrorism. Signs and symptoms of high concentration of cyanide include:

- Arrhythmias.
- Cardiovascular collapse.
- Cardiac arrest.
- Loss of consciousness.
- Seizures.
- Apnea.

EMT

- Ensure scene safety.
- Don appropriate PPE (e.g., special equipment for low oxygen environments/SCBA).
- Initiate [Universal Care](#) including pulse oximetry monitoring.
- Safely remove patient from toxic environment and provide high flow supplemental oxygen via nonrebreather mask or BVM.
- If indicated, expose patient, then cover to protect against hypothermia.
- Consult with Regional Poison & Drug Information Center (800-222-1222) from the scene as needed.

AEMT

EMT-I/Paramedic

- | | |
|---|--|
| <ul style="list-style-type: none"> • Initiate cardiac and ETCO₂ monitoring and analyze rhythm strip for arrhythmias. • Obtain 12 lead ECG. • For patients with appropriate history and manifesting one or more signs or symptoms of high concentrations of cyanide: <ul style="list-style-type: none"> – Hydroxocobalamin: (Cyanokit®)(Paramedic only) <ul style="list-style-type: none"> ▪ Collect pre-treatment blood sample, if possible. ▪ 5 g IV/IO over 15 minutes. ▪ Additional dose <i>per local protocol</i>. (or) – Sodium nitrite: (Tox medic only) <ul style="list-style-type: none"> ▪ 300 mg IV/IO over 5 minutes. ▪ Should not be given if hypoxemic or hypotensive. (and) – Sodium thiosulfate: (Tox medic only) <ul style="list-style-type: none"> ▪ 12.5 g IV/IO over 10 minutes. | <ul style="list-style-type: none"> • For patients with appropriate history and signs/symptoms of cyanide poisoning (e.g. cardiovascular collapse, shock, or cardiopulmonary arrest): <ul style="list-style-type: none"> – Hydroxocobalamin: (Cyanokit®)(Paramedic only) <ul style="list-style-type: none"> ▪ Collect pre-treatment blood sample, if possible. • 70 mg/kg IV/IO (max dose 5 g) over 15 minutes ▪ Additional dose <i>per local protocol</i>. (or) – Sodium nitrite: (Tox medic only) <ul style="list-style-type: none"> ▪ 6 mg/kg IV/IO (0.2 mL/kg) (max dose 300 mg) at rate of 5 mL/minute. ▪ Should not be given if hypoxemic or hypotensive. (and) – Sodium thiosulfate: (Tox medic only) <ul style="list-style-type: none"> ▪ 250 mg/kg (1 mL/kg) (max dose 12.5 g) over 10 minutes. |
|---|--|



- May repeat sodium nitrite & thiosulfate combination at one-half original doses if signs of poisoning reappear.
- Refer to [Seizures](#) as needed.

Bites and Envenomations: Adult & Pediatric

Bites, stings, and envenomations can come from a variety of marine and terrestrial animals, arthropods, and insects causing local or systemic effects. Patients may present with toxin-specific reactions. There is a spectrum of toxins or envenomations and limited EMS interventions that will have any mitigating effect on the patient in the field. The critical intervention is to get the patient to a hospital that has access to the relevant antivenom, if applicable, as soon as possible.

EMT

- Initiate [Universal Care](#).
- Acquire blood glucose level.
- Monitor pulse oximetry for respiratory decompensation.
- Pain control, including limited external interventions to reduce pain, refer to [Management of Acute Pain](#).
 - **Do not give ibuprofen for rattlesnake envenomations.**
- Refer to [Seizures](#), [Anaphylaxis and Allergic Reaction](#), or [Shock](#), as indicated.
- Transport all rattlesnake bites/envenomations to the hospital.
- **DO NOT** perform the following:
 - Tourniquet or constricting bands.
 - Incision and/or suction.
 - Application of cold packs.
- Envenomations known to have specific antivenom (scorpions, rattlesnakes, and black widow spider):
 - Transport to hospital that has access to antivenom, if feasible.
 - Call the Poison Control Center 800-222-1222 for treatment advice and location of antivenom.
- Obtain waveform capnography (ETCO₂) and SPO₂ as indicated. (ETCO₂ is STR for EMT)
- IV access and initiate IV fluids as indicated. (STR for EMT)
- Acquire and transmit 12 lead ECG as indicated.

AEMT

- IO access as indicated.
- Consider 20 mL/kg IV/IO fluid bolus.

EMT-I/Paramedic

- Initiate cardiac and ETCO₂ monitoring and analyze rhythm strip for arrhythmias.
- Fentanyl is preferred over morphine due to histamine release.
- Consider vasopressors after adequate fluid resuscitations if hypotension persists. Refer to [Drip Calculations](#).
 - **Push Dose Epi:** 10-20 mcg boluses (1-2 mL) every 2 minutes (or)
 - **Epinephrine:** 0.05-0.3 mcg/kg/min IV/IO. Titrate to maintain MAP > 65 or SBP > 90 mmHg (or)
 - **Norepinephrine:** (Paramedic Only) (Pump Only) 0.05-0.5 mcg/kg/min IV/IO. Titrate to maintain MAP > 65 or SBP > 90 mmHg.
- Refer to [Agitated or Violent Patient/Behavioral Emergency](#) as indicated. Do not use ketamine for scorpion stings.

