

Yavapai Regional Medical Center
TRIAGE TREATMENT AND TRANSPORT
GUIDELINES

These guidelines are a collaborative effort between the following EMS entities, CAFMA, PFD, AMR, with clinical basis from the ADHS BEMSTS T3Gs and NASEMSO:

Updated and approved January 1st, 2025

DISCLAIMER

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 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 January 2019. 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.

On-line 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 burn assessment and 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:

<https://nasemso.org/wp-content/uploads/National-Model-EMS-Clinical-Guidelines-2017-PDF-Version-2.2.pdf>

Version 2.2 Updated January 5, 2019.

“TOC” = Table of Contents

Title	Page	Title	Page
Universal Care: Adult & Pediatric	6-7	Traumatic Brain Injury (EPIC-TBI): Adult & Pediatric	49
Functional Needs: Adult & Pediatric	8	Spinal Motion Restriction (SMR): Adult & Pediatric	50
Patient Refusals: Adult & Pediatric	9		
Abuse and Maltreatment: Adult & Pediatric	10	Poisoning/Overdose Universal Care: Adult & Pediatric	51
Agitated or Violent Patient/Behavioral Emergency: Adult & Pediatric	11	Acetylcholinesterase Inhibitor Poisoning (Nerve Agents, Organophosphates, and Carbamates): Adult & Pediatric	52
Pain Management: Adult & Pediatric	12	Radiation Exposure: External and/or Internal Contamination: Adult & Pediatric	53
Syncope and Presyncope: Adult & Pediatric	13	Dermal Chemical Burns: Adult & Pediatric	54
Chest Pain/Acute Coronary Syndrome/ST-segment Elevation Myocardial Infarction (STEMI): Adult	14	Stimulant Toxicity: Adult & Pediatric	55
Bradycardia: Adult & Pediatric	15	Cyanide Poisoning: Adult & Pediatric	56
Implantable Ventricular Assist Devices (VAD, LVAD, etc.): Adult & Pediatric	16	Carbon Monoxide/Smoke Inhalation: Adult & Pediatric	57
Tachycardia with a Pulse: Adult & Pediatric	17-18	Sulfide Poisoning	58
Stroke/Transient Ischemic Attack: Adult & Pediatric	19	Opioid Poisoning/Overdose: Adult & Pediatric	59
Bronchospasm (due to Asthma and Obstructive Lung Disease): Adult & Pediatric	20	Bites and Envenomations: Adult & Pediatric	60
Pulmonary Edema: Adult & Pediatric	21	Hyperthermia/Heat Exposure: Adult & Pediatric	61
Anaphylaxis and Allergic Reaction: Adult & Pediatric	22	Drowning: Adult & Pediatric	62
Altered Mental Status: Adult & Pediatric	23	Conducted Electrical Weapon (TASER): Adult & Pediatric	63
Hypoglycemia: Adult & Pediatric	24	Abnormal Vital Signs	64
Hyperglycemia: Adult & Pediatric	25	Neurologic Status Assessment: Adult & Pediatric	65-66
Seizures: Adult & Pediatric	26	Prehospital Stroke Scales	67
Nausea/Vomiting: Adult & Pediatric	27	Guidelines for field triage of injured patients United States, 2011	68

Title	Page	Title	Page
Shock: Adult & Pediatric	28	Appendix: Drip Calculations	71
Sepsis: Adult & Pediatric	29	Appendix: ECG Changes in Hyperkalemia	72
Cardiac Arrest (VF/VT/Asystole/PEA): Age 8 and Older	30	CCR/MICR	73
Cardiac Arrest (VF/VT/Asystole/PEA): Pediatric Age < 8	31	FLACC / CHEOPS	74
Post-Cardiac Arrest and Return of Spontaneous Circulation (ROSC) Care, Transport to Cardiac Receiving Center (CRC): Adult	32		
Obvious/Apparent Death: Adult & Pediatric	33	Refusal of Treatment and/ or Transportation	75-77
Do Not Resuscitate Status/Advanced Directives/Healthcare Power of Attorney (POA) Status: Adult & Pediatric	34	Communication Options	78
Non-Traumatic Termination of Resuscitative Efforts (TOR): Adult & Pediatric	35	Initial Medical Care – Special Circumstances	79
Traumatic Cardiac Arrest - Termination of Resuscitative (TOR) Efforts: Adult & Pediatric	36	On Scene Physician	80
Airway Management: Adult & Pediatric	37	Healthcare Facilities	81
		Stroke Centers	84
Pediatric Respiratory Distress – Wheezing < 2 Years Old (Bronchiolitis)	38	Trauma Center Locations	85
Pediatric Stridor (e.g., Croup)	39	Pediatric Intensive Care Units (PICU)	86
Pediatric Brief Resolved Unexplained Event (BRUE)/Pediatric Apparent Life Threatening Event (ALTE)	40	Management of Pediatric Cardiac Arrest	87
Neonatal Resuscitation	41-42	Perinatal Facilities	88-89
Childbirth	43	Blood Thinner List	90
Obstetrical/Gynecological Conditions	44	Useful Phone Numbers	91
General Trauma Management: Adult & Pediatric	45	Destination Guideline	92
Burns: Adult & Pediatric	46	AEMS Categorized Emergency Departments	93
External Hemorrhage Management: Adult & Pediatric	47	12 Lead Indications	94
Extremity Trauma: Adult & Pediatric	48	Utilization of Over-the-Counter Medications by Arizona EMS Agencies	95
Burn Triage	69-70		

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

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|---|---|
| <ul style="list-style-type: none"> Assess scene safety Use appropriate personal protective equipment (PPE) Determine number of patients Determine need for formal triage and additional resources Determine mechanism of injury Determine SMR needs | <ul style="list-style-type: none"> 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/GCS
- Evaluate gross motor and sensory function in all extremities
- Expose patient as appropriate to the chief complaint

Secondary Survey

- Obtain baseline vital signs
- Assess blood glucose 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

Paramedic

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| <ul style="list-style-type: none"> Consider appropriate airway management adjuncts. EtCO₂ monitoring should be performed after placement of any supraglottic or advanced airway. IV/IO access as indicated Initiate IV fluids as indicated | <ul style="list-style-type: none"> Use commercially available tool for medication dosing and equipment size selection. |
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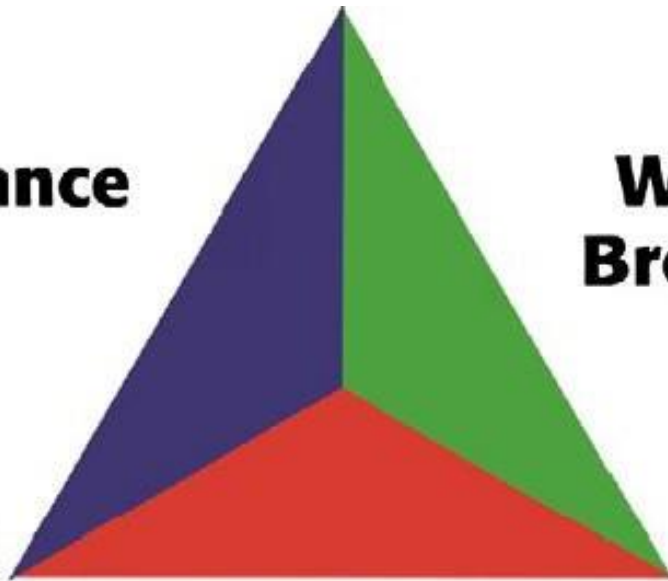


- Consider appropriate airway management adjuncts, escalate as indicated.
- 12-lead ECG should be performed early in patients with suspected cardiac complaints, goal within 5 minutes of patient contact.
- In patients with cardiac or respiratory complaints:
 - Continuous cardiac monitoring
 - Consider waveform capnography (EtCO₂) in addition to pulse oximetry (SaO₂)



Appearance

- Abnormal Tone
- ↓ Interactiveness
- ↓ Consolability
- Abnormal Look/Gaze
- Abnormal Speech/Cry



Work of Breathing

- Abnormal Sounds
- Abnormal Position
- Retractions
- Flaring
- Apnea/Gasping

Circulation to Skin

- Pallor
- Mottling
- Cyanosis

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 family, 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 can be an excellent source of information and the presence of a family member can have a calming influence on some of these patients
 - Transport patients with all assistance adjuncts and service animals if feasible

Paramedic

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, providers 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 his/her illness or impairment, as well as the possible risks associated with refusing 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.

EMT

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| <ul style="list-style-type: none"> • EMS providers should make all reasonable efforts to avoid danger to themselves. • 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 for a minor to have a parent or legal guardian who can provide consent for treatment on behalf of the minor. However, EMS providers may provide emergency treatment when a parent is not available to provide consent. • Parent or legal guardian must refuse care on behalf of a minor. • Parents may not refuse care if abuse or neglect is suspected. 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 patient's understanding of the medical emergency: the possible medical problems, the proposed medical care, the benefits of medical care and risks of refusal.
- Contact on-line medical direction based on local protocol.
- Provider must document patient encounter.

Paramedic

Abuse and Maltreatment: Adult & Pediatric

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.

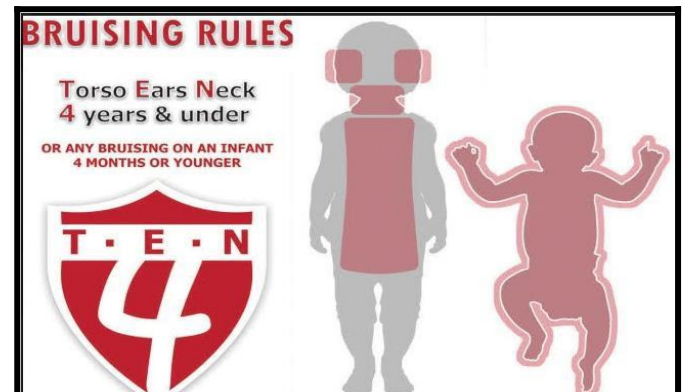
EMS role is to:

- 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 suspected human trafficking or sex trafficking of a minor per [A.R.S. §13-3620.A](#) and [A.R.S. §13-3212](#)
 - Notify the following applicable entities:
 1. Law enforcement and one of the following:
 - a. Arizona Department of Child Safety (1-888-SOS-CHILD (1-888-767-2445))
 - b. Adult Protective Services Central Intake Unit (1-877-SOS-ADULT (1-877-767-2385))
<https://www.azdes.gov/landingforms.aspx?form=13004>
 2. A tribal law enforcement or social services agency for any Native American minor who resides on an Indian reservation
- NOTE:** Reporting to hospital personnel *does not* qualify as having fulfilled the mandatory reporting requirement.
- Leave the investigation to law enforcement.

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.



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.

Excludes: patients exhibiting agitated or violent behavior due to medical conditions including, but not limited to:

- Acute head trauma.
- Metabolic disorders (e.g. hypoglycemia, hypoxia).

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**.
- Obtain blood glucose level (if 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.
- If in police handcuffs, key must be in ambulance with patient at all times.

Paramedic

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| <ul style="list-style-type: none"> • Apply cardiac monitor as soon as possible, particularly when chemical restraints have been administered. • Utilize EtCO₂ if available for all patients receiving chemical restraints. • Consider chemical restraints 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 – Lorazepam: 2-4 mg IM or 2 mg IV/IO
Max total dose 4 mg – Ketamine Must Patch (Paramedic only): Not indicated for postictal patients with agitation. – 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"> • Chemical restraints should be a later consideration for pediatric patients. Call for medical direction. • Consider chemical restraints 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 – Lorazepam: 0.05 mg/kg IM/IV/IO. Max initial dose 2 mg IV/IO and 4 mg IM |
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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:

- Hypotension for age
- SaO₂ < 90%
- Hypoventilation
- Allergy to morphine or fentanyl
- Active labor

EMT

- Initiate [Universal Care](#).
- Use an age-appropriate pain scale to assess pain, such as Numeric 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 SaO₂ ≥ 94%.

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 Numeric Rating Scale.



Paramedic

- **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.
- Reassess pain every 5 minutes, observe for adverse effects, and re-dose as above.

- **Fentanyl:** 1 mcg/kg/dose IN/IV/IO/IM, max initial dose 100 mcg, max total dose 200 mcg.
- **Ketamine: Must Patch (Paramedic only)** 0.25 mg/kg IV/IO, max per dose 25 mg, max total dose 100 mg.

- 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.



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 \(EPIC-TBI\)](#).
- 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](#), [Suspected Stroke](#), [Hypoglycemia](#).

EMT

- Initiate [Universal Care](#).
- Assess blood glucose, refer to [Hypoglycemia](#) as indicated.

Paramedic

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| <ul style="list-style-type: none"> • If symptoms of poor perfusion, give 500 mL IV/IO fluid bolus, and repeat as necessary. Max 30 ml/kg. Titrate to 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 methods. • Refer to Shock as needed. |
|---|--|



- Place on cardiac monitor – treat arrhythmias if present.
 - [Bradycardia](#)
 - [Tachycardia with a Pulse](#)
 - [Cardiac Arrest \(VF/VT/Asystole/PEA\): Age 8 and Older](#) or [Cardiac Arrest \(VF/VT/Asystole/PEA\): Pediatric Age < 8](#)
- Perform 12-lead ECG.

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

Includes: patients with non traumatic chest pain or anginal equivalents. This includes discomfort in the arm, jaw, or epigastric region of suspected cardiac origin, shortness of breath, sweating, nausea, vomiting, and dizziness. Atypical or unusual symptoms are more common in women, the elderly and diabetic patients. Patients may also present with CHF, syncope, and/or shock.

Caution: do not give **Nitroglycerin** to any patient who has taken PDE5-inhibitor medication (sildenafil, tadalafil) for erectile dysfunction or pulmonary hypertension within 24-48 hours.





EMT

- Initiate **Universal Care**.
- If short of breath, hypoxic, or with obvious signs of heart failure, administer oxygen and titrate to SaO₂ of ≥ 94%
- Administer **Aspirin** 325 mg PO or 324 mg chewed.
- Assist patient in self-administration of **Nitroglycerin** 0.4 mg tablets or spray if prescribed to patient and SBP > 100 mm Hg.
 - Repeat every 3-5 minutes x 2, until pain resolves, as blood pressure allows.
 - Contraindicated with erectile dysfunction medication (sildenafil, tadalafil) within 24-48 hours.

Paramedic

- Administer **Nitroglycerin** 0.4 mg SL tablets or 1 full spray if SBP > 100 mm Hg.
 - May repeat every 3-5 minutes x 2, until pain resolves, as blood pressure allows.
 - Contraindicated with erectile dysfunction medication within 24-48 hours.
- *For STEMI only:* consider treating chest pain unresponsive to nitrates:
 - **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.
- Additional treatment option for STEMI chest pain unresponsive to nitrates:
 - **Fentanyl** 0.5 mcg/kg/dose IN/IV/IO, max total dose 200 mcg.
- Obtain 12 lead ECG and transmit, goal within 5 minutes of patient contact.
- Use caution administering nitroglycerin to patients that demonstrate inferior STEMI patterns (STE in II, III, aVF).
- Transport patient to **Cardiac Receiving or Referral Center**
- 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 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): Pediatric Age < 8. 
<p>Paramedic</p>	
<ul style="list-style-type: none"> If signs of poor perfusion, give 500 mL IV/IO fluid bolus (unless signs of fluid overload). May repeat to maximum of 30 ml/kg. 	<ul style="list-style-type: none"> If signs of poor perfusion, give 20 mL/kg IV/IO fluid bolus (unless signs of fluid overload). May repeat as needed to a max 60 mL/kg. 
<ul style="list-style-type: none"> Place on cardiac monitor. Perform 12-lead ECG. 	
<ul style="list-style-type: none"> If bradycardia and symptoms of hemodynamic instability continue, consider the following: <ul style="list-style-type: none"> Atropine Sulfate: 1 mg IV/IO every 3-5 min, max total dose 3 mg. Epinephrine: <ul style="list-style-type: none"> Drip 0.02 - 0.2 mcg/kg/min (or) Push Dose *** 10-20 mcg boluses (1-2 mL) every 2 minutes. 	<ul style="list-style-type: none"> If bradycardia and symptoms of hemodynamic instability continue, consider the following: <ul style="list-style-type: none"> Epinephrine***: Push 1 mcg/kg (0.1 mL/kg), max single dose 10 mcg (1 mL) every 3-5 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 sedation or pain control per Management of Acute Pain. Utilize EtCO₂ if available for all patients receiving sedation. 	
<ul style="list-style-type: none"> Sedation (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. 	<ul style="list-style-type: none"> Sedation: <ul style="list-style-type: none"> Midazolam: 0.1 mg/kg IV slowly, every 2-3 minutes, max dose 5mg. Lorazepam: 0.1 mg/kg IV every 10 minutes, max dose 4 mg.

