

COXHEALTH PARAMEDICINE

CoxHealth Community Clinical Care Guidelines

2023v1



Effective Date:

01/12/2023

Approved by:

Dr. Matthew Brandt M.D.

Medical Director

Mission: To improve the health of the communities we serve.

Vision: To be the best for those who need us.

Values: Safety, Compassion, Respect, Integrity.



Clinical Guideline Workflow & Design Committee:

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Affiliate Agencies

- **Ash Grove Fire Protection District**
- **Barry Lawrence Ambulance District**
- **Bennet Springs Fire Protection District**
- **Billings Fire Protection District**
- **Bois D'Arc Fire Protection District**
- **Brookline Fire Protection District**
- **Chadwick Fire Protection District**
- **Clever Fire Protection District**
- **Conway Volunteer Fire Department**
- **Dade County First Responders**
- **Eldridge Volunteer Fire Department**
- **Elkland Fire Protection District**
- **Freistatt Fire Protection District**
- **Golden City Fire Department**
- **Good Hope Volunteer Fire Department**
- **Hickory County Fire Rescue**
- **Highlandville Fire Protection District**
- **Lebanon Rural Fire Protection District**
- **Logan-Rogersville Fire Protection District**
- **Miller Rescue**
- **Monett City Fire Department**
- **Monett Rural Fire Protection District**
- **Nebo-Falcon Fire Protection District**
- **Niangua Volunteer Fire Department**
- **Nixa Fire Protection District**
- **North Stone Northeast Barry County Fire Protection District**
- **Norwood Volunteer Fire Department**
- **Ozarks Technical Community College - EMS Program**
- **Ozark Fire Protection District**
- **Pierce City Fire Department**
- **Purdy Fire Protection District**
- **Republic Fire Department**
- **Sleeper-Stoutland Fire Protection District**
- **Skyline Area Volunteer Fire Department**
- **Southern Webster County Fire Protection District**
- **Sparta Fire Protection District**
- **Strafford Fire Protection District**
- **Tunas Volunteer Fire Department**
- **Walnut Grove Fire Protection District**
- **West Republic Fire Protection District**

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License Scope Outline

Emergency Medical Responder:

- Airway and Breathing
 - Insertion of airway adjuncts intended to go into the oropharynx or nasopharynx
 - Use of positive pressure ventilation devices such as the bag-valve-mask
 - Suction of the visual upper airway
 - Supplemental oxygen therapy
- Pharmacological interventions
 - Use of unit dose auto-injectors for the administration of life saving medications intended for self or peer rescue in hazardous materials situations
- Medical/Cardiac Care
 - Use of an automated external defibrillator
- Trauma Care
 - Manual stabilization of suspected cervical spine injuries
 - Manual stabilization of extremity fractures
 - Bleeding control
 - Emergency moves

EMT-Basic: First Responder Skills PLUS:

- Airway and Breathing
 - Insertion of airway adjuncts intended to go into the oropharynx or nasopharynx and supraglottic airway devices
 - Use of positive pressure ventilation devices such as manually triggered ventilators and automatic transport ventilators
- Pharmacological Interventions
 - Assist patients in taking their own prescribed medications
 - Administration of the following over-the-counter medications with appropriate medical oversight:
 - Oral glucose for suspected hypoglycemia
 - Aspirin for chest pain of suspected ischemic origin
 - Administer a narcotic antagonist to a patient suspected of narcotic overdose
- Medical/Cardiac Care
 - 12-Lead Acquisition and transmission
 - Blood Glucose measurement via finger stick and glucometer
- Trauma Care
 - Application and inflation of the pneumatic anti-shock garment (PASG) for fracture stabilization

Advanced EMT: EMT-Basic / First Responder Skills PLUS:

- Airway and Breathing
 - Insertion of airways that are NOT intended to be placed into the trachea
 - Tracheobronchial suctioning of an already intubated patient
- Pharmacological Interventions
 - Establish and maintain peripheral intravenous access
 - Administer (non-medicated) intravenous fluid therapy
 - Administer sublingual nitroglycerine to a patient experiencing chest pain of suspected ischemic origin
 - Administer subcutaneous or intramuscular epinephrine to a patient in anaphylaxis
 - Administer glucagon to a hypoglycemic patient
 - Administer intravenous D50 to a hypoglycemic patient
 - Administer inhaled beta agonists to a patient experiencing difficulty breathing and wheezing

EMT-Paramedic: EMT-Basic / First Responder and Advanced EMT Skills PLUS:

- Airway and Breathing
 - Perform endotracheal intubation
 - Perform percutaneous cricothyrotomy
 - Decompress the pleural space
 - Perform gastric decompression
- Pharmacological Interventions
 - Insert an intraosseous cannula
 - Enteral and parenteral administration of approved prescription medications
 - Access indwelling catheters and implanted central IV ports for fluid and medication administration
 - Administer medications by IV infusion
 - Maintain an infusion of blood or blood products

Resources:

- Missouri Revised Statutes - 190.142
- Missouri Code of State Regulations: - 19CSR 30-40.331 & 19 CSR 30-40.342
- National Highway Traffic Safety Administration – 2007 National EMS Scope of Practice Model (2007 is the currently adopted model for Missouri)

The Dr. Brandt Paramedicine Commandments

1. Control major hemorrhage
 - i. If you can hear it bleed, it becomes your priority
2. Ensure adequate ventilation
 - i. SPO2 alone does not qualify adequacy
3. Support perfusion of oxygen and glucose
4. Provide **accurate** and **timely** information to the **appropriate** receiving facility
5. Transport the ill and injured to an appropriate facility

The MARCH Assessment

1. Major Hemorrhage
2. Airway
3. Respirations
4. Circulation
5. Hypo/Hyperglycemia, Head Injury, Hypovolemia, Hypothermia

The CORE Four keys to life

1. Intact and Adequate Circulatory System
2. Intact and Adequate Ventilatory System
3. Perfusion of Oxygen
4. Perfusion of Glucose