Includes: Patients of all ages with access to opioids and known or potential opioid use, overdose or misuse. Signs and symptoms: decreased level of consciousness, coma, respiratory depression, miosis, hypothermia, hypotension, bradycardia, bradypnea.

Excludes: Patients with altered or decreased level of consciousness from other causes (e.g., head injury, hypoxia, or hypoglycemia).

EMT

- Initiate [Universal Care](#).
- For patients with depressed level of consciousness and respiratory depression (Resp Rate < 8 bpm), perform immediate resuscitation first, then consider:
- **Naloxone:**
 - Intranasal (IN), 4 mg/0.1 mL nasal spray, 1 spray in single nostril (or)
 - Intramuscular (IM), 2 mg/0.4 mL auto-injector. Place on thigh and inject 0.4 mL.
- All routes may be repeated as indicated.

- Identify medication taken, noting immediate release vs. sustained release formulations, time of ingestion, and quantity.
- Bring pill container(s) to hospital if possible, or take pictures with photography equipped, agency-owned device.
- Assess for other etiologies of decreased level of consciousness including hypoxia, hypoglycemia, hypotension, and traumatic head injury.
- Monitor for recurrent respiratory depression and decreased level of consciousness.
- Recommend transport to hospital.
- If patient refuses transfer, with or without receiving naloxone, call the Arizona Opioid Assistance and Referral (OAR) Line at 888-688-4222.
- Obtain waveform capnography (ETCO2) and SPO2 as indicated. (ETCO2 is STR for EMT)
- IV access and initiate IV fluids as indicated. (STR for EMT)
- Acquire and transmit 12 lead ECG as indicated.

AEMT

- Naloxone should be given via IV/IO route to apneic patients while supporting airway and breathing through traditional methods.

- Consider IV fluids. Refer to [Shock](#).
- **Naloxone:** 0.4-2 mg IV/IM/IN. Repeat if indicated.
- Use caution in patients with known opioid use disorder. Consider lower dose to avoid precipitating acute withdrawal.

- Consider IV/IO fluids. Refer to [Shock](#).
- **Naloxone:** 0.1 mg/kg IV/IM/IN. Repeat if indicated.



Includes: Known or potential exposure to carbon monoxide (CO) or smoke from fire, propane or charcoal stoves/heaters, or combustion engines, and recreational enclosed smoking areas. Consider scene/environment monitoring with commercial CO monitors if available. Patient and environmental CO levels are helpful information for hospital personnel.

Patients may present with:

| Mild | Moderate to Severe |
|--|--|
| <ul style="list-style-type: none"> Nausea Fatigue Headache Vertigo Lightheadedness Dyspnea | <ul style="list-style-type: none"> Confusion, loss of consciousness Tachypnea Tachycardia Seizure/Convulsions Chest pain, shortness of breath Cardiopulmonary arrest |

EMT

- Ensure scene safety.
- Don appropriate PPE (e.g., special equipment for low oxygen environments/SCBA).
- Initiate [Universal Care](#) including pulse oximetry monitoring.
- Safely remove patient from toxic environment.
- Inquire about other possible exposed persons (other inhabitants, neighbors, family member coming home later).
- Monitor transcutaneous CO levels, if available.
- 100% oxygen via nonrebreather mask or BVM.
- Refer to [Seizures](#) as needed.
- Obtain waveform capnography (ETCO2) and SPO2 as indicated. (ETCO2 is STR for EMT)
- IV access and initiate IV fluids as indicated. (STR for EMT)
- Acquire and transmit 12 lead ECG as indicated.

AEMT

EMT-I/Paramedic

- Initiate cardiac and ETCO2 monitoring and analyze rhythm strip for arrhythmias.
- Obtain 12 lead ECG.
- Acquire blood sample as soon as possible (for later testing at the hospital) *per local protocol*.

| COHb | Severity | Signs and Symptoms |
|--------|----------|--|
| <20% | Mild | Headache, nausea, vomiting, dizziness, blurred vision |
| 21-40% | Moderate | Confusion, syncope, chest pain, dyspnea, tachycardia, tachypnea, weakness |
| 41-59% | Severe | Dysrhythmias, hypotension, cardiac ischemia, palpitations, respiratory arrest, pulmonary edema, seizures, coma, cardiac arrest |
| >60% | Fatal | Death |

Includes: Known or potential hydrogen sulfide poisoning. Hydrogen sulfide should be suspected in patients with rapid loss of consciousness particularly in an enclosed space, collapse of previously healthy worker, multiple sudden death victims, and if rotten egg odor is detected. The odor threshold is low <0.3ppm but olfactory fatigue with prolonged exposure results in extinction of odor recognition.

- Signs and symptoms of sulfide poisoning may include:
 - May report “rotten egg” odor.
 - Mucous membrane and upper airway irritation.
 - Non-Cardiogenic Pulmonary Edema (late onset).
 - Rapid collapse.
 - Rapid olfactory overload; may not report rotten egg odor.
- Causative agents include:
 - Decaying organic matter.
 - Petroleum refining.
 - Mining.
 - Pulp/Paper factories.
 - Sewage.
 - Hot asphalt fumes.
 - Septic systems.