Implantable Ventricular Assist Devices (VAD, LVAD, etc.): 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).

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 advice.
 - 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
- 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.

- Assess for alarms.
- Assess for possible pump malfunction – mechanical hum should be present on auscultation.
- Contact the patient’s VAD-trained companion, if available.
- Check all the connections to system controller, change VAD batteries, and/or change system controller if indicated.
- Follow appropriate cardiovascular condition-specific protocol(s) as indicated.
- If patient is experiencing VAD-related complications or cardiovascular problems, transport destination preference is his/her VAD program, nearest VAD-trained facility, nearest appropriate facility.

Paramedic

- Establish IV/IO.
 - If patient has a functioning VAD and is hypoperfusing (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.
 - May repeat up to 3 times based on patient’s condition and clinical impression.
 - **Do not administer nitroglycerin.**
-
- Apply cardiac monitor.
 - Acquire 12-lead EKG.
 - Patient’s baseline may be arrhythmia; obtain VAD coordinator’s advice prior to administering antiarrhythmics.

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.)

Paramedic

All Unstable tachycardias

- Deliver a synchronized cardioversion. 

Consider the following if stable symptomatic tachycardia (if known WPW contact on-line 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 MUST PATCH**
 - 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 MUST PATCH**
 - 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

- Adenosine**
 - 6 mg IV/IO.
 - If tachycardia continues, give 12 mg IV.
 - Always follow with 10 mL fluid bolus.
- Amiodarone**
 - 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**
 - 150 mg IV over 10 minutes; may repeat.

Torsades (In addition to above)

- Magnesium sulfate**
 - 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 contact on-line 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

- Adenosine** (for SVT with aberrancy)
 - 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.
- Amiodarone**
 - 5 mg/kg IV/IO over 10 minutes, max 150 mg over 10 minutes.



Note the change in dosing for Diltiazem. Main thing to recognize is that you give half of weight based dose first. Ex. 100 kg patient = 25mg total dose, give 12.5mg for first dose.

Stroke/Transient Ischemic Attack: Adult & Pediatric

Includes:

Acute neurologic deficit such as facial droop, localized weakness, gait disturbance, 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:

If trauma and GCS < 14, refer to **Traumatic Brain Injury (EPIC-TBI)** and **General Trauma Management**. If seizure activity present, refer to **Seizures**.

EMT

- | | |
|--|---|
| <ul style="list-style-type: none"> • Initiate Universal Care. • Use a validated prehospital stroke scale. • Document patient weight and last known well time or time of onset. • Obtain blood glucose level. | <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. • Call receiving facility or base hospital to ensure appropriate destination decision. |
|--|---|



Paramedic

- | | |
|--|---|
| <ul style="list-style-type: none"> • Transport to Stroke Center • Notify receiving facility as soon as possible. | <ul style="list-style-type: none"> • Transport to most appropriate facility, <u>per local protocols</u>. • Notify receiving facility as soon as possible. |
|--|---|



Bronchospasm (due to Asthma and Obstructive Lung Disease):

Adult & Pediatric

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 \(Bronchiolitis\)](#)

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

Excludes: anaphylaxis, bronchiolitis, croup, epiglottitis, foreign body aspiration, drowning, congestive heart failure, trauma. Refer to [Pediatric Stridor \(e.g., Croup\)](#)

EMT

- Initiate [Universal Care](#).
- Provide supplemental O₂ as needed to maintain SaO₂ $\geq 94\%$.
- Assist patient with own medication: **Albuterol** by nebulization or metered dose inhaler.

- Maintain position of comfort.
- Suction the nose and/or mouth (via bulb, Yankauer or catheter) if excessive secretions are present.



Paramedic

- **Albuterol:** 5mg nebulized; Repeat as needed.
 - **Ipratropium:** 0.5 mg nebulized with albuterol, may repeat x 2
 - **Epinephrine** (consider for severe respiratory distress without clinical improvement)
 - 1 mg/mL, 0.01 mg/kg IM, max dose 0.3 mg.
 - Initiate EtCO₂ monitoring.
-
- IV/IO placement IF:
 - Clinical evidence of dehydration.
 - Need for IV medication(s).
 - Steroids:
 - **Methylprednisolone**
 - 2 mg/kg IV/IM max dose 125 mg **Magnesium sulfate** (consider for severe respiratory distress)
 - (40 mg/kg, max dose =2 g) IV over 15-30 minutes
-
- **NIPPV: Non-invasive positive pressure ventilation**
 - CPAP/B-PAP.
 - 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.](#)
 - Supraglottic devices and intubation should be utilized only if BVM ventilation fails.
 - BVM ventilation is reasonable for pediatric patients or when non-invasive positive pressure ventilation is not available.

Pulmonary Edema: Adult & Pediatric

Includes:

- Respiratory distress with signs of pulmonary edema and fluid overload .

Excludes:

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

EMT



- Initiate [Universal Care](#).
- Manage airway as necessary.
- Provide supplemental O₂ as needed to maintain SaO₂ ≥ 94%.

Paramedic

- | | |
|--|--|
| <ul style="list-style-type: none"> • Nitroglycerin: 0.4 mg SL tablets or 1 full spray if SBP > 100 <ul style="list-style-type: none"> – Repeat every 3 minutes as blood pressure allows – Contraindicated when patients have taken an PDE5-inhibitor medication (sildenafil, tadalafil) for erectile dysfunction or pulmonary hypertension within 24-48 hours. | <ul style="list-style-type: none"> • Nitroglycerin not indicated in pediatric patients. |
|--|--|



- Initiate EtCO₂ monitoring.
- Initiate continuous cardiac monitoring.
- Perform 12-lead ECG, refer to [Chest Pain/ACS/STEMI](#) as indicated.
- **NIPPV: Non-invasive positive pressure ventilation**
 - CPAP/B-PAP.
 - 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.](#)

Includes: patients of all ages with known or suspected allergic reaction and/or anaphylaxis.	
EMT	
<ul style="list-style-type: none"> 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. 	
Determine whether: <ul style="list-style-type: none"> <u>Anaphylaxis:</u> <ul style="list-style-type: none"> - severe and acute onset (and) - respiratory compromise (dyspnea, wheeze, stridor, hypoxemia) - decreased BP (SBP<90), (or) - combination of 2 of the following: <ul style="list-style-type: none"> o Urticaria o Swollen tongue and lips o Vomiting o abdominal pain o Syncope o Incontinence <u>Non-anaphylactic allergic reaction:</u> <ul style="list-style-type: none"> - localized symptoms, - localized angioedema without airway or GI symptoms, - hives alone. 	<ul style="list-style-type: none"> Hypotension: Minimum SBP = $70 + 2x$ (age in years.) (Refer to Abnormal Vital Signs) <div style="text-align: right; margin-top: 10px;">  </div>
<ul style="list-style-type: none"> Any patient with concern for anaphylaxis or who has received epinephrine IM, patient should be transported to the ED, even if symptoms have resolved. If signs of anaphylaxis, assist with patient's own auto-injector, when available. 	
Paramedic	
<ul style="list-style-type: none"> If signs of anaphylaxis and no auto-injector available, administer Epinephrine 1 mg/mL, 0.3 mg IM (anterolateral thigh). If signs of anaphylaxis persist, additional IM Epinephrine can be repeated every 5-15 minutes. 	<ul style="list-style-type: none"> If signs of anaphylaxis and no auto-injector available, administer Epinephrine 1 mg/mL <ul style="list-style-type: none"> - 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 5-15 minutes. <div style="text-align: right; margin-top: 10px;">  </div>
<ul style="list-style-type: none"> If respiratory distress with wheezing, consider administering: <ul style="list-style-type: none"> - Albuterol 5 mg nebulized (or) - Epinephrine: 1 mg/mL, 3 mg in 3 mL NS nebulized. For stridor, consider administering Epinephrine: 1 mg/mL, 5 mg (5 mL in 3 mL NS) nebulized 	
Assess for sign of Shock , fluid bolus IV/IO as indicated.	
<ul style="list-style-type: none"> For urticaria, rash, itching, or anaphylaxis, administer: <ul style="list-style-type: none"> - 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 along with at least 60 mL/kg IV fluid bolus, start Epinephrine IV drip, 0.5 mcg/kg/minute. 	

Altered Mental Status: Adult & Pediatric

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

Assessment: Evaluate for treatable causes, refer to specific guidelines when applicable.

- [Shock](#)
- Dysrhythmia
- [Hypoglycemia](#), [Hyperglycemia](#), acidosis, metabolic disorder
- Intoxication
- [Hyperthermia](#), hypothermia
- [Opioid poisoning/Overdose](#)
- [Agitated or Violent Patient/Behavioral Emergency](#)
- [Seizures](#)

EMT

- Initiate [Universal Care](#).
- Check blood glucose, treat [Hypoglycemia](#) or [Hyperglycemia](#) if indicated.
- Assess for possible stroke using a validated [prehospital stroke scale](#).
- Check temperature – refer to [Sepsis](#) as needed.

- **[Naloxone](#):** SPECIAL TRAINING REQUIRED (STR)
 - Intranasal (IN)
 - 4 mg/0.1 mL nasal spray
 - 1 spray in single nostril
 - (or)
 - 2 mg/2 mL single dose Luer-Jet® prefilled syringe with mucosal atomizer device (MAD)
 - Divide dose equally between nostrils to max of 1 mL per nostril
 - Intramuscular (IM)
 - 2 mg/0.4 mL auto-injector
 - Place on thigh and inject 0.4 mL
- All routes may be repeated as indicated.

Paramedic

- IVF if indicated refer to [Shock](#).
- **[Naloxone](#):** 0.4-2 mg IV/IM/IN. Repeat if indicated.
- **[Thiamine 100 mg IV/IM](#):** For suspected alcoholism, malnutrition or cachexia.



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





- Treat dysrhythmias as indicated.
- Treat [Shock](#) as indicated.

- Maintain ventilatory support in least invasive way possible.
- BVM ventilation is reasonable for pediatric patients.



<p>Includes: Adult or pediatric patient with blood glucose < 60 mg/dL with symptoms of hypoglycemia.</p>	
<p>EMT</p>	
<ul style="list-style-type: none"> Initiate Universal Care. Assess GCS, mental status, stroke tool (FAST) and refer to Altered Mental Status or Suspected Stroke as needed. 	
<ul style="list-style-type: none"> If hypoglycemia (glucose < 60 mg/dL), administer Glucose 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) 
<ul style="list-style-type: none"> Reassess vital signs, mental status, finger stick blood glucose. 	
<ul style="list-style-type: none"> Criteria for release without transport: <ul style="list-style-type: none"> Patient returns to normal mental status, with no focal neurologic signs/symptoms after receiving glucose/dextrose, Repeat glucose is > 80 mg/dL, Patient takes insulin or metformin (use caution with patients taking long-acting insulins (Lantus, Levemir, NPH) or other oral diabetic medications), Tolerating oral intake, Patient or legal guardian refuses transport, A reliable adult will be staying with patient, No major co-morbid symptoms exist (chest pain, dyspnea, seizures, intoxication). Document patient's current medications and doses. 	
<p>Paramedic</p>	
<ul style="list-style-type: none"> If hypoglycemia (glucose < 60 mg/dL), administer <ul style="list-style-type: none"> Dextrose 25 g IV/IO <ul style="list-style-type: none"> D₁₀ – max dose 250 mL, titrate to effect (or) D₅₀ – 50 mL (or) Glucagon 1 mg IM/IN 	<ul style="list-style-type: none"> If hypoglycemia (glucose < 60 mg/dL), administer <ul style="list-style-type: none"> Dextrose 0.5 g/kg IV/IO (or) <ul style="list-style-type: none"> D₁₀ – 5 mL/kg (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) 
<ul style="list-style-type: none"> Reassess VS, mental status, finger stick blood glucose. If continued altered mental status and hypoglycemia, may repeat dose of dextrose or glucagon until symptoms have resolved. Patients with Insulin pump: <ul style="list-style-type: none"> ALOC/AMS – stop insulin pump or disconnect at insertion site. GCS 15 and able to take oral glucose – leave connected with pump running. 	

EMT	
<p>Includes:</p> <ul style="list-style-type: none"> • 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. <p>Excludes: Patient in Cardiac Arrest (VF/VT/Asystole/PEA): Age 8 and Older, Cardiac Arrest (VF/VT/Asystole/PEA): Pediatric Age < 8.</p>	
Paramedic	
<ul style="list-style-type: none"> • Initiate Universal Care. • Obtain blood glucose level. • Assess GCS, mental status, prehospital stroke scale, and refer to Altered Mental Status or Suspected Stroke accordingly. • Evaluate for possible sepsis and septic shock, refer to Sepsis or Shock as needed. 	<ul style="list-style-type: none"> • If hyperglycemia (glucose >250 mg/dL) with symptoms of dehydration, vomiting, or altered level of consciousness, give 10mL/kg IV/IO fluid bolus. 
<ul style="list-style-type: none"> • Reassess and repeat fluid bolus to max of 30 mL/kg. • Transport to closest appropriate receiving facility. 	
<ul style="list-style-type: none"> • Obtain 12-lead ECG to assess for peaked T waves or other findings consistent with hyperkalemia. Refer to ECG Changes in Hyperkalemia as needed. • If findings of hyperkalemia are present, maintain continuous cardiac monitoring, administer IV fluids and: <ul style="list-style-type: none"> - Calcium Gluconate 2 g IV/IO over 5 minutes (or) - Calcium Chloride 1 g IV/IO over 5 minutes, ensure IV patency and do not exceed 1 mL/minute (and) - Albuterol 5 mg nebulized. 	<ul style="list-style-type: none"> • Maintain ventilatory support in least invasive way possible. • BVM ventilation is reasonable for pediatric patients. • Obtain 12-lead ECG to assess for peaked T waves or other findings consistent with hyperkalemia. Refer to ECG Changes in Hyperkalemia as needed. • If findings of hyperkalemia are present, maintain continuous cardiac monitoring, administer IV fluids and: <ul style="list-style-type: none"> - Calcium Gluconate 100 mg/kg IV/IO over 5 minutes , max dose 2 g (or) - Calcium Chloride 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. 

Seizures: Adult & Pediatric

Includes: Ongoing seizure upon EMS arrival or seizure lasting > 5 minutes, more than two seizures in one hour, or 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.
- Check blood glucose – refer to [Hypoglycemia](#).

Paramedic

- | | |
|---|---|
| <ul style="list-style-type: none"> • Establish IV access. • If blood glucose <60 mg/dL, refer to Hypoglycemia. | <ul style="list-style-type: none"> • If blood glucose <60 mg/dL, refer to Hypoglycemia. |
|---|---|



- Administer **benzodiazepines**.
 - If age >60, consider reducing dose by half.
- May repeat for total of 2 doses regardless of route.
- **Midazolam: 0.2 mg/kg IM/IN**
 - Max 5 mg if <40kg.
 - Max 10 mg if ≥40kg.
- **Lorazepam, Midazolam: 0.1 mg/kg IV**
 - Administer slowly over 2 minutes.
 - Max single dose 4 mg.
- If in 3rd trimester of pregnancy or postpartum up to six weeks, administer **Magnesium sulfate** 4 g slow push IV/IO over 5 minutes. Refer to [Obstetrical/Gynecological Conditions](#).
- Initiate continuous cardiac and EtCO₂ monitoring.

<p>Includes: Patients currently nauseated and/or vomiting.</p>	
<p>EMT</p>	
<ul style="list-style-type: none"> Initiate Universal Care. 	
<p>Paramedic</p>	
<ul style="list-style-type: none"> Consider 500 mL IV/IO fluid bolus, unless contraindicated (history of CHF, renal failure). May repeat as indicated to a max of 30 mL/kg. 	<ul style="list-style-type: none"> Consider 10-20 mL/kg IV/IO fluid bolus, unless contraindicated (history of CHF, renal failure).  May repeat as indicated.
<ul style="list-style-type: none"> Ondansetron 4 mg PO/SL/IV. Contraindicated for known or suspected prolonged QT syndrome. 	<ul style="list-style-type: none"> Patients 6 mo. – 14 yo.: <ul style="list-style-type: none"> – Ondansetron 0.15 mg/kg PO/SL/IV, max 4 mg. Contraindicated for known or suspected prolonged QT syndrome. 