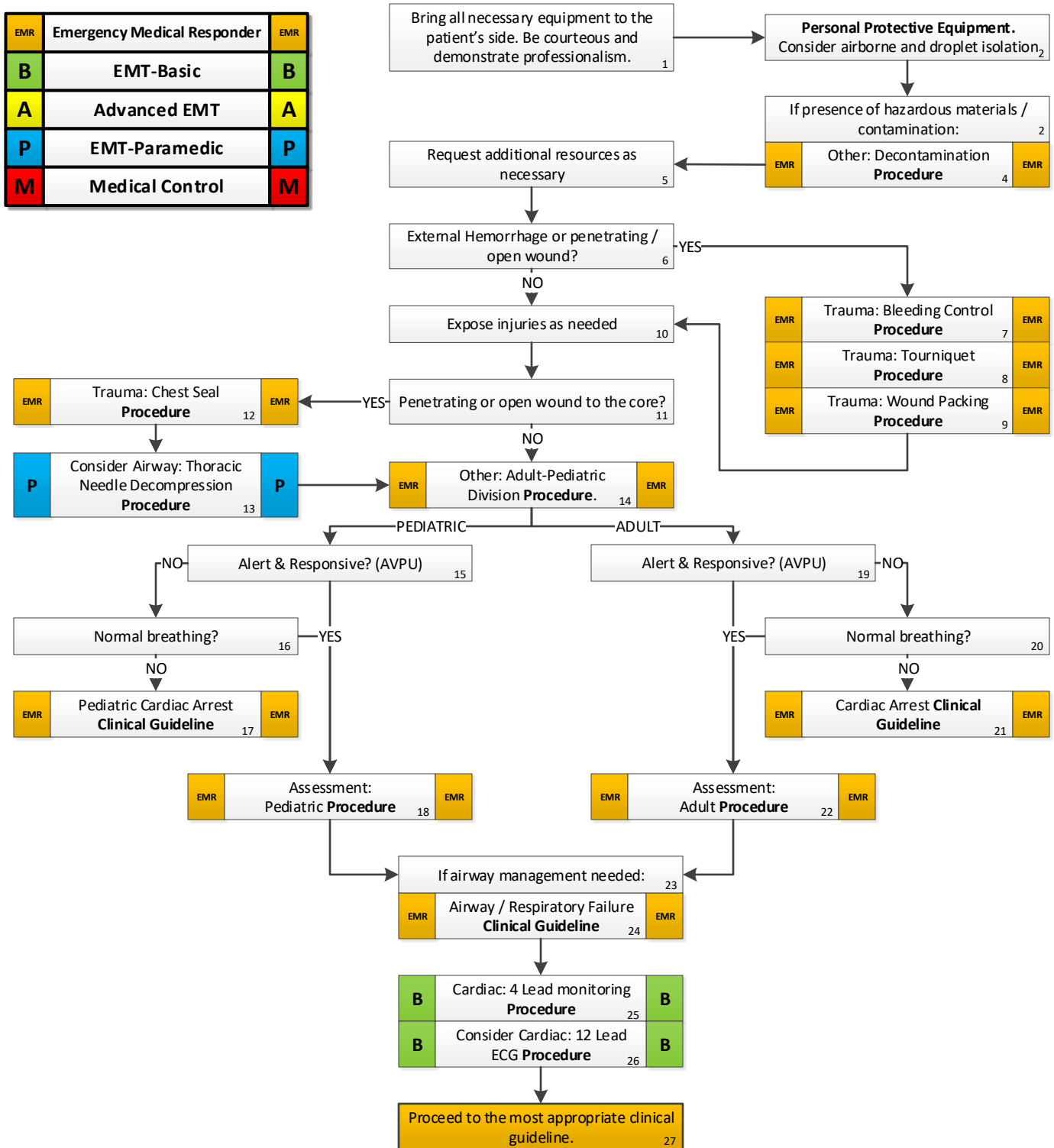
Latest Changes

2023v1 – 01/12/2023

- Annual Compliance Update
- Changed: Fixed Typo on TXA Medication Listing
- Changed: All guideline instances of TXA updated to include timeframe
- Added: Cardiac: LVAD Management Procedure
- Changed: Updated TCD Hospital Listings
- Changed: EMS Triage and Transport: Stroke Clinical Guideline to latest guidelines
- Changed: Airway: Ventilator Operation Procedure to Airway: Ventilator Operation (Newport HT70) Procedure with appropriate content
- Added: Airway: Bi-Level PPV (Positive Pressure Ventilation) Procedure
- Added: Airway: Bi-Level PPV (Positive Pressure Ventilation) Procedure to B1 – Respiratory Distress – Dyspnea Clinical Guideline

Patient Contact

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M



General Clinical Guidelines

Pearls:

- Give as much notice to receiving facility as possible.
- Cardiac Monitor and 12 ECG can be applied at the Basic level – interpretation; however, is a Paramedic level skill; see License Scope Outline.
- Blood Glucose (required whenever patients mental status is altered or patient has a history of diabetes mellitus).
- Temperature (required with suspected heat/cold related symptoms, infection, sepsis, pediatric seizure, and as appropriate):
 - If temperature is elevated consider airborne and droplet isolation precautions.
- ETCO2 (required with any airway management).
- AVPU is a degenerative responsiveness indicator as follows:
 - A-Alert and oriented, V-Alert to verbal stimuli, P-Alert to painful stimuli, U-Unresponsive
- Timing of transport should be based on patient's clinical condition and the transport policy.
- Never hesitate to contact medical control for patient who refuses transport.
- Vital Signs: Orthostatic Blood Pressure Measurement Procedure should be performed in situations where volume status is in question.