EMT

- Ensure scene safety.
- Don appropriate PPE (e.g., special equipment for low oxygen environments/SCBA).
- Initiate [Universal Care](#) including pulse oximetry monitoring.
- Safely remove patient from toxic environment and provide high flow supplemental oxygen via nonrebreather mask or BVM.
- If indicated, expose patient, then cover to protect against hypothermia.
- Evaluate and take precautions for traumatic injury from falls (C-spine immobilization).
- Consider consulting with Regional Poison & Drug Information Center (800-222-1222) from the scene as needed.
- Confirm exposure, amount, and duration.
- Acquire and transmit 12 lead ECG as indicated.

AEMT

EMT-I/Paramedic

- Initiate cardiac monitoring.
- Consider 12 lead ECG.

| | |
|--|---|
| <p>Includes: Known or potential hydrocarbon toxicity with ventricular dysrhythmias.</p> <ul style="list-style-type: none"> • Signs and symptoms of hydrocarbon toxicity poisoning may include: <ul style="list-style-type: none"> – Rapid onset of CNS depression and seizures. – Chemical pneumonitis. – Cardiac dysrhythmias are less common but can include PVCs or fatal dysrhythmias such as ventricular tachycardia and Torsades de Pointes (TdP). • Causative agents include: <ul style="list-style-type: none"> – Aliphatic hydrocarbons: Methane, ethane, propane, butane, hexane, cyclohexane, etc. – Aliphatics from pine include turpentine, pine oil, pine tar, etc. – Aromatic & Substituted Aromatic Hydrocarbons: Benzene, aniline, phenols, etc. – Other substituted hydrocarbons include halogenated hydrocarbons, etc. – Accidental exposure is more often in younger children and deliberate exposure, often from inhalation (i.e. huffing). • Note: Avoid epinephrine & albuterol because catecholamines lower the threshold for ventricular fibrillation in the setting of hydrocarbon & substituted hydrocarbon exposures. | |
| EMT | |
| <ul style="list-style-type: none"> • Ensure scene safety. • Don appropriate PPE (e.g., special equipment for low oxygen environments/SCBA). • Initiate Universal Care including pulse oximetry monitoring. Refer to Airway Management as indicated. • Safely remove patient from toxic environment and provide high flow supplemental oxygen via nonrebreather mask or BVM. • Consult with Regional Poison & Drug Information Center (800-222-1222) from the scene as needed. • Confirm exposure, amount, and duration. • Obtain waveform capnography (ETCO₂) and SPO₂ as indicated. (ETCO₂ is STR for EMT) • IV access and initiate IV fluids as indicated. (STR for EMT) • Acquire and transmit 12 lead ECG as indicated. | |
| AEMT | |
| EMT-I/Paramedic | |
| <ul style="list-style-type: none"> • Initiate cardiac monitoring. • Consider 12 lead ECG. • Refer to Seizures as needed. | |
| <ul style="list-style-type: none"> • In the setting of known huffing or prolonged exposure to gasoline vapors, etc., with tachyventricular dysrhythmia: <ul style="list-style-type: none"> – Propranolol: (Tox Medic only) <ul style="list-style-type: none"> ▪ 1 mg IV/IO over 2 minutes. ▪ May repeat x 1 in 5 minutes. | <ul style="list-style-type: none"> • In the setting of known huffing or prolonged exposure to gasoline vapors, etc., with tachyventricular dysrhythmia: <ul style="list-style-type: none"> – Propranolol: (Tox Medic only) <ul style="list-style-type: none"> ▪ 0.01 mg/kg slow IV/IO push over 10 minutes (max initial dose 1 mg). <div style="text-align: right; margin-top: 10px;">  </div> |

Includes: Known or potential methemoglobinemia.

- Signs and symptoms of methemoglobinemia may include:
 - Mild or moderate methemoglobinemia: Cyanosis without altered mental status, chest pain, or dyspnea.
 - Severe methemoglobinemia: Cyanosis with altered mental status, chest pain, or dyspnea.
- Causative agents include:
 - Amyl nitrite.
 - Isobutyl nitrite.
 - Sodium nitrite.
 - Topical anesthetics.
 - Aniline.
 - Nitrobenzene.

EMT

- Ensure scene safety.
- Initiate [Universal Care](#) including pulse oximetry monitoring, refer to [Airway Management](#) as indicated.
- Initiate high flow oxygen via nonrebreather mask.
- BVM ventilation, if necessary.
- Consider consulting with Regional Poison & Drug Information Center (800-222-1222) from the scene as needed.
- Confirm exposure, amount, and duration.
- Obtain waveform capnography (ETCO2) and SPO2 as indicated. (ETCO2 is STR for EMT)
- IV access and initiate IV fluids as indicated. (STR for EMT)
- Acquire and transmit 12 lead ECG as indicated.