Shock: Adult & Pediatric

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

Emergency medical conditions can trigger signs of poor perfusion such as these:

- Tachycardia out of proportion to temperature
- Altered mental status
- Delayed/flash capillary refill >2 seconds
- Hypoxia
- Decreased urine output
- Tachypnea
- Hypotension for age, refer to [Abnormal Vital Signs](#)
- Weak, decreased or bounding pulses
- Cool/mottled or flushed/ruddy skin

EMT

- Initiate [Universal Care](#).
- Check blood glucose, treat per [Hypoglycemia](#) or [Hyperglycemia](#) as indicated.
- If pregnant, place in left lateral recumbent position.

Paramedic

- | | |
|--|---|
| <ul style="list-style-type: none"> • Administer 30 mL/kg, max 1 L, IV/IO fluid bolus over < 15 minutes. • May repeat up to 3 times until either: <ul style="list-style-type: none"> - Vital signs/perfusion normal (or) - Rales, crackles or respiratory distress. | <ul style="list-style-type: none"> • Administer 30 mL/kg, max 1 L, IV/IO fluid bolus over <15 minutes, using push-pull methods. • May repeat up to 3 times until either: <ul style="list-style-type: none"> - Vital signs/perfusion normal (or) - Rales, crackles or respiratory distress or hepatomegaly. |
|--|---|



- Reassess after each IVF bolus.

- If history of adrenal insufficiency (congenital adrenal hyperplasia, daily steroid use) refer to Adrenal Insufficiency treatment. Assist with patient's own hydrocortisone.

- For shock unresponsive to IV fluids, or cardiogenic shock with signs of fluid overload, consider vasopressors, refer to [Appendix: Drip Calculations](#):
 - [Epinephrine](#): 0.05-0.3 mcg/kg/min IV/IO
 - [Dopamine](#): 2-20 mcg/kg/min IV/IO
- [For Post-partum hemorrhage](#)
 - [Pitocin](#): 10-20 Units in 1000 ml NS titrate to response. After delivery of placenta.

Adrenal Insufficiency Treatment:






- Patient's hydrocortisone (Solu-Cortef) is preferred:
 - ≥ 12 years: 100 mg IM.
- **Methylprednisolone:**
 - 2 mg/kg IV/IO, max 125 mg.

Adrenal Insufficiency Treatment:

- Patient's hydrocortisone (Solu-Cortef) is preferred:
 - 0-3 years: 25 mg IM.
 - 3-12 years: 50 mg IM.
 - ≥ 12 years: 100 mg IM.
- **Methylprednisolone:**
 - 2 mg/kg IV/IO, max 125 mg.



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

1	<ul style="list-style-type: none"> Suspected 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>Suspected 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 Immunocompromise, 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 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>Exam Criteria</u> </td> <td style="text-align: center;">0-2 y</td> <td style="text-align: center;">$\geq 2-10$ y</td> <td style="text-align: center;">$\geq 10-14$ y</td> </tr> <tr> <td style="text-align: center;">HR</td> <td style="text-align: center;">>190</td> <td style="text-align: center;">>140</td> <td style="text-align: center;">>100</td> </tr> <tr> <td style="text-align: center;">RR</td> <td style="text-align: center;">>50</td> <td style="text-align: center;">>34</td> <td style="text-align: center;">>30</td> </tr> <tr> <td style="text-align: center;">Pulses</td> <td colspan="3" style="text-align: center;">Decreased, weak, or bounding</td> </tr> <tr> <td style="text-align: center;">Cap refill</td> <td colspan="3" style="text-align: center;">Delayed (> 2 sec) or flash (< 1 sec)</td> </tr> <tr> <td style="text-align: center;">Skin</td> <td colspan="3" style="text-align: center;">Mottled, ruddy, petechiae</td> </tr> <tr> <td style="text-align: center;">Mental status</td> <td colspan="3" style="text-align: center;">Decreased, irritability, confusion, inappropriate crying, poor interaction, diminished arousability</td> </tr> </table>	<u>Exam Criteria</u> 	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		
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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 	<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](#).

Paramedic

- Administer 20 mL/kg IV/IO fluid bolus, refer to treatment for [Shock](#) as indicated.
- 2 large bore IVs preferred for IV fluids. Consider IO placement early.

Cardiac Arrest (VF/VT/Asystole/PEA): Age 8 and Older

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:

- Patients suffering cardiac arrest due to severe hypothermia.
- 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

- For patients with PRESUMED CARDIAC ETIOLOGY for cardiac arrest immediately perform 200 continuous chest compressions ([CCR/MICR](#)).
 - Compression rate: 100-120/minute.
 - Depth at least 2 to 2.4 inches (5 cm).
 - Ensure adequate recoil.
 - Chest compressions should resume immediately after defibrillation attempts with no pauses for pulse checks.
 - Initiate passive oxygenation at flush rate O₂ (non-rebreather mask with oral airway or supraglottic airway (STR)).
 - **Advanced airway IE: I-Gel/ETT should be performed as soon as resources become available.**
- If NON-CARDIAC ETIOLOGY, immediately begin manual ventilation (BVM or supraglottic airway (STR)) at rate of 10 breaths per minute.
- [Attach AED without interruption of chest compressions](#).
 - If arrest witnessed by EMS or adequate bystander CPR has been performed, immediately perform rhythm analysis and defibrillation, if appropriate.
 - If arrest is unwitnessed or inadequate bystander chest compressions, perform 200 compressions prior to rhythm analysis.
- Perform 4 rounds chest compressions. Check rhythm (and pulse when indicated), defibrillate if indicated between rounds.
- CARDIAC ETIOLOGY: If no response after 8 minutes, 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.



Paramedic

- IV/IO access as soon as possible without interrupting chest compressions.
 - [Apply cardiac monitor/defibrillator](#).
 - Defibrillate at 360 J monophasic or biphasic equivalent.
 - Place advanced airway after 4 rounds of compressions (or immediately if NON-CARDIAC ETIOLOGY suspected).
 - **Epinephrine:** 1 mg (0.1 mg/mL) IV/IO every 3-5 minutes (max 3 total doses of epinephrine).
 - For shock-refractory VF/Pulseless VT, consider:
 - **Amiodarone:** 5 mg/kg, max 300 mg IV/IO, repeat at half the original dose (or)
 - **Lidocaine:** 1-1.5 mg/kg IV/IO, may repeat at half the original dose every 5 minutes (max total dose of 3 mg/kg).
 - For Torsades de Pointes:
 - **Magnesium sulfate:** 2 g IV/IO.
- Consider reversible causes of cardiac arrest:
- Hyperkalemia
 - Hypovolemia
 - Tricyclic antidepressant overdose
 - Tension pneumothorax
 - If patient remains unresponsive to treatment – refer to [Non-Traumatic TOR](#).
- If findings of [hyperkalemia](#) are present, administer IV fluids and:
 - **Calcium Gluconate** : 2 g IV/IO over 5 minutes (or)
 - **Calcium Chloride:** 1 g IV/IO over 5 min, ensure IV patency and do not exceed 1 mL/minute.
 - If suspected Acidosis or Tricyclic Antidepressant overdose
 - **Sodium Bicarbonate 8.4%:** 1 mEq/kg x 1





Includes: pediatric patients aged < 8 with cardiac arrest.

Excludes:

- Newborns, refer to [Neonatal Resuscitation](#).
- Patients suffering cardiac arrest due to severe hypothermia.
- Patients with identifiable Do Not Resuscitate (or equivalent) order, refer to [Do Not Resuscitate](#).
- Patients in arrest due to traumatic etiology, refer to [General Trauma Management](#).

EMT

- Initiate chest compressions.
 - Compression rate: 100-120/minute.
 - Depth: at least greater than or equal to one-third AP chest diameter. No deeper than 2.4 inches.
 - Ensure adequate recoil.
 - Chest compressions should resume immediately after defibrillation attempts with no pauses for pulse checks.
- Attach AED.
 - If arrest witnessed by EMS or adequate bystander CPR has been performed, immediately perform rhythm analysis and defibrillation, if appropriate.
 - An AED equipped with a pediatric attenuator is preferred for infants and children; if not available, may use adult AED.



- Ensure patent airway - place OPA or supraglottic airway (STR), begin ventilations.
- Airway management should not interrupt compressions.
- Compression-to-breath ratio, if ventilating with BVM:
 - Single rescuer = 30:2 or 2-rescuers = 15:2

Paramedic

- IV/IO access as soon as possible without interrupting chest compressions.
- Place advanced airway as indicated.
- Apply cardiac monitor/defibrillator.
- If arrest witnessed by EMS or adequate bystander CPR has been performed, immediately perform rhythm analysis and defibrillation, if appropriate.
- Defibrillate at 2 J/kg, second shock 4 J/kg, subsequent shocks greater than or equal to 4 J/kg, max 10 J/kg.
- Epinephrine: every 3-5 minutes
 - 0.1 mg/mL, 0.01 mg/kg IV/IO (or)
 - 1 mg/mL, 0.1 mg/kg ETT.
- For VF/Pulseless VT, consider:
 - Amiodarone: 5 mg/kg IV/IO (max 300 mg) (or)
 - Lidocaine: 1 mg/kg IV/IO.
- For Torsades de Pointes:
 - Magnesium sulfate: 25-50 mg/kg IV/IO.



Consider reversible causes of cardiac arrest:

- Hyperkalemia
- Hypovolemia
- Tension pneumothorax
- If [ECG Changes in Hyperkalemia](#) are present, administer IV fluids and:
 - Calcium Gluconate: 100 mg/kg IV/IO over 5 minutes, max dose 2 g (or)
 - Calcium Chloride: 20 mg/kg (0.2 mL/kg) IV/IO over 5 min, max dose 1 g, ensure IV patency and do not exceed 1 mL/minute.

Post-Cardiac Arrest and Return of Spontaneous Circulation (ROSC)^{TOC}

Care, Transport to Cardiac Receiving Center (CRC): Adult

Includes: patients with return to spontaneous circulation following cardiac arrest resuscitation.
EMT
<u>Support Airway/Oxygenation/Ventilation.</u> <ul style="list-style-type: none"> • Titrate oxygen to SaO₂ of ≥ 94%. Avoid hyperoxygenation. • Maintain ventilation rate of 8 bpm if no spontaneous respirations. Avoid hyperventilation.
<u>Evaluate and treat hypoglycemia.</u> <ul style="list-style-type: none"> • Check blood glucose. • If hypoglycemic (BG <60 mg/dL), refer to Hypoglycemia. • If hyperglycemic, notify hospital on arrival, refer to Hyperglycemia.
<ul style="list-style-type: none"> • Notify receiving facility as soon as possible. • Transport to a recognized Cardiac Receiving Center when feasible and resources available.
<p style="text-align: center;">Exclusion Criteria for Transport to a Recognized Cardiac Receiving Center:</p> <p>Transport to the closest appropriate facility, if any of the following apply:</p> <ul style="list-style-type: none"> • Traumatic cardiac arrest, • Ongoing CPR without ROSC, • If transport to CRC will add >15 <u>additional</u> minutes to transport time, • Age < 15 years.
Paramedic
<ul style="list-style-type: none"> • Escalate airway management as indicated. • If EtCO₂ available, maintain at 35-45 mmHg. Avoid hyperventilation. • Perform 12-lead ECG.
<u>Maintain hemodynamic stability.</u> <ul style="list-style-type: none"> • If systolic BP < 90 mmHg consider fluid bolus IV/IO, refer to Shock. • While administering fluid boluses, frequently reassess perfusion for improvement and/or fluid overload. If patient develops signs of fluid overload, discontinue IVF infusion.
<ul style="list-style-type: none"> • Prevent hyperthermia. • Do not warm patient unless environmental hypothermia is suspected.

Obvious/Apparent Death: Adult & Pediatric

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

Excludes:

- Hypothermia, drowning, or lightning strikes.
- [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. On-line 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, confirmation with cardiac monitor 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, confirmation of pulseless and apneic state with cardiac monitor in 2 leads IS required:
 - Dependent lividity
 - Rigor mortis
 - Injuries incompatible with life (such as 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.](#)

Paramedic

Do Not Resuscitate Status/Advanced Directives/Healthcare Power of Attorney (POA) Status: Adult & Pediatric

1. Patients must have one of the following documents or a valid alternative (such as identification bracelet indicating wishes) immediately available:
 - **Do Not Resuscitate (DNR)** order “Orange form”: identifies that CPR and intubation are not to be initiated if the patient is in arrest. The interventions covered by this order and the details around when to implement them can vary widely.
 - **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.
 - **Advanced directives**: document that describes 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 been cut, broken or shows signs of being repaired (and)
 - Displays the patient’s name and the physician’s name.
3. If there is 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 on-line medical direction.

EMT

- If the patient has a valid DNR, no CPR or airway management should be attempted. Comfort measures should still be offered. 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 on-line 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 on-line medical direction for specific guidance on how to proceed in this situation.
 - Contact on-line medical direction if for any reason an intervention that is prohibited by an advanced directive is being considered.

Paramedic

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.

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 on-line medical direction.
- Patients meeting criteria for [Obvious/Apparent Death](#).

EMT

- [Initiate resuscitation, refer to Cardiac Arrest \(VF/VT/Asystole/PEA\): Age 8 and Older or Cardiac Arrest \(VF/VT/Asystole/PEA\): Pediatric Age < 8](#). If a valid DNR is available refer to [Do Not Resuscitate Status/Advanced Directives/Healthcare Power of Attorney \(POA\) Status](#).
- Perform 4 rounds of CCR/MICR or ACLS. Focus on resuscitation on-scene versus “load and go.”
- Apply AED and follow prompts.
- Consider Termination of Resuscitation (TOR) if the following 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 CCR/MICR, consider TOR. TOR requires on-line [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 on-line medical direction if patient does not meet all TOR criteria or other special circumstances surround resuscitation or if the patient is < 18.
- After termination, do not alter body condition in any way or remove equipment (lines, tubes, etc.). Doing so may compromise potential Medical Examiner investigation.

Paramedic

- IV/IO access as soon as possible without interrupting chest compressions.
- 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:
 - > 30 minute downtime, pulseless >60 sec, non-shockable rhythm (PEA/Asystole) (OR)
 - Witnessed arrest, 20 minutes of resuscitation with PEA and $ETCO_2 < 10$ (OR) non-shockable rhythm (PEA/Asystole)

Traumatic Cardiac Arrest - Termination of Resuscitative (TOR)

Efforts: Adult & Pediatric

Includes:

- Any **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 meeting criteria for **Obvious/Apparent Death**.
- Patients who are found in shockable rhythm or whose rhythm changes to shockable. These patients should, in general, have full resuscitation continued.
- 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 on-line 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

- Provide resuscitation according to **Cardiac Arrest (VF/VT/Asystole/PEA) Age 8 and Older** or **Cardiac Arrest (VF/VT/Asystole/PEA) Pediatric Age ≤ 8**.

Paramedic

Termination of Resuscitation (TOR) is appropriate in the following scenarios:

- **Blunt/Penetrating Trauma:**
 - If pulses are not restored despite treatment of suspected airway obstruction with OPA/NPA .
 - Consider bilateral needle thoracostomy for suspected tension pneumothorax.
- **Penetrating Trauma:** Consider transport to Trauma Center if transport time < 15 minutes.

Contact on-line medical direction:

- patient is <18 years old
- if patient does not meet all TOR criteria
- other special circumstances surround resuscitation

Airway Management: Adult & Pediatric

Includes:

- Children and adults with signs of severe respiratory distress/respiratory failure.
- Patients with evidence of hypoxemia or hypoventilation.

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 in the setting of respiratory failure or arrest.
- Consider the addition of oropharyngeal airways (OPA) or nasopharyngeal airways (NPA) or supraglottic (STR) for effective BVM.
- Avoid excessive pressures or volumes during BVM ventilation.
- Monitor pulse oximetry

- Use appropriate sized mask with BVM.