AEMT

EMT-I/Paramedic

- Initiate cardiac monitoring.
- Consider 12 lead ECG.
- Advanced airway management, if needed.
- **Methylene Blue:** (Tox Medic only)
 - Methylene blue for severe methemoglobinemia 1 mg/kg, IV/IO over 5 minutes. Max dose 100 mg.
 - Do not administer in patients with known glucose-6-phosphate dehydrogenase (G6PD) deficiency.

Includes: Chloroacetophenone (CN or Mace), Chlorobenzylidene Malononitrile (CS or tear gas), Oleoresin capsicum (OC or pepper spray), harassing agents, incapacitating agents, chemical crowd control agents, lacrimators. These products are typically oil based.

Excludes: Exposure to chlorine, phosgene, ammonia, other hazardous materials, or chemical warfare agents. Exposure to these agents should result in a call to Poison Control 602-253-3334 or 1-800-222-1222.

EMT

- Initiate [Universal Care](#).
- Move affected individual from contaminated environment into fresh air if possible.
- Remove contaminated clothing. Avoid removing over the head.
- Have patient remove contact lenses if appropriate.
- Decontaminate eye exposure with a stream of plain water for 10-15 min. Do not use Morgan Lenses for initial decontamination. Baby shampoo can be used for washing spray from around the eye area.
- Irrigation with water or saline may initially facilitate resolution of symptoms, but can spread contamination to unaffected areas. Washing the affected area with hand soap, shampoo, or dish soap can break up the oil-based product.
- If patient is in respiratory distress, refer to [Airway Management](#) or [Bronchospasm](#) as indicated.
- For persistent pain of the eye or skin, refer to [Dermal Chemical Burns](#).
- Traumatic injury may result when exposed individuals are in proximity to the device used to disperse the riot control agent (e.g. hose/stream under pressure, riot control agent projectiles). Refer to [General Trauma Management](#) as indicated.

Includes:

- *Heat cramps* are minor muscle cramps, usually in the legs and abdominal wall. Temperature is normal.
- *Heat exhaustion* has both salt and water depletion, usually of a gradual onset. As it progresses tachycardia, hypotension, elevated temperature, and very painful cramps occur. Symptoms of headache, nausea and vomiting occur. Heat exhaustion can progress to heat stroke.
- *Heat stroke* occurs when the cooling mechanism of the body (sweating) ceases due to temperature overload and/or electrolyte imbalances. Temperature is usually > 104 F. When no thermometer is available, it is distinguished from heat exhaustion by altered level of consciousness.

Excludes:

- Fever from infectious or inflammatory conditions.
- Malignant hyperthermia.
- Neuroleptic malignant syndrome.

EMT

- Initiate [Universal Care](#).
- Move patient to a cool area and shield from the sun or any external heat source.
- Remove as much clothing as is practical and loosen any restrictive garments.
- If alert and oriented, give small sips of cool liquids.
- If altered mental status, acquire blood glucose level.
- Maintain airway vigilance for emesis, seizure.
- If temperature is > 104° F (40° C) or if altered mental status is present, begin active cooling by:
 - Medically-supervised ice bath immersion provides the most rapid cooling mechanism. Consider maintaining cold water immersion if already instituted. Discontinue immersion when core-temp reaches 101 degrees.
 - If ice bath immersion is not available, consider the following:
 - Rotating ice water-soaked towels or sheets.
 - Continually wet the exposed skin with tepid water while fanning the victim.
 - Truncal ice packs may be used, but are less effective than evaporation.
 - Shivering should be treated as soon as possible.
- Acquire IV access as needed. (STR for EMT)

AEMT

- Establish IO access for heat stroke.
- Administer 20 mL/kg IV/IO cool fluid bolus and reduce to 10 mL/kg IV/IO boluses when vital signs are stable.

EMT-I/Paramedic

- Initiate cardiac monitoring and record ongoing vital signs and level of consciousness.
- Monitor for arrhythmia and cardiovascular collapse (refer to appropriate guidelines as needed).
- Refer to [Seizures](#) as needed.

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|---|
| <p>Includes: Patients suffering from drowning or drowning events independent of presence or absence of symptoms.</p> |
| <p>EMT</p> |
| <ul style="list-style-type: none"> • Initiate Universal Care and refer to Airway Management as indicated. • Ensure scene safety. • Remove patient from water as soon as possible. • Initiate aggressive airway management and restoration of adequate oxygenation and ventilation. • A-B-C approach. • Administer Oxygen to maintain SPO2 \geq 94%. Refer to Airway Management as needed. • Assist ventilation as needed. Consider PEEP valve 5-10 cm H2O with BVM to support oxygenation • Refer to Cardiac Arrest (VF/VT/Asystole/PEA): Adult & Pediatric as indicated. • Consider possible spine injury. Refer to Spinal Motion Restriction as indicated. • Consider hypothermia and treat as needed. • Remove wet clothing. • Do not aggressively re-warm cold water drownings. • Obtain waveform capnography (ETCO2) and SPO2 as indicated. (ETCO2 is STR for EMT) • IV access and initiate IV fluids as indicated. (STR for EMT) • Consider CPAP in awake patients with respiratory distress. (STR for EMT) |
| <p>AEMT</p> |
| <ul style="list-style-type: none"> • Establish IO access. |
| <p>EMT-I/Paramedic</p> |
| <ul style="list-style-type: none"> • Escalate airway management as indicated, assist ventilation as needed. <ul style="list-style-type: none"> – Consider PEEP 5-10 cm H2O as indicated to support oxygenation. • Initiate cardiac and ETCO2 monitoring. • Consider nasogastric or orogastric tube for gastric decompression. |

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|--|
| <p>Includes:</p> <ul style="list-style-type: none"> • Patients who received either the direct contact discharge or the distance two-barbed dart discharge of the conducted electrical weapon. • Patient may have sustained fall or physical confrontation trauma. • Patient may be under the influence of toxic substances and/or may have underlying medical or psychiatric disorder. |
| EMT |
| <ul style="list-style-type: none"> • Initiate Universal Care when safe. • May remove barbed dart(s) if they are not in a high-risk area (face, neck, hand, bone, groin, or spinal column) where it may injure bone, nerves, blood vessels, or an eye. • Evaluate patient for evidence of delirium with agitated behavior. Refer to Agitated or Violent Patient/Behavioral Emergency as indicated. • Refer to General Trauma Management as indicated. |
| AEMT |
| EMT-I/Paramedic |
| <ul style="list-style-type: none"> • Initiate cardiac monitoring. • Consider 12 lead ECG. |

Abnormal Vital Signs

| Age | Heart Rate | Resp Rate | Systolic BP | Temp (°C) |
|---------------|------------|-----------|------------------------|--------------|
| 0 d – 1 m | > 205 | > 60 | < 60 | <36 or >38 |
| ≥ 1 m - 3 m | > 205 | > 60 | < 70 | <36 or >38 |
| ≥ 3 m - 1 r | > 190 | > 60 | < 70 | <36 or >38.5 |
| ≥ 1 y - 2 y | > 190 | > 40 | < 70 + (age in yr × 2) | <36 or >38.5 |
| ≥ 2 y - 4 y | > 140 | > 40 | < 70 + (age in yr × 2) | <36 or >38.5 |
| ≥ 4 y - 6 y | > 140 | > 34 | < 70 + (age in yr × 2) | <36 or >38.5 |
| ≥ 6 y - 10 y | > 140 | > 30 | < 70 + (age in yr × 2) | <36 or >38.5 |
| ≥ 10 y - 13 y | > 100 | > 30 | < 90 | <36 or >38.5 |
| > 13 y | > 100 | >16 | < 90 | <36 or >38.5 |

General Vital Signs and Guidelines

| Age | Heart Rate (beats/min) | Blood Pressure (mmHg) | Respiratory Rate (breaths/min) |
|-------------|------------------------|-----------------------|--------------------------------|
| Premature | 110-170 | SBP 55-75 DBP 35-45 | 40-70 |
| 0-3 months | 110-160 | SBP 65-85 DBP 45-55 | 35-55 |
| 3-6 months | 110-160 | SBP 70-90 DBP 50-65 | 30-45 |
| 6-12 months | 90-160 | SBP 80-100 DBP 55-65 | 22-38 |
| 1-3 years | 80-150 | SBP 90-105 DBP 55-70 | 22-30 |
| 3-6 years | 70-120 | SBP 95-110 DBP 60-75 | 20-24 |
| 6-12 years | 60-110 | SBP 100-120 DBP 60-75 | 16-22 |
| > 12 years | 60-100 | SBP 110-135 DBP 65-85 | 12-20 |

AVPU (Medical and Trauma)

A: The patient is alert

V: The patient responds to verbal stimulus

P: The patient responds to painful stimulus

U: The patient is completely unresponsive

Motor/Sensory Exam for Suspected Spinal Injury

- Wrist/hand/finger extension bilaterally
- Foot plantarflexion/dorsiflexion bilaterally
- Gross sensation in all extremities
- Check for paresthesias

Traditional Glasgow Coma Scale (Trauma)

| | Points | Adult | Pediatric |
|---------------|--------|-------------------------|--|
| Eyes | 1 | No eye opening | |
| | 2 | Eye opening to pain | |
| | 3 | Eye opening to verbal | |
| | 4 | Eyes open spontaneously | |
| Verbal | 1 | No verbal response | No vocalization |
| | 2 | Incomprehensible sounds | Inconsolable, agitated |
| | 3 | Inappropriate words | Inconsistently consolable, moaning |
| | 4 | Confused | Cries but consolable, inappropriate interactions |
| | 5 | Oriented | Smiles, oriented to sounds, follows objects, interacts |
| Motor | 1 | No motor response | |
| | 2 | Extension to pain | |
| | 3 | Flexion to pain | |
| | 4 | Withdraws from pain | |
| | 5 | Localizes pain | |
| | 6 | Obeys commands | |

2014 Updated Glasgow Coma Score (Trauma)

The updates to the GCS 2014 are intended to increase reliability. These provide a basis for standardizing practice and ensure the scale is useful, in a practical sense, in the future.