Paramedic

- **NIPPV: Non-invasive positive pressure ventilation** for severe respiratory distress or impending respiratory failure **without** decreased level of consciousness:
 - Continuous positive airway pressure (CPAP)
 - Bi-level positive airway pressure (B-PAP)

- Consider the use of a supraglottic airway (SGA) if BVM is not effective in maintaining oxygenation or ventilation.
- When less invasive methods are ineffective, use endotracheal intubation.
- Consider **Fentanyl**: 1mcg/kg IN/IV/IO/IM Max initial dose 100mcg, max total dose 200mcg.
- Consider **Midazolam**: 5mg IM/IN/IV/IO Max total dose 20mg
- 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 when patients cannot be oxygenated/ventilated with above interventions and the risk of death seems to outweigh the risk of a procedural complication.

- Use least invasive means of airway management.
- Endotracheal intubation should be considered only when less invasive methods fail.
- For children < 8 years old, the only option for cricothyroidotomy is needle cricothyroidotomy.



Pediatric Respiratory Distress – Wheezing < 2 Years Old (Bronchiolitis)



Includes: Child < 2 yo with wheezing or diffuse rhonchi.

Excludes: Suspected [Anaphylaxis](#), [Croup](#), epiglottitis, foreign body aspiration, submersion/[Drowning](#).

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 non-rebreather mask as needed in order to maintain normal oxygenation.
- BVM ventilation for children with respiratory failure.

Paramedic

- IV should only be placed for clinical concerns of severe dehydration requiring immediate treatment or for administration of IV medications.
- For severe respiratory distress, if suctioning and oxygen fail to result in clinical improvement, administer
 - [Epinephrine](#): 1 mg/mL, 3 mg in 3 mL NS nebulized.
 - Patients receiving inhaled epinephrine should be transported to definitive care.
- For severe respiratory distress, non-invasive positive pressure ventilation or high flow nasal cannula may be administered, if available.
 - Do not delay administration of medication to administer non-invasive positive pressure ventilation.
- Supraglottic devices and intubation should be utilized only if BVM ventilation fails.
- The airway should be managed in the least invasive way possible.



Includes: History of stridor or barking cough.

Excludes: Suspected [Anaphylaxis](#), foreign body aspiration, submersion/[Drowning](#), [Asthma](#), [Bronchiolitis](#).

EMT

- Initiate [Universal Care](#).
- Initiate BVM ventilation for children with respiratory failure.
- Suction the nose and/or mouth (via bulb, Yankauer or catheter) if excessive secretions are present.
- Monitor pulse oximetry.

Paramedic

- For severe respiratory distress, if suctioning and oxygen fail to result in clinical improvement, administer
 - **Epinephrine:** 1 mg/mL, 5 mg (5 mL in 3 mL NS) nebulized
 - Repeat epinephrine at the above dose with unlimited frequency for ongoing distress.
 - Patients receiving inhaled epinephrine should be transported to definitive care.
- EtCO₂ should be routinely monitored as an adjunct to other forms of monitoring.
- For severe respiratory distress, non-invasive positive pressure ventilation may be administered, if available.
 - Do not delay administration of medication(s) to administer non-invasive positive pressure ventilation.
- Supraglottic devices and intubation should be utilized only if BVM ventilation fails.
- The airway should be managed in the least invasive way possible.
- Consider performing 12-lead ECG if there are no signs of clinical improvement after treating respiratory distress.

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



Includes:

A patient with an episode that is frightening to the observer 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),
- Marked change in muscle tone (flaccid or rigid).

Excludes:

- Age > 12 months,
- [Seizures](#),
- [Respiratory distress](#),
- Cardiopulmonary arrest, refer to [Cardiac Arrest \(VF/VT/Asystole/PEA\): Pediatric Age < 8](#),
- Trauma with known mechanism of injury, refer to [General Trauma Management](#).

EMT

- Initiate [Universal Care](#).
- Have high index of suspicion for abuse in children presenting with BRUE/ALTE.
- Check blood glucose; refer to [Hypoglycemia](#) if appropriate.

Paramedic

- IVs should only be placed in children for clinical concerns of shock, or when administering IV medications.
- Supraglottic devices and intubation should be utilized only if bag-valve-mask ventilation fails in setting of respiratory failure or apnea. The airway should be managed in the least invasive way possible.
- Regardless of patient appearance, all patients with a history of signs or symptoms of BRUE/ALTE 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.



Includes: all neonates immediately following birth.

EMT

- Wait at least 30 – 60 seconds post-delivery before clamping and cutting the umbilical cord.
- Clamp cord in 2 places and cut between clamps if still attached to the mother.
- 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 thick meconium or secretions are present and signs of respiratory distress, suction mouth then nose.
- Consider checking blood glucose 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 40-60 breaths per minute.

If heart rate < 100 beats per minute:

- Initiate BVM ventilation with room air at 40-60 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:

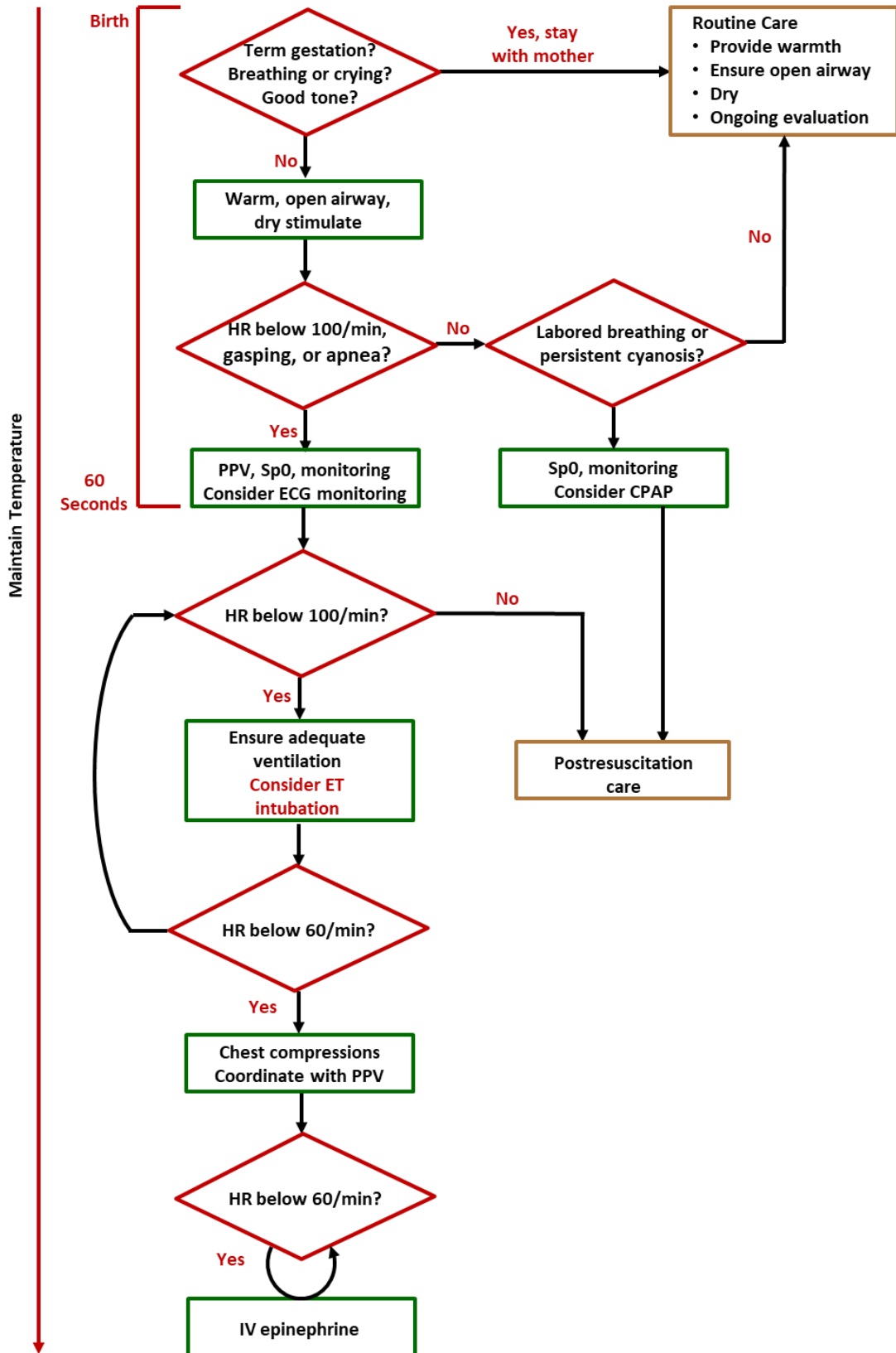
- Ensure effective ventilations with supplementary oxygen and adequate chest rise.
- If no improvement after 30 seconds, initiate chest compressions (2 thumb technique preferred).
- Coordinate chest compressions with BVM ventilations (3:1 ratio, 90 compressions and 30 breaths per minute).

Paramedic

- If apneic or in significant respiratory distress, consider endotracheal intubation.
- Intubation is recommended prior to beginning chest compressions. If intubation is not successful or not feasible, a laryngeal mask may be used.
 - Newborns > 2 kg and greater than 34 weeks gestation require a size 3.5 endotracheal tube.
- **Epinephrine** is indicated if the newborn's heart rate remains less than 60 beats/min after at least 30 seconds of positive-pressure ventilations (PPV) that move the chest, preferably through a properly inserted endotracheal tube or laryngeal mask, and another 60 seconds of chest compressions coordinated with PPV using 100% oxygen.
 - Epinephrine is not indicated before you have established ventilation that effectively inflates the lungs.
 - **Epinephrine:**
 - 0.1 mg/mL, 0.01 mg/kg IV/IO (or)
 - 0.1 mg/mL, 0.1 mg/kg via ETT if no IV/IO access.
- Administer 20 mL/kg IV/IO fluid bolus for signs for shock or post-resuscitative care.



Neonatal Resuscitation Algorithm



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 pull down to allow delivery of the anterior shoulder.
- Gently pull up on the head to allow delivery of the posterior shoulder.
- Slowly deliver the remainder of the infant.
- Wait at least 30 – 60 seconds post delivery before clamping and cutting the umbilical cord.
- Clamp cord 2 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, 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.
 - Apply firm suprapubic pressure to attempt to dislodge shoulder.
 - Apply high-flow oxygen to mother.
- **Prolapsed Umbilical Cord:**
 - Place gloved fingers between infant and uterus to avoid compression of cord.
 - Consider placing mother in prone knee-chest position.
 - Apply high-flow oxygen to mother.
- **Maternal cardiac arrest:**
 - Apply manual pressure to displace uterus from right to left.
 - Refer to [Cardiac Arrest \(VF/VT/Asystole/PEA\): Age 8 and Older](#).
 - 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.
 - Apply high-flow oxygen to mother.
 - Transport as soon as possible and contact on-line 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.
- After delivery, massaging the uterus and allowing the infant to nurse will promote uterine contraction and help control bleeding.

Paramedic

- If signs or symptoms of pre-eclampsia (BP >140/90 and blurred vision, dizziness, headache, altered mental status, peripheral edema, abdominal pain, nausea, or vomiting):
 - **Magnesium sulfate:** 4 g IV over 10-15 minutes.
- **Postpartum Hemorrhage**
 - **Oxytocin:** 10 units in 1000cc NS/LR

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](#).
- Post-partum hemorrhage, refer to [Shock](#).

EMT

- Initiate [Universal Care](#).
- Check blood glucose. 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 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](#).

Paramedic

- If signs of shock or orthostasis, refer to [Shock](#).
- Reassess vital signs and response to fluid resuscitation.
- Initiate cardiac monitoring and obtain 12-lead ECG if there is history of syncope or lightheadedness.
- Pre-eclamptic symptoms, treat with **Magnesium sulfate**: 4 g IV over 10-15 minutes:
 - BP >140/90 and blurred vision
 - dizziness
 - headache
 - altered mental status
 - peripheral edema
 - abdominal pain
 - nausea or vomiting

General Trauma Management: Adult & Pediatric

Includes:

- Blunt trauma.
- Penetrating trauma.
- Burns.

EMT

- Initiate [Universal Care](#).

Primary survey

- Hemorrhage control, refer to [External Hemorrhage Management](#).
 - 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)

AEMT

- 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](#).

- 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](#).



EMT-I/Paramedic

- 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.



- Consider administration if potential hemorrhagic shock and within 3 hrs of injury: **TXA:** (Paramedic only)
 - 1gm mixed in 100cc NS given over 10 minutes

- **Must Patch for all Pediatrics**
Consider administration if potential hemorrhagic shock and within 3 hrs of injury: TXA: (Paramedic only) – 15-30 mg/kg, max 1-2 g mix in 100cc NS given over 10 minutes.

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 [Radiation Exposure](#) or [Chemical Burns](#), as needed.

EMT

- Verify scene is secure.
- Initiate [Universal Care](#).
- Assess for cardiac arrest.
 - [Even patients who appear dead may have good outcomes with prompt intervention, refer to Cardiac Arrest \(VF/VT/Asystole/PEA\): Age 8 and Older or Cardiac Arrest \(VF/VT/Asystole/PEA\): Pediatric Age < 8.](#)
- 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 or if patient rescued from confined space.
- Refer to [Cyanide Poisoning](#) and [Carbon Monoxide/Smoke Inhalation](#) 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](#).

Paramedic

- If establishing IV access, avoid placement through burned skin.
- 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](#).
- Initiate cardiac and EtCO₂ monitoring.
- If thermal burn to airway is suspected, early airway control is vital. Refer to [Airway Management](#).

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)
 - Apply a tourniquet.
- If hemorrhage is not controlled (e.g. junctional injury)
 - Apply a topical hemostatic agent with direct pressure or commercially available junction hemorrhage control device.
- If tourniquet applied:
 - Do not release a properly-applied tourniquet until the patient reaches definitive care.
 - Use of tourniquet for extremity hemorrhage is strongly recommended if sustained direct pressure is ineffective or impractical.
 - 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.
 - Utilize improvised tourniquets only if no commercial device is available.
- 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.
 - A commercially available junction hemorrhage control device may also be considered.

Paramedic

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 suspected fractures/dislocations.
- Apply splint to limit movement of suspected 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 suspected 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.
- Manage pain, refer to [Management of Acute Pain](#).

Paramedic

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

Crush Injury:

- High flow oxygen.
- Initiate 10-15 mL/kg IV/IO fluid bolus prior to extrication if possible.
- 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.
- [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** 2 g IV/IO over 5 minutes (or)
 - **Calcium Chloride** 1 g IV/IO over 5 minutes, ensure IV patency and do not exceed 1 mL/minute

(and)

- **Albuterol** 5mg 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** 100 mg/kg IV/IO over 5 minutes, max dose 2 g (or)
 - **Calcium Chloride** 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** 5mg nebulized.



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

Includes: Adult or pediatric patient with suspicion of Traumatic Brain Injury (EPIC-TBI) by mechanism, GCS, or exam.

EMT

Airway/Breathing:

- Continuously monitor pulse oximetry.
- Oxygen supplementation 15 L/min
- Prevent any desaturation < 90%.
- BLS airway maneuvers as indicated.
- BVM 10 breaths/min as needed to maximize SaO₂
- Do not hyperventilate patient.

- BLS airway maneuvers as indicated:

- Infants (0-24 mo): 25 breaths/min
- Children (2-14 yrs): 20 breaths/min
- Adolescents (15-17 yrs): 10 breaths/min (same as adults)



Circulation:

- Frequent blood pressure, SaO₂, HR measurement (every 5 minutes).
- Watch for early signs of shock such as tachycardia, falling systolic blood pressure.

Disability:

- Evaluate blood glucose, refer to [Hypoglycemia](#).
- Maintain cervical stabilization (refer to [Spinal Motion Restriction](#)).
- Control bleeding with direct pressure if no suspected open skull injury.
- Trend neurologic status assessment (GCS).

Paramedic

- IV/IO access as needed for fluid administration.
- Avoid hypotension.
- For SBP approaching < 90 mmHg or other signs of shock:
 - Initial treatment: 1 L IV/IO fluid bolus.
 - Repeat 500 mL IV/IO fluid bolus until SBP > 90 mmHg.

- Approaching hypotension in children:
 - 0-9 yrs: SBP < [70 + (age in years x 2)]
 - ≥ 10 yrs: SBP < 90 mmHg
- For hypotension or other signs of shock:
 - 20 mL/kg IV/IO fluid bolus.
 - Repeat until hypotension resolves.



- Initiate EtCO₂ monitoring for hypoventilation and apnea; target EtCO₂ 35-45 mmHg.
- If O₂ saturation < 90% despite BLS airway, consider advanced airway:
 - Pre-oxygenate with 100% O₂ BVM at age appropriate rate.
 - Use with caution and monitor blood pressure if administering medications for intubation/sedation and/or for pain control.
 - Avoid nasal intubation.

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

Exclusion: 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 (Step 3),
- 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 and 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.



Paramedic

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
- Injection
- Refer to guidelines for specific agents as indicated
- Arizona Opioid Assistance and Referral Line (OAR) 1-888-688-4222.
- Call the regional poison control center: 1-800-222-1222.

EMT

- Ensure scene is safe.
- Consider Body Substance Isolation or appropriate skin and respiratory personal protective equipment (PPE).
- Safely remove patient from hazardous material environment.
- Remove clothing and decontaminate skin if contaminated.
- Initiate [Universal Care](#), including pulse oximetry monitoring for respiratory decompensation.
- Maintain or normalize patient temperature.
- Attempt to record and obtain all involved medications or products. Bring in medication containers or consider taking pictures with camera-equipped, agency-owned device.
- Identify intoxicating agent by history, toxidrome, or environmental testing.
- Identify antidote or mitigating agent.

- Children often show signs of poisoning before adults due to increased absorption of poisons.
- When wet decontaminating children, attempt to prevent hypothermia.
- Wet infants are slippery; care should be exercised during decontamination to avoid additional injuries.



Paramedic

- Initiate IV/IO access.
- Administer 20 mL/kg IV/IO fluid bolus if there is evidence of hypoperfusion.
- Initiate EtCO₂ monitoring for respiratory decompensation.
- Initiate cardiac monitoring and consider 12-lead ECG (special attention to abnormal rate, rhythm, QRS prolongation, and QT prolongation).
- Consider blood samples if EMS management might change value (e.g. carbon monoxide, glucose, cyanide).

- | | |
|--|--|
| <ul style="list-style-type: none"> • Use chemical sedation for patients with agitated delirium (combativeness, tachycardia, hyperthermia). • Refer to Agitated or Violent Patient/Behavioral Emergency. • Symptomatic dystonia, with extrapyramidal signs or symptoms: consider Diphenhydramine: 25 mg IV/IO/IM. | <ul style="list-style-type: none"> • Symptomatic dystonia, with extrapyramidal signs or symptoms: consider Diphenhydramine: 1 mg/kg IV/IO/IM (max dose 25 mg). • Supraglottic devices and intubation should be utilized only if BVM ventilation fails. The airway should be managed in the least invasive way possible. |
|--|--|




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

DUMBELS mnemonic used to describe the signs and symptoms of organophosphate toxicity:



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

Central nervous system effects can manifest with seizures, coma, and/or apnea.
Causative Agents: Local Anesthetics, Analgesics, Anti-microbials, Nitrates/Nitrites, Amyl Nitrite/Butyl Nitrite, Aniline Dyes, Chlorates, Nitrobenzenes, Aminophenol. May occur with the use of Amyl Nitrite for Cyanide and Sulfide poisonings.

EMT

<ul style="list-style-type: none"> Don appropriate personal protective equipment (PPE) Remove patient's clothing and wash the skin with soap and water. Initiate Universal Care. ABCDE assessment including pupils. Monitor pulse oximetry 	<ul style="list-style-type: none"> When wet decontaminating children, attempt to prevent hypothermia. <div style="text-align: right; margin-top: 20px;">  </div>
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Paramedic

<ul style="list-style-type: none"> Establish IV/IO access. Initiate continuous cardiac and EtCO₂ monitoring. 	
<ul style="list-style-type: none"> Atropine Sulfate 2-6 mg IV/IO. Repeated doses (2x previous dose) should be administered as needed every 3-5 minutes. 	<ul style="list-style-type: none"> Atropine Sulfate 0.1 mg/kg IV/IO, up to 1-4 mg/dose. Repeated doses (2x previous dose) should be administered as needed every 3-5 minutes. <div style="text-align: right; margin-top: 20px;">  </div>
<ul style="list-style-type: none"> Pralidoxime Chloride (2 PAM): 1-2 grams IV over 10-15 minutes. Reconstitute with 20cc of sterile water. (Tox Paramedic Only) Consider 2-PAM drip for severe cases after initial dose. 	<ul style="list-style-type: none"> Pralidoxime Chloride (2 PAM): 30-50mg/kg over 10-15 minutes. Reconstitute with 20cc of sterile water. (Tox Paramedic Only) Sudden onset apnea may occur in infants, usually after the second dose. Consider 2-PAM drip for severe cases after initial dose. <div style="text-align: right; margin-top: 20px;">  </div>

- Clinical improvement should be based upon the drying of secretions, improved respiratory effort and pulse oximetry.
- Continuous and ongoing patient reassessment is critical.
- For patients with seizure activity refer to [Seizures](#) as needed.

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

Includes: Patients exposed to a known or suspected source of radiation or contaminated with a radioactive source, particularly patients exhibiting the signs and symptoms of acute radiation syndrome:

- Nausea
- Vomiting
- Diarrhea
- Dizziness
- Headache
- Altered mental status or loss of consciousness

Most patients will be asymptomatic, initially.

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.

EMT

- Ensure scene safety.
- Don appropriate personal protective equipment.
- Exercise universal precautions at all times.
- Initiate [Universal Care](#).
- 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 children, 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.

Paramedic

Includes: Patients exposed to a chemical that can cause a topical burn including eyes and mucous membranes.

EMT

- Ensure scene safety.
- 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:
 - Apply generous amounts of calcium gluconate gel to the exposed skin sites, after irrigating with water for 3 minutes.
- Refer to [Management of Acute Pain](#) as needed.

Paramedic

- | | |
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| <ul style="list-style-type: none"> • Initiate IV fluid resuscitation if necessary to obtain hemodynamic stability. • For chemical burns of the eye, begin eye decontamination immediately. • Flush with Saline or Lactated Ringers • For hydrofluoric acid exposure: <ul style="list-style-type: none"> – Apply cardiac monitor due to risk of hyperkalemia and hypocalcemia. Refer to ECG Changes in Hyperkalemia as needed. | <ul style="list-style-type: none"> • If findings of hyperkalemia are present, maintain continuous cardiac monitoring, administer IV fluids and: <ul style="list-style-type: none"> – Calcium Gluconate 2 g IV/IO over 5 minutes (or) – Calcium Chloride 1 g IV/IO over 5 minutes, ensure IV patency and do not exceed 1 mL/minute (and) – Albuterol 5 mg nebulized. |
| <ul style="list-style-type: none"> • If findings of hyperkalemia are present, maintain continuous cardiac monitoring, administer IV fluids and: <ul style="list-style-type: none"> – Calcium Gluconate 100 mg/kg IV/IO over 5 minutes, max dose 2 g (or) – Calcium Chloride 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 5mg nebulized. • If clinically significant signs and symptoms of hypocalcemia: <ul style="list-style-type: none"> – Calcium Chloride 0.2 mL/kg IV/IO slowly. | |



Stimulant Toxicity: Adult & Pediatric

Includes: cocaine, amphetamines, methamphetamine, Ecstasy, phencyclidine (PCP), bath salts, etc.

EMT

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| <ul style="list-style-type: none"> • Initiate Universal Care. • Refer to Hyperthermia/Heat Exposure as needed. • Check for trauma, 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. |
|--|---|



Paramedic

- Initiate IV fluid resuscitation if necessary to obtain hemodynamic stability or to treat dehydration and hyperthermia.
- Initiate cardiac monitor and examine rhythm strip for arrhythmias.
- Monitor EtCO₂ for respiratory decompensation.
- Obtain 12-lead ECG.
- Refer to [Agitated or Violent Patient/Behavioral Emergency](#) as needed.

Includes: occupational or smoke exposures (e.g., firefighting), industrial accidents, natural catastrophes, suicide and murder attempts, and 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 personal protective equipment, 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 non-rebreather mask or BVM.
- If indicated, expose patient, then cover to protect against hypothermia.
- Consider consulting with Regional Poison & Drug Information Center (800-222-1222) from the scene as needed.

Paramedic

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| <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) <ul style="list-style-type: none"> ○ Collect pre-treatment blood sample, if possible ○ 5 g IV/IO over 2 minutes ○ Additional dose <u>per local protocol</u> (or) • Sodium Nitrite (Tox Paramedic Only) <ul style="list-style-type: none"> – 300 mg IV/IO over 2 minutes (and) • Sodium Thiosulfate (Tox Paramedic Only) <ul style="list-style-type: none"> – 12.5 g IV/IO over 5-10 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®) <ul style="list-style-type: none"> ○ Collect pre-treatment blood sample, if possible ○ 70 mg/kg IV/IO over 2 minutes; (maximum dose 5 g) ○ Additional dose <u>per local protocol</u> (or) • Sodium Nitrite (Tox Paramedic Only) <ul style="list-style-type: none"> – 6 mg/kg IV/IO (0.2 mL/kg) at rate of 5 mL/minute, max dose 300 mg (and) • Sodium Thiosulfate (Tox Paramedic Only) <ul style="list-style-type: none"> – 250 mg/kg (1 mL/kg) over 5-10 minutes |
|---|--|



- May repeat Sodium Nitrite/Thiosulfate combination at one-half original doses if signs of poisoning reappear.
- Refer to **Seizures** as needed.

Includes: known or suspected 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"> • Altered Mental Status • Tachypnea • Tachycardia • Seizure/Convulsions • Chest pain, shortness of breath • Cardiopulmonary Arrest

EMT

- Ensure scene safety.
- Don appropriate personal protective equipment, 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 non-rebreather mask or bag valve mask.
- Refer to [Seizures](#) as needed.
- Use the “Rainbow cable” for CO detection or Carbon Monoxide “CO” capable monitor.

Paramedic

- Initiate cardiac and EtCO₂ monitoring and analyze rhythm strip for arrhythmias.
- Obtain 12-lead ECG.
- Obtain 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 suspected sulfide poisoning. Sulfide is a Cellular Asphyxiant.

- Signs and symptoms of sulfide poisoning may include:
 - May report “rotten egg” odor
 - 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
- Note: “Rotten egg” odor may be present with as little as 0.025 PPM

EMT

- Ensure scene safety.
- Don appropriate personal protective equipment, 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 non-rebreather mask or BVM.
- If indicated, expose patient, then cover to protect against hypothermia.
- Consider consulting with Regional Poison & Drug Information Center (800-222-1222) from the scene as needed.
- Confirm exposure, amount, and duration.

Paramedic

- Initiate cardiac monitoring.
- Consider 12-lead ECG.

- **Sodium Nitrite (Tox Paramedic only):**
 - 300mg IV over 5-10 minute, can administer faster during cardiac arrest.
 - May repeat if no response in 15-30 minutes.

- **Sodium Nitrite (Tox Paramedic only):**
 - 0.33 ml/kg of 3% solution IV over 5-10 minutes, can administer faster during cardiac arrest.
 - May repeat if no response in 15-30 minutes.



Includes: patients of all ages with access to opioids and known or suspected opioid use or abuse.
Excludes: patients with altered mental status exclusively from other causes (e.g., head injury, hypoxia, or hypoglycemia).

EMT

- Initiate [Universal Care](#).
- For respiratory depression, perform immediate resuscitation first, then consider:
- **Naloxone:** SPECIAL TRAINING REQUIRED (STR)
 - Intranasal (IN)
 - 4 mg/0.1 mL nasal spray
 - 1 spray in single nostril (or)
 - 2 mg/2 mL single dose Luer-Jet® prefilled syringe with mucosal atomizer device (MAD)
 - Divide dose equally between nostrils to max of 1 mL per nostril
 - Intramuscular (IM)
 - 2 mg/0.4 mL auto-injector
 - Place on thigh and inject 0.4 mL
- All routes may be repeated as indicated.

- May assist with patient’s own auto-injector.
- 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 altered mental status including hypoxia, hypoglycemia, hypotension, and traumatic head injury.
- Monitor for recurrent respiratory depression and decreased mental status.
- 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.

Paramedic

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

• IVF if indicated refer to [Shock](#).
 • **Naloxone:** 0.4-2 mg IV/IM/IN. Repeat if indicated.

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



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 antivenin, if applicable, as soon as possible.

EMT

- Initiate **Universal Care**.
- Check blood glucose level.
- Monitor pulse oximetry for respiratory decompensation.
- **Pain control, including limited external interventions to reduce pain, refer to Management of Acute Pain.**
- Refer to **Seizures** as needed.

DO NOT perform the following:

- Tourniquet or constricting bands.
- Incision and/or suction.
- Application of cold packs.

- Envenomations known to have specific antivenin or antitoxin (scorpions, rattlesnakes, and black widow spider):
 - Consider transport to hospital that has access to antivenin, if feasible,
 - Call the **Poison & Drug Information Center (800-222-1222)** for treatment advice and location of antivenin.



Paramedic

- | | |
|--|--|
| • Consider 20 mL/kg IV/IO fluid bolus. | • Consider 20 mL/kg IV/IO fluid bolus. |
|--|--|
- Initiate cardiac and EtCO₂ monitoring and analyze rhythm strip for arrhythmias.
 - Obtain 12-lead ECG.
 - Consider vasopressors after adequate fluid resuscitations if hypotension persists, refer to **Appendix: Drip Calculations**:
 - **Epinephrine** 0.05-0.3 mcg/kg/min IV/IO,
 - **Dopamine**: 2-20 mcg/kg/min.
 - Titrate to maintain SBP > 90 mm Hg.
 - Refer to **Shock** as needed.

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, check 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:
 - Continually misting the exposed skin with tepid water while fanning the victim (most effective);
 - Truncal ice packs may be used, but are less effective than evaporation;
 - Shivering should be treated as soon as possible.

Paramedic

- Establish IV/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.
- Initiate cardiac monitoring and record ongoing vital signs and level of consciousness.
- Monitor for arrhythmia and cardiovascular collapse (refer to appropriate guidelines as needed).

- Treat shivering with single dose of:

- **Midazolam:**
 - 2.5 mg IV/IN/IO (or)
 - 5 mg IM (or)
- **Lorazepam:**
 - 1 mg IV/IO or 2 mg IM (or)
- **Diazepam:**
 - 2 mg IV/IO.

- Refer to [Seizures](#) as needed.

- Treat shivering with single dose of:

- **Midazolam:**
 - 0.1 mg/kg IV/IO (or)
 - 0.2 mg/kg IN/IM. Max 1 mg (or)
- **Lorazepam:**
 - 0.1 mg/kg IV/IM/IO. Max 1 mg (or)
- **Diazepam:**
 - 0.2 mg/kg IV/IO. Max 2 mg.

- Refer to [Seizures](#) as needed.



Includes: patients suffering from drowning or drowning events independent of presence or absence of symptoms.

EMT

- Initiate [Universal Care](#).
- 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 $SaO_2 \geq 94\%$. Refer to [Airway Management](#) as needed.
- Assist ventilation as needed.
- [Refer to Cardiac Arrest \(VF/VT/Asystole/PEA\): Age 8 and Older or Cardiac Arrest \(VF/VT/Asystole/PEA\): Pediatric Age < 8](#) as indicated.
- Consider possible C-spine injury; consider [Spinal Motion Restriction](#) as indicated.
- Consider hypothermia and treat as indicated.
- Remove wet clothing.
- Do not aggressively re-warm cold water drownings.
- Initiate pulse oximetry.

Paramedic

- Establish IV/IO access.
- Fluid bolus as indicated.
- Escalate airway management as indicated, assist ventilation as needed.
- Initiate cardiac and EtCO₂ monitoring.
- Consider nasogastric or orogastric tube for gastric decompression.

Includes:

- 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

- Once patient has been appropriately secured or restrained with assistance from law enforcement, initiate [Universal Care](#).
- 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 excited delirium. Refer to Agitated or Violent Patient/Behavioral Emergency as indicated.](#)
- Refer to [General Trauma Management](#) as indicated.

Paramedic

- 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

Neurologic Status Assessment: Adult & Pediatric, page 1 of 2

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	

Neurologic Status Assessment: Adult & Pediatric; page 2 of 2

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.