| | Points | ≥ 6 years old | < 6 years old |
|---------------|--------|------------------------------|--|
| Eyes | 4 | Eye opening Spontaneously | |
| | 3 | Eye opening to Sounds | |
| | 2 | Eye opening to Pressure | |
| | 1 | No Response | |
| | NT | Not Testable | |
| Verbal | 5 | Oriented | Smiles, oriented to sounds, follows objects, interacts |
| | 4 | Confused | Cries but consolable, inappropriate interactions |
| | 3 | Words | Inconsistently consolable, moaning |
| | 2 | Sounds | Inconsolable, moaning |
| | 1 | No Response | No vocalization |
| | NT | Not Testable | Not Testable |
| Motor | 6 | Obeys Commands | |
| | 5 | Localizes to Pressure | |
| | 4 | Normal Flexion to Pressure | |
| | 3 | Abnormal Flexion to Pressure | |
| | 2 | Extension to Pressure | |
| | 1 | No Response | |
| | NT | Not Testable | |

There are several distinct differences between the Traditional GCS and 2014 versions:

- Scoring for each component of the assessment (Eyes: Verbal: Motor) are recommended rather than reporting an aggregate score.
- A Not Testable (NT) descriptor is now recommended rather than scoring the component as a 1 for None when the assessment is, in fact, not testable for a particular reason.
- Terminology has been changed to reduce subjective interpretations, ie, inappropriate words to Words and Incomprehensible /garbled sounds to Sounds.
- Pain is no longer used to elicit responses. Pressure is applied instead.
- Pressure is applied in the same method for each assessment beginning with the periphery and moving to the central areas of the body above the clavicles, as necessary.
- The sternum rub is strongly discouraged, as it may cause tissue damage with repeated maneuvers.

FAST/Cincinnati Stroke Screening Scale

| FACE | ARMS | SPEECH | TIME |
|----------------------------|--------------------------------|--------------------------------------|------------------------|
| Ask patient to smile | Ask patient to raise both arms | Ask patient to speak a simple phrase | Time is BRAIN |
| Does the face look uneven? | Does one arm drift down? | Does the speech sound strange? | Time of symptom onset? |
| Yes= 1 point | Yes= 1 point | Yes= 1 point | |

VAN: screening tool for large vessel occlusion

Is ARM weakness present?

- Yes **Continue the VAN exam**
- No **Patient is VAN negative. Stop VAN Exam.**

| | Yes | No |
|---------------------|--------------------------|--------------------------|
| Visual Disturbance? | <input type="checkbox"/> | <input type="checkbox"/> |
| Aphasia? | <input type="checkbox"/> | <input type="checkbox"/> |
| Neglect? | <input type="checkbox"/> | <input type="checkbox"/> |

If patient has any degree of weakness PLUS any one of the below:

- Visual Disturbance (Assess field cut by testing both sides, 2 fingers right, 1 left)
- Aphasia (Inability to speak or understand. Repeat and name 2 objects, close eyes, make fist)
- Neglect (Forced gaze to one side or ignoring one side, touching both sides)

This is likely a large artery clot (cortical symptoms) = VAN Positive

Indications:

- Shock unresponsive to fluid resuscitation.
- Post-ROSC with persistent hypotension.
- **Adult** patients with symptomatic bradycardia.

Excludes:

- **Pediatric** Bradycardia.
- Anaphylaxis - use standard IM epinephrine dosing first. Only use epinephrine (push dose) if non-responsive to repeat IM epinephrine doses and 60 mL/kg NS IV/IO fluid bolus.

Preparation:

- Mix 1 mL of epinephrine 0.1 mg/mL (CARDIAC) with 9 mL of Normal Saline (NS) in a 10 mL syringe.
- This results in a 10 mcg/mL concentration.
- Label syringe to indicate new concentration.

Dose:

- **Adults** = 10-20 mcg boluses (1-2 mL) every 2 minutes titrated to MAP \geq 65.
- **Pediatric** = 1 - 10 mcg boluses (0.1 - 1 mL) every 2 minutes, titrated to age-appropriate blood pressure or other indications of adequate perfusion.

EMT-I/Paramedic

[Link to Thoracic Injury Management guideline.](#)

Needle Decompression (NDC) Procedure:

1. Select an appropriately sized needle/device based on patient anatomy.
2. Locate the anatomical landmark of the affected side. (See below)
3. Advance the needle over (superior) to the lower landmarked rib.
4. Advance the needle/device until it passes into the pleural space.
(Avoid advancing directly toward the heart or major vessels.)
5. Remove needle and advance catheter.
6. Reassess the patient, consider repeating the procedure as indicated.