Prehospital Stroke Scales

FAST/Cincinnati Stoke 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: Acute Stroke Screening Tool

Time of onset: < 4 hr, > 4 hr, or unknown		
Is ARM weakness present?		
<input type="checkbox"/> Yes Continue the VAN exam		
<input type="checkbox"/> 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"/>
<p>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</p>		

Measure vital signs and level of consciousness			
Step 1	Glasgow Coma Scale Systolic Blood Pressure (mmHg) Respiratory rate	≤ 13 <90 mmHg <10 or >29 breaths per minute (<20 in infant aged <1 year), or need for ventilatory support	Transport to a trauma center. Steps 1 and 2 attempt to identify the most seriously injured patients. These patients should be transported preferentially to the highest level of care within the defined trauma system.
No			
Assess anatomy of injury			
Step 2	<ul style="list-style-type: none"> All penetrating injuries to the head, neck, torso, and extremities proximal to elbow or knee Chest wall instability or deformity (e.g. flail chest) Two or more proximal long-bone fractures Crushed, degloved, mangled or pulseless extremity Amputation proximal to wrist or ankle Pelvic fractures Open or depressed skull fracture Paralysis 		Yes
No			
Assess mechanism of injury and evidence of high-energy impact			
Step 3	<ul style="list-style-type: none"> Falls <ul style="list-style-type: none"> – Adults: >20 feet (one story is equal to 10 feet) – Children: >10 feet or two or three times the height of the child High-risk auto crash <ul style="list-style-type: none"> – Intrusion, **including roof: > 12 inches occupant site: > 18 inches any site – Ejection (partial or complete) from automobile – Death in the same passenger compartment – Vehicle telemetry data consistent with a high risk of injury Auto vs. Pedestrian/bicyclist thrown, run over, or with significant (> 20 mph) impact Motorcycle crash >20 mph 		Yes
No			
Assess special patient or system considerations			
Step 4	<ul style="list-style-type: none"> Older adults <ul style="list-style-type: none"> – Risk of injury/death increases after age 55 years – SBP <110 might represent shock after age 65 years – Low impact mechanisms (e.g. ground level falls) might result in severe injury Children <ul style="list-style-type: none"> – Should be triaged preferentially to pediatric capable trauma centers Anticoagulants and bleeding disorder <ul style="list-style-type: none"> – Patients with head injury are at high risk for rapid deterioration Burns <ul style="list-style-type: none"> – Without other trauma mechanism: triage to burn facility – With trauma mechanism: triage to trauma center Pregnancy > 20 weeks EMS Provider judgement 		Yes
No			
Transport according to protocol When in doubt, transport to a trauma center			

Burn Triage

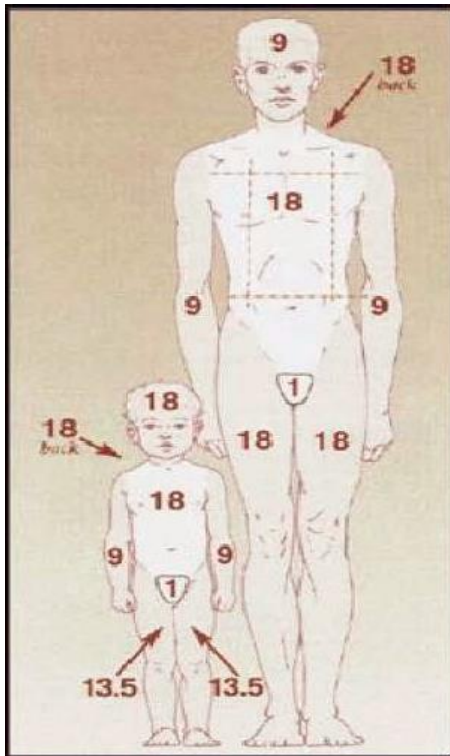
Does The Patient Have Any Of The Following?

1. Partial thickness/2nd Degree burns \geq 10% Total Body Surface Area
2. Any full thickness/3rd Degree 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	Yes
<ul style="list-style-type: none"> • Courtesy notification to receiving facility of patient's choice. 	<ul style="list-style-type: none"> • Prepare patient for transport to the burn center. • Patch For OMD Direction for Transport to (Valleywise/Maricopa Medical Center) • The patient may be transported to the closest trauma center if unstable or unable to manage the patient's airway.

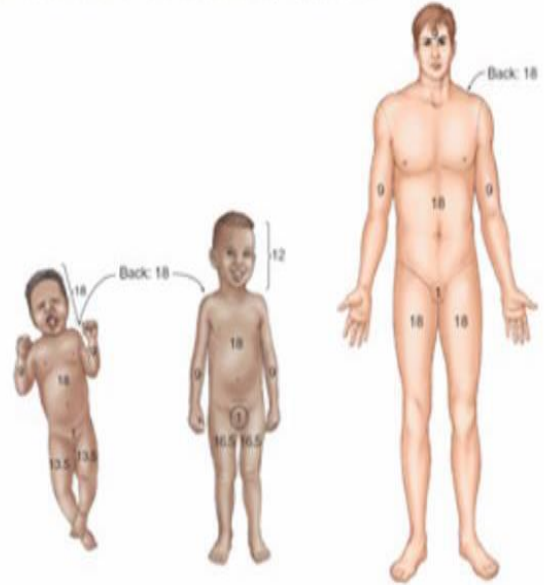
Burn Size Chart 1

Burn Size Chart 2



Burn Size Estimation

- Rule of 9's for adults.
- The "rule of palm" is another way to estimate the size of a burn. The palm of the person who is burned (not fingers or wrist area) is about 1% of the body. Use the person's palm to measure the body surface area burned.



Patient's hand = 1%
Total Body Surface Area

Source: University of Utah Burn Center

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%






Appendix: Drip Calculations

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

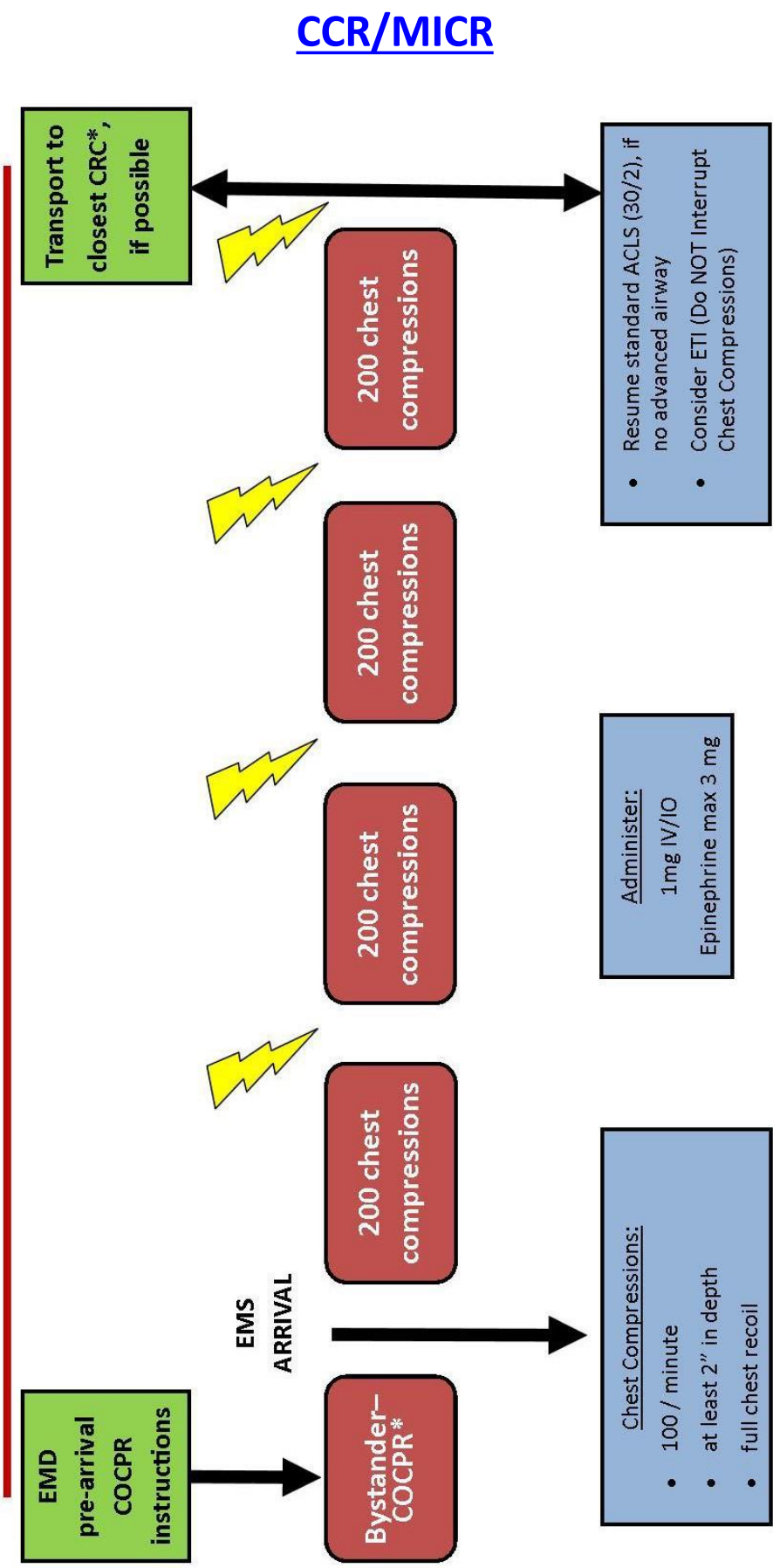
Dopamine Infusion Chart Mix 400 mg in 250 mL of NS (1600 mcg/mL)	
Dose ordered in mcg/min	Amount to infuse in mcgtts/min or mL/hr
400	15
800	30
1200	45
1600	60

Appendix: ECG Changes in Hyperkalemia

ECG Changes in Hyperkalemia		
QRS Complex	Approximate Serum Potassium (mmol/l)	ECG Change
P wave  T wave (Normal ECG trace)	-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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CARDIOCEREBRAL RESUSCITATION (CCR) AKA MINIMALLY INTERRUPTED CARDIAC RESUSCITATION (MICR)



- If adequate uninterrupted bystander chest compressions are provided, EMS providers should perform immediate rhythm analysis.
- Single shock after each set of 200 chest compressions, if indicated. Do not perform pulse check.
- Apply passive oxygenation via a non-rebreather mask and airway adjunct.

COCPR = Compression –only CPR

CRC = Cardiac Receiving Center

EMD = Emergency Medical Dispatch

FLACC Scale ²		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)

Purpose

1. To define the circumstances and situations where paramedics may accept a patient's refusal of treatment and/or transport.
2. To define when On-line medical direction is required for a refusal.

General Guidelines

- All patients who request transport to the hospital will be transported
- You may obtain on-line medical direction at any time. If you disagree with the patients' decision you may contact medical control for additional guidance or to have a physician discuss care options with the patient
- Any patient who complains of any pain, discomfort, or problem will have an assessment performed and documented in a PCR
 - If the patient refuses an assessment, document the manner of the refusal and the patient's reason for the refusal in the report.
 - Assessment should include all items referenced in the treatment algorithm related to the patient's complaint.
- In all cases, a refusal form will be filled out and signed by the patient or appropriate consenting adult (if the patient is a minor).
 - If the patient refuses to sign the form, document the reason and have a witness sign the form.
- Offer an opportunity for 3rd party to assist patient with decision-making and whether patient permitted or declined such assistance (if applicable).
- Decision making capacity must be demonstrated and documented as defined by these abilities:
 - 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 persons own value system

Who Can Refuse

The patient must meet all of the following criteria:

1. Is an adult (18 or over), or if under 18, is being released to a parent, guardian, responsible party, or law enforcement personnel
 - For Patients under 18, a parent may give approval for refusal via phone. Ideally the refusal should be witnessed by 2 personnel.
 - Emancipated minor must produce state-issued ID card
2. Is oriented to person, place, time, and event.
3. Exhibits no evidence of:
 - Altered level of consciousness
 - Alcohol or drug use that impairs judgment
4. Has Medical Decision Making Capacity. They understand the nature of his/her medical condition, as well as the risks, and consequences of refusing care.

Who Cannot Refuse Without An On-line Physician Order (High Risk Refusals)

On-line medical direction is required in the following situations in which a patient is refusing treatment and/or transport (high-risk refusals). On-line physician contact **must be made before leaving the scene**. When contacting on-line medical direction, please use verbiage to recommend whether a transport is appropriate.

- Any patient that lacks decision making capacity.
 - Examples: language barrier, diminished mental capacity.
- Any patient with impaired judgment.
 - Examples: head injury, postictal, alcohol/medication/drug use.
- Any patient that is a danger to self or others (DTS/DTO.)
- Any pediatric patient with reported symptoms by history or exam, including apnea, choking, color change, marked change in muscle tone (limpness), abnormal behavior, or increased work of breathing. (BRUE/ALTE)
- Medications given during initial treatment for heart rate control/dysrhythmia or blood pressure support.
- Medications given during initial treatment that have now altered the patient's decision making capacity.
- If the patient is currently at a healthcare facility, (including, but not limited to, clinics, doctors office, urgent care, free standing ED) and the on-scene physician/ provider is recommending transportation by ambulance to the hospital and the patient does not want to go.
- Non-emancipated minor (ie. Less than 18 year old.) This includes minor who may refuse on behalf of their own child, but cannot refuse care for themselves unless legally emancipated.
- High risk clinical scenarios (see next page)

High Risk Refusals may include but are not limited to the following:

Any patient that meets trauma activation criteria based on injury or mechanism of injury.

Any patient that has any of the following characteristics or complaints:

- Acute cardiac dysrhythmia

- Chest pain, suspected cardiac etiology or anginal equivalent

- Taser/ECD injury

- Head injury with any of the following:

 - LOC, age less than 2 or greater than 60, vomiting, or cognitive impairment, or taking blood thinning medication including Aspirin

- Overdose or poisoning

- Pregnancy-related complaint

- Seizure – first time, post-traumatic, change in seizure pattern, medication administered by EMS/family/staff

- Syncope or near syncope

- Submersion incident

- Hypoglycemia

Communication Options

[TOC](#)

Clearly state at the beginning of an on-line communication if you are making a “courtesy notification” or if you need to “obtain On-line Medical Direction.” If you are seeking physician orders, you are making a decision to “obtain On-line Medical Direction.”

In the setting of time-sensitive illnesses, it is appropriate to initiate communication by identifying the patient as a Trauma, STEMI, Stroke. Sepsis removed

Online Medical Direction

Online medical direction may only be obtained from a facility that is a DHS-recognized base hospital or centralized Medical Direction Communications Center.

An ALS provider may obtain online medical direction with the receiving hospital if they are a recognized ADHS base hospital, the designated back-up to their administrative base facility, or specialty center.

A Courtesy Notification (CN) should be brief and include the following patient-related information:

Provider’s name and unit number

Patient identifier (name, DOB)

Age

Chief complaint

ETA

Special equipment in use or needed. Examples include: NIPPV, ventilator, bariatric equipment, translator or restraints.

Treatments rendered

Vital signs

Mechanism of injury (trauma)

If a facility refuses to accept a patient during phone notification, contact on-line medical direction.

Initial Medical Care – Special Circumstances

Special circumstances may occur in any incident in which the resources of the fire department / emergency medical services , such as personnel and equipment, are overwhelmed by the event type, number, and severity of casualties.

In the event of a special circumstance such as hostile event, or a situation in which resources are overwhelmed, triage and treatment may be altered from the traditional off-lines in order to maximize use of resources and best care for patients. Each agency may have guidelines in place that assist in the management of these situations.

If the scene is hazardous, due to potential violence, chemicals, or other factors, it is acceptable to delay traditional treatment until patient extraction to a safe area has been completed. Only treatments that can immediately affect life or limb may be performed in an unsafe environment. These treatments may include, but not limited to:

- Hemorrhage control- application of bandage or tourniquet
- Performing an emergency move or rapid extrication of the patient
- Tension pneumothorax- chest needle decompression/seal
- Airway protection- patient positioning or BLS airway

In the event that an on-scene physician wants to continue patient care after the arrival on EMS personnel;

1. The on-scene physician must be licensed to practice medicine in the state of Arizona
2. The on-scene physician must agree to accompany the patient to the receiving hospital in the ambulance.
3. Online Medical Direction REQUIRED - A Paramedic may follow the orders of an On-Scene Physician after contacting on-line medical direction and obtaining order to follow direction of On-Scene physician. The Paramedic may wish to have the on-scene physician communicate directly with medical control to optimize patient care.
 - The Paramedic may not follow any requests that are outside the scope of practice of a paramedic in the state of Arizona.
 - The Paramedic should clearly document the name and license number of the physician along with obtaining their signature on the patient care record.

When responding to a healthcare facility in which a medical provider (Physician, Physician Assistant, or Nurse Practitioner) is on scene including, but not limited to, doctor's office, urgent care, medical clinic, free standing Emergency Department and the provider requests transport, the arriving EMS personnel should;

- Facilitate patient transport by ambulance to the appropriate destination.

If the patient refuses ambulance transport:

- The paramedic, on-scene provider, and patient will meet and discuss the patients' refusal of ambulance transport. If unable to meet with the provider, document the attempt in the chart.
- Continued refusal by the patient to allow ambulance transport will require a High Risk Refusal and online medical control must be contacted.
- Attempts should be made to transport to the pre-determined destination if the destination aligns with regional guidelines. If the transport destination decided by the on-scene provider is not the most appropriate destination due to distance, patient stability, or is in direct conflict with guidelines, contact online medical direction for appropriate destination triage.

Management of Pediatric Cardiac Arrest

Traumatic Cardiac Arrest

Pediatric traumatic cardiac arrest patients who do not meet the criteria for field termination of resuscitative efforts should be transported by the most expedient means to an appropriate Trauma Center, preferably with pediatric capabilities. If the patient is considered non-salvageable, On-line Medical Direction should be contacted for the consideration of field termination or for an alternative destination.

Non-traumatic (Medical) Cardiac Arrest

In the absence of a specific protocol recommending a destination.

If an airway and IV/IO access is obtained and there is return of spontaneous circulation during the resuscitative effort pediatric patients should be transported to an appropriate hospital with pediatric critical care capability. Transport should be performed by the most expedient means.

If an airway or IV/IO access cannot be established, the patient should be transported to the closest local hospital emergency department by the most expedient means.

If there is no return of spontaneous circulation during the resuscitative effort, the patient should be transported to the closest local hospital emergency department by the most expedient means.

Notes

Airway stabilization may be either an advanced airway or BVM ventilation with good air movement and appropriate monitoring.

Air medical services may transport directly to a facility with pediatric critical care services if transport time is not significantly prolonged.

<u>Antiplatelets</u>	<u>Anticoagulants</u>
<ul style="list-style-type: none"> • Salicylate(Aspirin) • Clopidogrel(Plavix) • Prasugrel(Effient) • Triagrelor(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 used for a lot of stroke/TIA patients

Drug Category	BRAND NAMES of Blood Thinners	GENERIC NAMES of Blood Thinners
Vitamin K antagonists	Coumadin	Warfarin
	Dicumarol	Dicumarol
	Miradon	Anisimidione
Heparin (Carbohydrate) drugs	Clexane, Lovenox	Enoxaparin
	Hep-Lock, Hep-Pak	Heparin
	Fragmin	Dalteparin
	Arixtra	Fondaparinux
	Orgaran	Danaparoid
	Innohep	Tinzaparin
Thrombin (enzyme) inhibitors	Argatroban	Argatroban
	Refludan	Lepirudin
	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

Useful Phone Numbers

Adult Protective Services	1-877-767-2385
Child Protective Services	1-888-767-2445
Poison Control	1-800-222-1222
Arizona Opioid Assistance and Referral Line	1-888-688-4222
Banner EMS Poison Control	602-462-0460.
Banner University Phoenix VAD	602-819-7910
Banner University Tucson VAD	520-694-6000
Mayo VAD	480-342-2999
Dignity St. Josephs VAD	602-406-8000

Utilization of Over-the-Counter Medications by Arizona EMS ⁸⁶ _{OT}

Agencies

GD-111-PHS-EMS: Utilization of Over-the-Counter Medications by Arizona EMS
Agencies MDC Approved: 5/21/15 Adopted August 1, 2015

STATE OF ARIZONA • EMERGENCY MEDICAL SERVICES AND TRAUMA SYSTEM
Utilization of Over-the-Counter Medications by Arizona EMS Agencies

Background

Over-the-counter (OTC) medications are FDA-regulated substances that are readily available to the general public. Although regulated by the FDA, the general public may access and self-administer these medications without the advice or prescription from a licensed physician or other licensed healthcare professional.

The Bureau of Emergency Medical Services and Trauma System (BEMSTS) does not currently regulate the administration of OTC medications by Emergency Medical Care Technicians (EMCTs). In the absence of regulation, OTC medications should be treated like other FDA-approved products that are not regulated by BEMSTS, but are used in EMS operations.

Process

The Medical Direction Commission recommends that the following clinical guidelines be met by EMS agencies that supply, carry, or distribute OTC medications:

1. EMCTs may distribute OTC medications while involved in wildfire operations, special events, search and rescue, or when performing disaster relief.
2. OTC medications may be distributed by EMCTs at the request of an individual and for the individual's self-administration only.
3. EMCTs should only carry OTC medications approved by their medical directors.
4. Medical directors should ensure EMCTs have appropriate knowledge of available OTC medications and the common contraindications of those OTC medications.
5. Medical directors should develop a policy that outlines the types of OTC medications and circumstances in which those medications can be made available for self-administration.
6. OTC medications should be distributed in single dose packaging with instructions on the appropriate use of the medication kept on hand.

Resource Section: For agencies that use the following skills or equipment, these are optional references

Title	Page
Use of Restraints	88-89
EZ-IO	90
Supraglottic airway/i-gel	91
OG/NG placement	92
Human Trafficking Identification	93
EtCO2/Capnography	94-95
Nasal intubation	96
12 lead ECG lead placement	97-100
IV Infusion Pump & Transport infusions	101

Guidelines for Use of Restraints

Restraints may be used to ensure patient safety when the prehospital provider determines that the patient requires medical evaluation and/or treatment, and/or the patient's behavior and/or actions may potentially cause harm to himself or to others.

The prehospital provider that is confronted with a combative patient shall at all times consider the safety of himself, bystanders, and the patient. He/she shall avoid unreasonable force with the objective being the quickest and safest restraints called for by the situation. Use of additional manpower should be utilized as needed. Consider use of chemical restraint as indicated. Assistance from law enforcement should be requested.

Once restrained, it is the prehospital provider's duty to protect the patient from harm and to treat all apparent emergency medical problems. The patient should be restrained in such a manner that allows adequate assessment of the patient's status and immediate access to the patient for necessary care without compromising a safe environment for the patient, prehospital providers, and bystanders.

Patient Assessment

1. An ALS provider must assess a patient that is restrained.
2. The patient must be under direct supervision at all times during treatment and transport.
3. The patient's airway, breathing, and vital signs – including pulse oximetry – must be monitored.
4. Circulation to the extremities shall be evaluated and documented at least every 10 minutes when restraints are applied.
5. Any patient in restraints shall have a cardiac monitor applied, and a monitor strip documented, as soon as is reasonable after restraints are applied.
6. A patient in restraints requires ALS transport to the hospital with at least one ALS provider in the back of the ambulance during transport.
7. Notify the receiving facility of the incoming restrained patient.
8. Obtain VS every 5 minutes if possible

Type of Restraint

1. Handcuffs may only be used as restraint devices when a law enforcement officer accompanies the patient to the hospital. A patient that is in police custody will require a handcuff key inside the ambulance during transport. The paramedic should have immediate access to keys needed to release handcuffs or other restraining devices.
2. Only leather or other agency-approved "soft" restraints may be used. If locking restraints are used, the key must be transported with the patient in the ambulance. The use of linens as a restraint device is acceptable, providing they can be secured in a manner that allows rapid patient access if needed in an emergency.

Patient Positioning

1. Patients shall be positioned in a manner that does not compromise airway or breathing.
2. Access to the airway must be maintained for possible advanced airway management.
3. Access to the chest must be maintained for possible CPR or defibrillation.
4. Access to the extremities must be maintained for possible IV/IO placement.
5. No patient will be restrained in a prone position or “hog-tied.”
6. No patient will be placed between backboards or stretchers.
7. Patient is preferably restrained to a backboard allowing transfer of the patient without removing the restraints, and also to allow patient to be turned to the side in case vomiting occurs.
8. Restraints shall be placed in such a manner as to not preclude evaluation of the patient’s medical status or to cause injury.

Documentation

If restraints are necessary, documentation must include:

1. Reason restraint was required (patient’s behavior prior to application of restraints, including statements made by the patient, family members, or bystanders)
2. Type of restraint used
3. Position of the patient during treatment and transport
4. Patient response to application of restraints
5. Data indicating constant supervision of ABCs and vital signs, including pulse oximetry
6. Status of circulation distal to restraints
7. Total time the patient was restrained while in the care of EMS
8. Any assessment or treatment that cannot be implemented due to the patient’s combative or uncooperative state
9. Patient status at the time of transfer of care

ARS 13-403: A person acting under a reasonable belief that another person is about to commit suicide or to inflict serious physical injury upon himself may use physical force upon that person to the extent reasonably necessary to thwart the result.

EZ-IO: Adult and Pediatric

Indications:

- Immediate vascular access in emergencies.
- Intravenous fluids or medications are urgently needed and a peripheral IV cannot be established in 2 attempts or 90 seconds **AND** the patient exhibits one or more of the following:
 - An altered mental status (GCS of 8 or less)
 - Respiratory compromise (SaO₂ <90% after appropriate oxygen therapy, respiratory rate <10 or >40 min)
 - Hemodynamic instability

Contraindications:

- Fracture of the bone selected for IO infusion (*consider alternate site*)
- Excessive tissue at insertion site with the absence of anatomical landmarks (relative contraindication)
- Previous significant orthopedic procedures (*IO within 24 hours, prosthesis*)
- Infection at the site selected for insertion

If the patient is conscious, advise of EMERGENT NEED for this procedure and obtain informed consent.

Insertion Site (Adult):

1. Proximal Humerus (preferred)
2. Proximal Tibia
3. Distal Tibia

Prepare:

Wear approved BSI equipment. Determine indications and rule out contraindications. Locate appropriate insertion site and prepare using aseptic technique. Prepare the EZ-IO driver and appropriate needle set.

Insertion Site (Pediatric):

1. Proximal Humerus (for age 5 and older)
2. Proximal Tibia
3. Distal Femur

Insert:

Stabilize site. Gently push needle through skin @ 90 degrees until needle tip touches bone. Ensure at least 5 mm of catheter is visible (single line). Apply gentle pressure while powering driver until needle is set. Remove driver from needle set while stabilizing catheter hub. Remove stylet from catheter, place stylet in sharps container. Confirm placement and patency.

Flush:

Connect primed tubing. Slowly administer **Lidocaine*** 2% (preservative-free) IO to conscious patients (after ensuring patient has no allergy or sensitivity to **Lidocaine**):
 Adults- 40 mg; Peds- 0.5 mg/kg (up to 40mg max)
 Slowly infuse lidocaine over 2 minutes. Allow lidocaine to dwell in IO space for 60 seconds.
 Flush with normal saline (Adult 5-10mL, Pediatric 2.5-5mL)
 Slowly administer a second bolus of lidocaine (Adults 20mg, Pediatrics ½ initial dose) over 60 seconds. Dress site, secure tubing. Monitor site and patient condition. Repeat as needed.

Notes:

1. EZ-IO 45mm (Yellow) to be used for patients 40kg and over. EZ-IO 25mm (Blue) to be used for patients 3-39 Kg.
2. Due to the anatomy of the IO space, flow rates may appear to be slower than those achieved with an IV catheter.
3. Insertion of the EZ-IO in conscious patients has been noted to cause mild to moderate discomfort, however, IO infusion in conscious patients has been noted to cause severe discomfort.
4. EZ-IO catheter should be removed within 24 hours

i-gel Supraglottic Airway Reference

Adult i-gel size chart:

Size 3 (small adult):

Patient weight: 30-60 kg (65-130 lbs)



Size 4 (medium adult):

Patient weight: 50-90 kg (110-200 lbs)



Size 5 (large adult):

Patient weight: 90+ kg (200+ lbs)



Pediatric I-gel size chart:

Size 1 (Neonate):

Patient weight: 2-5 kg (5-11 lbs)



Size 1.5 (Infant):

Patient weight: 5-12 kg (11-25 lbs)



Size 2 (small pediatric):

Patient weight: 10-25 kg (22-55 lbs)



Size 2.5 (large pediatric):

Patient weight: 25-35 kg (55-77 lbs)



Prepare for Insertion:

Select the appropriate size. Open package, dispense bolus of lubricant on inner side package shell. Lubricate all sides of the gel-cuff.

Insertion:

Open airway (sniffing position best if able). Position i-gel so that cuff faces patient's chin. Glide device down and back along soft palate gently until a "definitive" resistance is felt. Patient's incisors should be resting on the bite block. Slide securing strap under the neck and attach to hook ring.

Gastric Channel:

A gastric tube may be inserted through the I-gel gastric channel when indicated.

Notes:

1. i-gel notes: excessive air leak usually due to depth of insertion not deep enough. Do not apply "excessive force" during insertion. A feel of "give-way" may be felt before the end point resistance is met; continue until "definitive" resistance.
2. The supplemental oxygen port may be used to deliver passive oxygenation, as a component of CCR or as indicated.
3. Confirm proper placement by observing for chest rise, bilateral breath sounds, proper bag compliance, negative epigastric sounds, and/or monitored ETCO₂. Document appropriately.

Orogastric/Nasogastric Tube Placement Skill

Indications

- To decompress the stomach & improve ventilation
- Reduce aspiration risk

Contraindications

- Suspected fracture of the basilar skull
- Facial Trauma with suspected fractures
- Known or suspected esophageal varices

Sizing

Nasogastric

- Pediatrics: 2 x ETT size (Usually 8 - 16 Fr.)
- Adult: Largest size that will fit the nares (Usually 10-18 Fr.)

Orogastric

Use largest tube you can safely pass.

Positioning

Conscious: Sitting tall, head tilted forward (chin on chest)
Unconscious: Supine or recovery.

Measure Depth

Nasogastric

Tip of the nose, around the ear, to a point half-way between xiphoid & umbilicus.

Orogastric

Corner of mouth, around the ear, to a point half-way between xiphoid & umbilicus

Hold measurement between fingers or mark with tape.

Nasal Insertion

Apply water-soluble lubricant. Direct tube along the floor of nostril to the posterior pharyngeal then direct the tube downward through the nasopharynx. Instruct patient to swallow if able.

Oral Insertion

Apply water-soluble lubricant. Direct tube to the back of the tongue, then downward through the oropharynx. Instruct patient to swallow if able.

Post Insertion

Confirm placement by aspirating stomach contents, or by injecting 5-10 cc air while auscultating over the epigastrium. After insertion, tape in place. Suction as needed.

Victims of trafficking are recruited into prostitution, groomed and tricked by their trafficker and forced to comply through beatings, rape, starvation and threats of violence to loved ones. Most trafficking victims suffer extreme physical and psychological trauma and often have a strong bond with their trafficker, similar to a domestic violence victim.

Victims may not recognize that they are victims, and may not ask for help

Red Flags to assist identifying a victim

- Any minor working in commercial sex.
- Presence of a companion who answers for the patient.
- Discrepancy in reported age and apparent age.
- Lack of ID documents (they are generally held by their handlers as a form of control).
- Not an English speaker and their companion refuses the use of a translator.
- Reluctance to explain tattoos/branding.
- Rectal/vaginal trauma.
- Bald patches or missing hair.
- Inadequately, and at times inappropriately or provocatively dressed.
- Bruises in various stages of healing caused by physical abuse.
- Scars, mutilations, or infections due to improper medical care.
- Poor hygiene.
- Urinary difficulties, pelvic pain, pregnancy, or rectal trauma caused from working in the sex industry.
- Malnourishment and/or serious dental problems.
- Disorientation, confusion, phobias, or panic attacks.
- Use of street lingo with references to “The game” or “The life.”

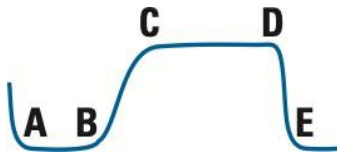
Physical environment clues

- Rooms with numerous beds on the floor.
- Small rooms in a residence with locks on the OUTSIDE of the door.
- Locks on many/all of the windows.
- Presence of drugs or drug paraphernalia.
- Presence of restraint devices (rope, chain, etc.)
- Numerous phones present, expensive cars, jewelry and purses that seem out of place.