Landmarks Adult & Pediatric:

For Anterior-Axillary Line (AAL): (Preferred site)

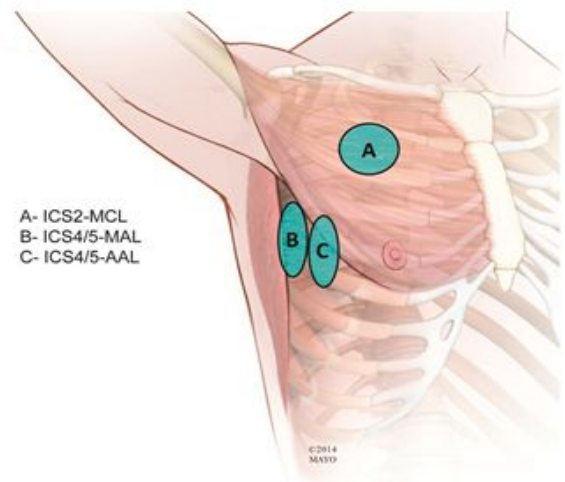
1. Locate the 4-5th intercostal space at the mid-axillary line (MAL) (B)
2. Move anterior to the point halfway between the MAL and MCL (C)
3. Insert the needle/catheter over the top of the rib. Remove needle.

For Midclavicular Line (MCL):

1. Locate the 2nd intercostal space (above 3rd rib) (A)
2. Insert the needle/catheter over the top of the 3rd rib. Remove needle.

Adult: Recommended
needle length 2.75 inches
(7 cm)/ 18 gauge

Pediatric: Recommended
needle length 1.25 inch/
14-18 gauge



Drip Calculations

[TOC](#)

| Lidocaine Infusion Chart Mix 2 g in 500 mL of NS (4/mg/mL) | | Epinephrine Infusion Chart Mix 2 mg of 1 mg/mL (2000mcg) in 250 mL of NS (8/mcg/mL) | |
|---|--|---|--|
| Dose ordered in mg/min | Amount to infuse in mcgtts/min or mL/hr | Dose ordered in mcg/min | Amount to infuse in mcgtts/min or mL/hr |
| 1 | 15 | 2 | 15 |
| 2 | 30 | 4 | 30 |
| 3 | 45 | 6 | 45 |
| 4 | 60 | 8 | 60 |
| 5 | 75 | 10 | 75 |

| Dopamine Infusion Chart Mix 400 mg in 250 mL of NS (1600 mcg/mL) | | | | | | | | | | | | | |
|--|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|
| Dose in mcg/kg/min | Body Weight (lbs on top, kg on bottom) | | | | | | | | | | | | |
| | 99 45 | 110 50 | 121 55 | 132 60 | 143 65 | 154 70 | 165 75 | 176 80 | 187 85 | 198 90 | 209 95 | 220 100 | 231 105 |
| 2.5 | 4 | 5 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 8 | 9 | 9 | 10 |
| 5 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 7.5 | 13 | 14 | 15 | 17 | 18 | 20 | 21 | 23 | 24 | 25 | 27 | 28 | 30 |
| 10 | 17 | 19 | 21 | 23 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 39 |
| 12.5 | 21 | 23 | 26 | 28 | 30 | 33 | 35 | 38 | 40 | 42 | 45 | 47 | 49 |
| 15 | 25 | 28 | 31 | 34 | 37 | 39 | 42 | 45 | 48 | 51 | 53 | 56 | 59 |
| 20 | 34 | 38 | 41 | 45 | 49 | 53 | 56 | 60 | 64 | 68 | 71 | 75 | 79 |

| Dopamine Infusion Chart Mix 400 mg in 250 mL of NS (1600 mcg/mL) | |
|--|--|
| Dose ordered in mcg/min | Amount to infuse in mcgtts/min or mL/hr |
| 400 | 15 |
| 800 | 30 |
| 1200 | 45 |
| 1600 | 60 |






Blood Thinner List

| <u>Antiplatelets</u> | <u>Anticoagulants</u> |
|---|---|
| <ul style="list-style-type: none"> • Salicylate (Aspirin) • Clopidogrel (Plavix®) • Prasugrel (Effient®) • Ticagrelor (Brilinta®) • Dipyridamole (Persantine®) • Dipyridamole/Aspirin (Aggrenox®) | <ul style="list-style-type: none"> • Enoxaparin (Lovenox®) • Dabigatran (Pradaxa®) • Rivaroxaban (Xarelto®) • Warfarin (Coumadin®) • Apixaban (Eliquis®) • Heparin • Fondaparinux (Arixtra®) |

FYI: The most common new drugs you will see patients on are Xarelto and Eliquis. Several cardiologists are starting to use these for patients with A-fib instead of Coumadin. Aggrenox is commonly used for stroke/TIA patients.

| Drug Category | BRAND NAMES of Blood Thinners | GENERIC NAMES of Blood Thinners |
|--|-------------------------------------|---------------------------------------|
| Vitamin K antagonists | Coumadin | Warfarin |
| Heparin (Carbohydrate) drugs | Clexane, Lovenox | Enoxaparin |
| | Hep-Lock, Hep-Pak | Heparin |
| | Fragmin | Dalteparin |
| | Arixtra | Fondaparinux |
| | Orgaran | Danaparoid |
| | Innohep | Tinzaparin |
| Thrombin (enzyme) inhibitors | Acova | Argatroban |
| | Refludan | Lepirudin rDNA |
| | Angiomax, Angiox | Bivalirudin |
| | Pradaxa | Dabigatran |
| Salicylate | Aspirin | Acetylsalicylic acid |
| P2Y (Platelet receptor) inhibitor | Plavix | Clopidogrel bisulphate |
| Thromboxane (specialized small molecule) inhibitor | Persantine Aggrenox | Dipyramidole Aspirin dipyramidole |