Sample messages you can use to gain trust

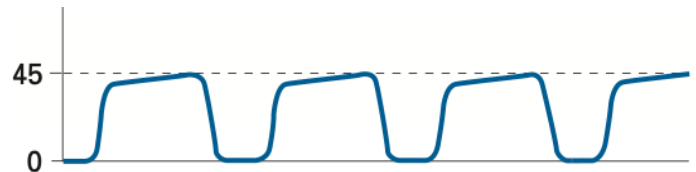
- “We are not the police.”
- “We are not here to get you in trouble, we just want to help.”
- “We will not make you do anything you don’t want to do or feel comfortable with.”
- “I am here to help you.”
- “My first priority is your safety.”
- “We will get you the care you need.”
- “We spoke to our doctor; they feel that we should take you to the hospital to get (issue x) checked out.”

Capnography Reference



A-B	Respiratory Baseline
B-C	Expiratory upslope
C-D	Expiratory plateau
D	Peak CO2 concentration; End-tidal numerical value
D-E	Inspiratory downslope

Normal Waveform:



Normal Capnometry Ranges:

- Adult: 35-45 mmHg
- Pediatric: 35-45 mmHg

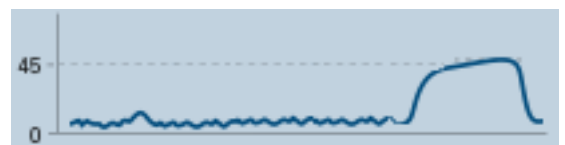
Capnography for Intubated Patients:

Applications:

- Verify ET Tube Placement
- Monitor and detect ET tube dislodgment
- Loss of circulatory function
- Determination of adequate chest compressions
- Identify return of spontaneous circulation

ET Tube Confirmation:

- Presence of waveform with ventilation

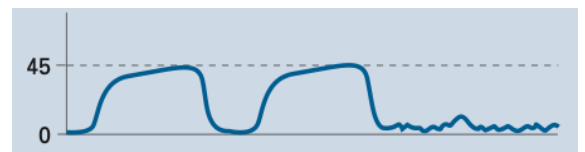
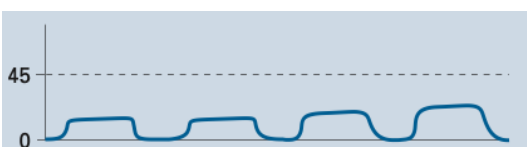


Effectiveness of CPR:

- Gradual drop of EtCO2 reading indicates rescuer fatigue
- Try to maintain a minimum EtCO2 reading of 10 mmHg

Sudden loss of wave form:

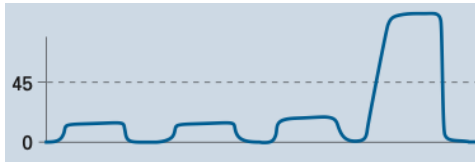
- Loss of circulatory function; or
- ET tube dislodged, kinked or obstructed



Capnography Reference

Sudden increase in EtCO₂:

- Return of spontaneous circulation
- Check pulse



Curare Cleft:

- Patient is spontaneously breathing
- Sedation/paralytic is wearing off



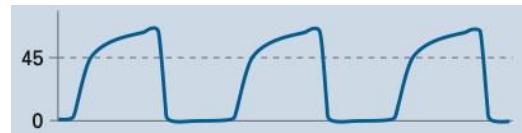
Capnography for Non-Intubated Patients:

Applications:

- Identify Bronchospasm
- Identify hypoventilation
- Identify hyperventilation

Bronchospasm:

- “Shark-fin” appearance
- Seen in Asthma/COPD

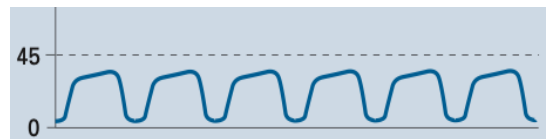
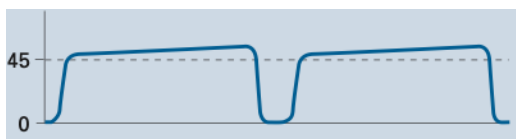


Hypoventilation:

- Slow rate
- EtCO₂ >50 mmHg
- Potential Causes:
 - Sedation
 - Drug ingestion
 - Alcohol intoxication
 - Stroke
 - CNS infection
 - Head injury

Hypoventilation:

- Slow rate
- EtCO₂ >50 mmHg
- Potential Causes:
 - Sedation
 - Drug ingestion
 - Alcohol intoxication
 - Stroke
 - CNS infection
 - Head injury



Nasal Intubation

Paramedic

Assess the need for nasal intubation vs. other airway management techniques. Avoid in patients with mid facial trauma, a suspected cribriform plate fracture, or who are apneic.

Consider Sedation for conscious patients

Select the largest and least obstructed nare.
Consider one to two sprays of
Phenylephrine spray.

Prepare tube:

- Use of a nasal tube (trigger tube) is preferred
- Check cuff for leaks
- Remove stylette if applicable
- Apply whistle device (ex. BAAM)
- Lubricate tube

Insert tube into the selected nare, bevel toward the septum. Advance the tube, aiming toward the patient's contralateral nipple. Stop if you meet resistance.

As the tube approaches the glottic open, the whistling should get louder. Advance the tube past the vocal cords as the patient inhales.

Confirm tube placement.

STEPS FOR 12 LEAD ECG INTERPRETATION

A Step by Step Analysis of 12 lead ECG's
**RULE #1 – NEVER RELY ON THE INTE-
 PRATIVE STATEMENT PRINTED ON THE 12
 LEAD ECG !!!**

Step #1 = Check Rate and Rhythm
 Treat life threatening arrhythmias.

Step #2 = Evaluate ECG Measurements & Heart

Rate

QRS Duration = $\leq .12$ sec or ≤ 120 ms

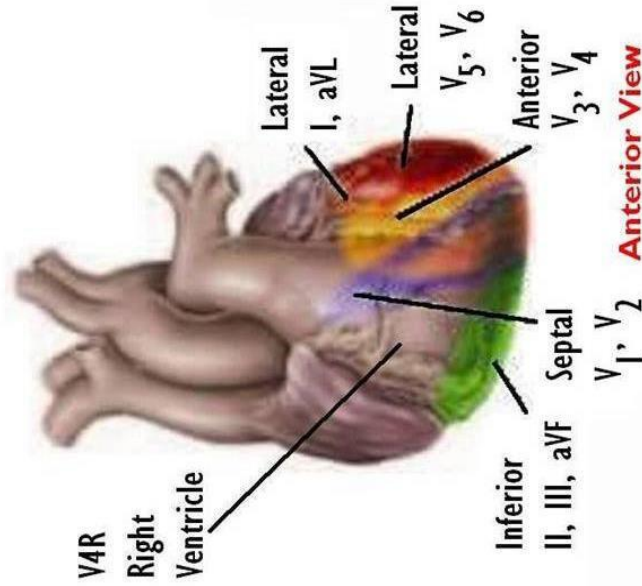
PR Interval Duration = $\leq .20$ sec or ≤ 200 ms

Is the heart rate slow, normal or fast?

Step #3 = Evaluate Leads II and V1

What is the ECG rhythm?

Calculate the rate, does it match the computers calculation?



Step #4 = Group the ECG Leads Into Where They Are "Looking"

- II, III, aVF – Inferior
- I, aVL, V5, V6 – Lateral
- V1, V2 – Septal
- V3, V4 – Anterior

Ask Yourself:

- Are there Q-waves? Pathologic or Physiologic?
- Is the S-T segment depressed, elevated or normal when compared to the T-P segment?
- Are the T-waves inverted?

Step #5 = Ask a Few Additional Questions???

- Is there a presence of indicative changes?
- Can it be localized to a specific area?
- What coronary artery is involved?

Step #6 = Miscellaneous Conditions

- LBBB
- Ventricular Rhythms
- Left Ventricular Hypertrophy (LVH)
- Pericarditis
- Early Repolarization

Step #7 = Clinical Presentation

- Maintain a high index of suspicion, especially in those patients with significant cardiac risk factors (i.e. diabetes, HTN, obese, hereditary, elderly) Be a good detective:


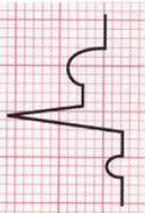
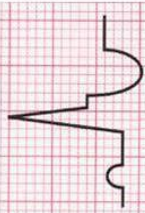

Remember Anginal Equivalents and Atypical Presentations

Step #8 = If There Is Acute Infarction

- Notify the receiving ER or Cardiac Catheterization Lab early on!
- Anticipate possible complications.
- Develop a customized treatment plan.
- Be deliberate, fast and professional.

Remember Time is Muscle !!!

Location	Indicative	Reciprocal changes	Affected coronary artery
Lateral	I, aVL, V5, V6	V1, V2, V3	LCA—circumflex branch
Inferior	II, III, aVF	I, aVL	RCA—posterior descending branch
Septal	V1, V2	No specific leads directly view, look for indicative changes	LCA—LADA, septal branch
Anterior	V3, V4	II, III, aVF	LCA—LADA,
Posterior	No specific leads directly view, look for reciprocal changes	V1, V2, V3, V4	RCA or left Cx artery
Right	V1R—V6R		RCA—proximal branches

<p>Normal</p> <ul style="list-style-type: none"> • Non-diagnostic or baseline with no abnormalities 	<p>Ischemia</p> <ul style="list-style-type: none"> • Suspicious for ischemia—ST segment depressed, T wave may invert or be peaked • Digitalis can cause depressed ST segments, but will be seen in all leads • May be reciprocal, look for ST elevation in opposing leads
<p>Injury</p> <ul style="list-style-type: none"> • Suspicious for injury or infarction—ST segment elevated, T wave may invert, T wave may be tall and peaked • Signifies an acute injury process 	<p>Injury or Infarct</p> <ul style="list-style-type: none"> • Suspicious for injury or infarction—ST segment elevated, T wave may invert, abnormal Q wave may be present • Signifies an acute injury process 
<p>Suspicious for Injury</p> <ul style="list-style-type: none"> • Suspicious for injury—new onset bundle branch block 	

<p>Ischemia Pattern</p> <p>Inverted T-waves or S-T segment depression > 1mm (one small box) in two anatomically contiguous leads</p> <p>Ischemia: a decreased supply of oxygenated blood to tissue</p>	<p>Injury Pattern</p> <p>S-T segment elevation > 1mm (one small box) in two anatomically contiguous leads</p> <p>Injury: damage to tissue, may be irreversible</p>
<p>Infarct Pattern</p> <p>Wide pathologic Q-waves wider than .04 sec. or 40 ms (one small box) in two anatomically contiguous leads</p> <p>Infarct: Death to tissue, usually due to lack of oxygenate bloodflow</p>	

(LAD) Left anterior descending artery
 (RCA) Right Coronary Artery
 (Cx) Circumflex artery
 *There may be an overlap in blood supply by the RCA and Cx artery depending on which artery is dominant.

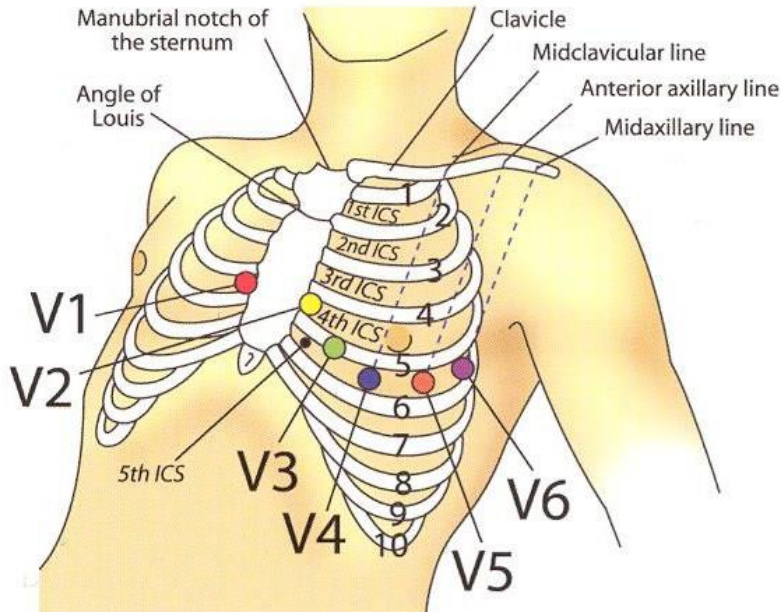


LEADS VR4 in a Right-sided ECG RIGHT VENTRICULAR INFARCTION

Accompanies inferior MI 40% of time. If patients presents with changes in Leads II, III, and/or aVF, V3R and V4R (Right-sided chest lead) should be checked. Or run a full right-sided 12 lead (though V3R—V4R is adequate in most studies).

RV infarct (RV1) is an important cause of hypotension in inferior MI and is recognized by JVD with clear lung fields. Use extreme caution with nitrates and morphine in RV1, as both reduce right heart filling (preload) and thus compromise diastole (coronary perfusion pressure).

Appearance therapy is indicated—reperfusion strategies. IV fluids for right heart filling pressure and pacing to maintain rate. Overall mortality is high in RV1 accompanying inferior Wall MI, mostly related to a lack of recognition of RV involvement: failure to run V4R chest leads.

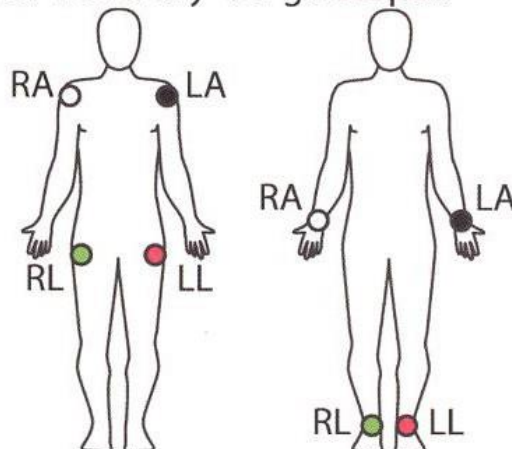


- V1 = Right side of sternum, 4th intercostal space
- V2 = Left side of sternum, 4th intercostal space
- V3 = Midway between V2 and V4
- V4 = Left midclavicular line, 5th intercostal space
- V5 = Left anterior axillary line, same level as V4
- V6 = Left midaxillary line, same level as V4
- V4R = Right midclavicular line, 5th intercostal space

Skin Preparation To Reduce Artifact

- Use newly opened electrodes, check expiration dates
- Shave application area with razor (if needed)
- Rub application area with a dry 4x4 gauze pad

RA Right Arm
 LA Left Arm
 RL Right Leg
 LL Left Leg



For agencies that carry an IV infusion pump:

The paramedic may choose to utilize an IV infusion pump for calculated administration of infusion medications found in the paramedic drug box, or for medications approved for monitoring during interfacility transports.

Interfacility Transports – Agencies other than Tribal require CON and agency approval

The following medications are approved for the transporting paramedic to monitor during interfacility transports by the Director of AZDHS. Medications in BOLD require the use of an infusion pump during the transport.

The transporting paramedic should consult with the transferring physician, together with medical direction, to determine if the specific medication dosage and infusion rate should remain fixed, titrated to effect, or discontinued if complications should arise. Obtain orders prior to transport if necessary.

If the patient starts to deteriorate or if serious complications arise, the transporting Paramedic should contact the sending physician or medical control for orders.

AZDHS approved interfacility medication maintenance infusion drug list (as of 11/2015) as listed in “Agents Eligible for Administration and Monitor during Interfacility Transports” Table as recommended by the Medical Direction Commission and approved by the Director of AZDHS.

*Items in bold require administration by infusion pump

- **Amiodarone**
- Antibiotics
- Blood
- Calcium Chloride
- Colloids
- **Corticosteroids**
- **Diltiazem**
- Diuretics
- **Dopamine**
- Electrolytes/Crystalloids
- **Epinephrine**
- **Fentanyl**
- **Fosphenytoin/Phenytoin**
- Glucagon
- Glycoprotein lib/IIIa Inhibitors
- H2 Blockers
- **Heparin Na**
- **Insulin**
- **Norepinephrine (Levophed)**
- **Lidocaine**
- **Magnesium Sulfate**
- **Midazolam**
- **Morphine**
- **Nitroglycerin IV Solution**
- **Phenobarbital**
- **Potassium Salts**
- **Procainamide**
- **Propofol**
- **Total Parenteral Nutrition**
- Vitamins