ECG Changes in Hyperkalemia

| QRS Complex P wave T wave | Approximate Serum Potassium (mmol/l) | ECG Change |
|---|--------------------------------------|--|
|  | ~4 | Normal |
|  | 6-7 | Peaked T waves |
|  | 7-8 | Flattened P wave, prolonged PR interval, depressed ST segment, peaked T wave |
|  | 8-9 | Atrial standstill, prolonged QRS duration, further peaking T waves |
|  | >9 | Sine wave pattern |

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

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


Pediatric Pain Scores: FLACC / CHEOPS

| FLACC Scale² | | 0 | 1 | 2 |
|--------------------------------|----------------------|---|---|---|
| 1 | Face | No particular expression or smile. | Occasional grimace or frown, withdrawn, disinterested. | Frequent to constant frown, clenched jaw, quivering chin. |
| 2 | Legs | Normal position or relaxed. | Uneasy, restless, tense. | Kicking, or legs drawn up. |
| 3 | Activity | Lying quietly, normal position, moves easily. | Squirming, shifting back and forth, tense. | Arched, rigid or jerking. |
| 4 | Cry | No crying (awake or asleep). | Moans or whimpers; occasional complaint. | Crying steadily, screams or sobs, frequent complaints. |
| 5 | Consolability | Content, relaxed. | Reassured by occasional touching, hugging or being talked to, distractible. | Difficult to console or comfort. |

REFERENCES:

1. Pain FACES based on Wong D.L., Hockenberry-Eaton M., Wilson D., Winkelstein M.L., Schwartz P.: Wong's Essentials of Pediatric Nursing, ed 6, St. Louis, 2001, p. 1301 © by Mosby, Inc.
2. From The FLACC: A behavioral scale for scoring postoperative pain in young children, by S Merkel and others, 1997, *Pediatr Nurse* 23(3), p. 293-297. ©1997 by Jannetti Co. University of Michigan Medical Center.
3. All other content and design ©Allen Perri Design Group, Ltd. DBA Healthcare Inspirations. All rights reserved.

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| Score | 0 | 1 | 2 |
|--------|----------|--------------------------|----------------|
| Cry | No cry | Crying, moaning | Scream |
| Facial | Smiling | Composed | Grimace |
| Verbal | Positive | None or other complaints | Pain complaint |
| Torso | Neutral | Shifting, tense, upright | Restrained |
| Legs | Neutral | Kicks, squirm, drawn up | Restrained |

Modified CHEOPS (Children's Hospital of Eastern Ontario Pain Scale)

ARIZONA CARDIAC RECEIVING & REFERRAL CENTERS

as of Jan 2023

[TOC](#)

| Cardiac Receiving Centers - can treat | |
|---|---------------|
| Abrazo Arizona Heart Hospital | Phoenix |
| Abrazo Arrowhead Campus | Glendale |
| Abrazo West Campus | Goodyear |
| Banner Boswell Medical Center | Sun City |
| Banner Del E. Webb Medical Center | Sun City West |
| Banner Desert Medical Center | Mesa |
| Banner Estrella Medical Center | Phoenix |
| Banner Heart Hospital/Banner Baywood Medical Center | Mesa |
| Banner Thunderbird Medical Center | Glendale |
| Banner University Medical Center Phoenix | Phoenix |
| Banner University Medical Center Tucson | Tucson |
| Carondelet St. Joseph's Hospital | Tucson |
| Carondelet St. Mary's Hospital | Tucson |
| Dignity Chandler Regional Medical Center | Chandler |
| Dignity Mercy Gilbert Medical Center | Gilbert |
| Dignity St. Joseph's Hospital and Medical Center | Phoenix |
| Flagstaff Medical Center | Flagstaff |
| Havasu Regional Medical Center | Lake Havasu |
| HonorHealth Deer Valley Medical Center | Phoenix |
| HonorHealth John C. Lincoln Medical Center | Phoenix |
| HonorHealth Scottsdale Osborn Medical Center | Scottsdale |
| HonorHealth Scottsdale Shea Medical Center | Scottsdale |
| HonorHealth Thompson Peak Medical Center | Scottsdale |
| Mayo Clinic Hospital | Phoenix |
| Mountain Vista Medical Center | Mesa |
| Northwest Medical Center | Tucson |
| Phoenix Children's Hospital | Phoenix |
| Tempe St. Luke's Hospital | Tempe |
| Tucson Medical Center | Tucson |
| Valleywise Health Medical Center | Phoenix |
| Verde Valley Medical Center | Cottonwood |
| Western Arizona Regional Medical Center | Bullhead City |
| Yavapai Regional Medical Center, West Campus | Prescott |
| Yuma Regional Medical Center | Yuma |

| Cardiac Referral Centers - can stabilize | |
|---|-----------------|
| Banner Goldfield Medical Center | Apache Junction |
| Banner Ironwood Medical Center | Queen Creek |
| HonorHealth Sonoran Crossing Medical Center | Phoenix |
| Oro Valley Hospital | Oro Valley |