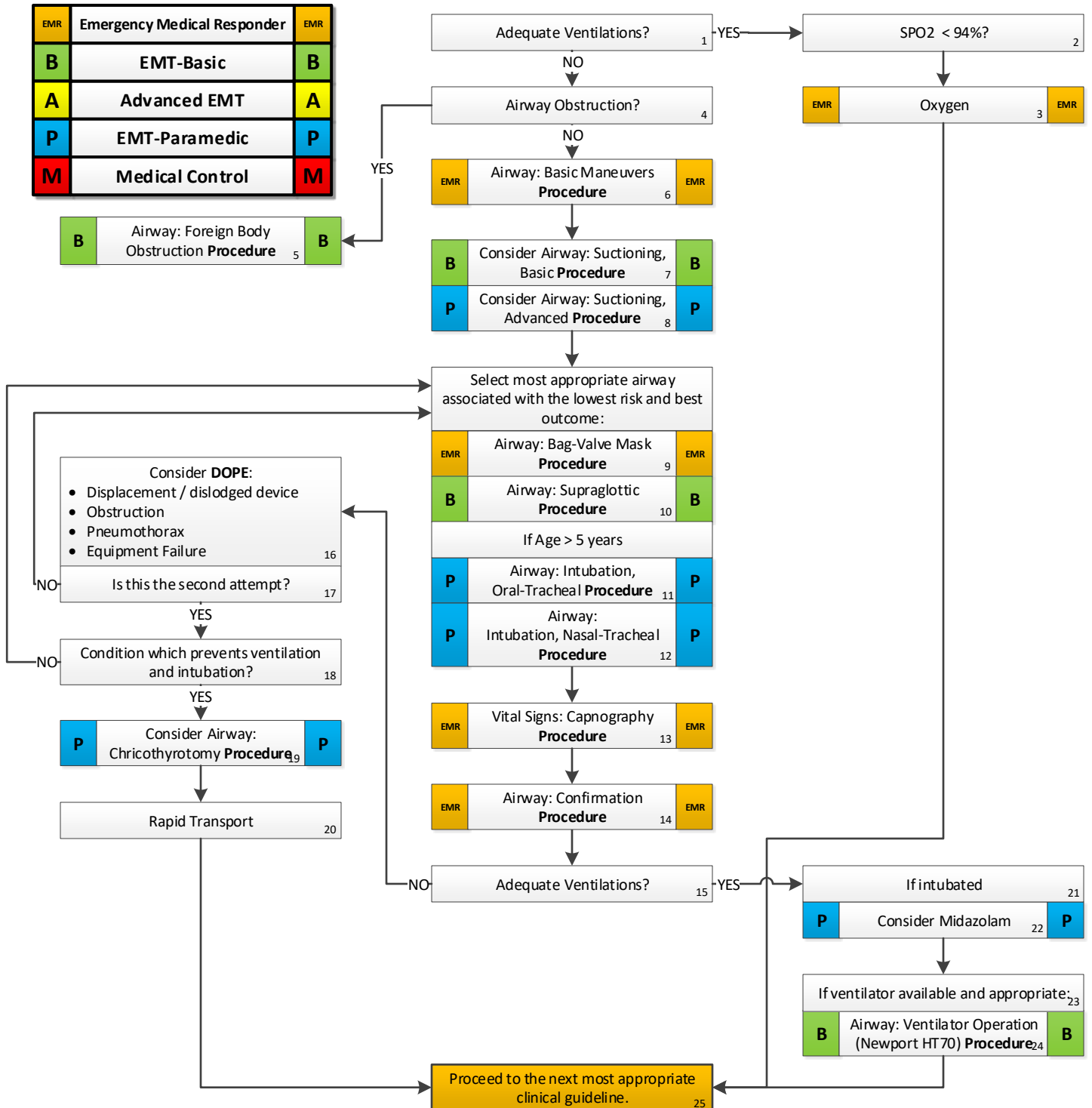
Clinical Guideline

General-1

Airway / Respiratory Failure

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

B Airway: Foreign Body Obstruction Procedure 5 B



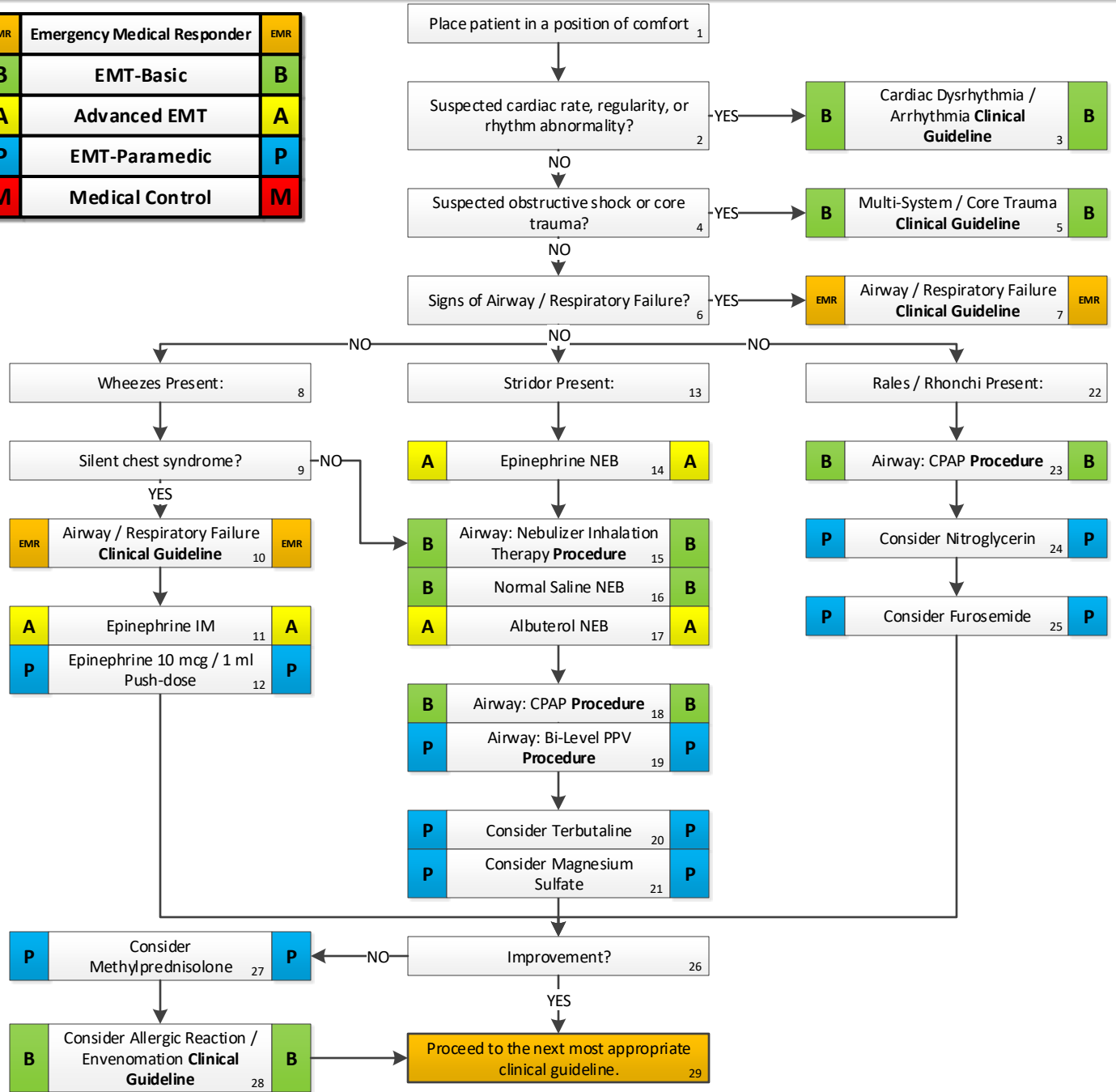
Airway Clinical Guidelines

Pearls:

- Adequate ventilation would include an open airway, effortless air movement, and signs of normal perfusion including ETCO2.
- In the setting of a traumatic head injury strict avoidance of hypoxia and hypocarbia must be observed.
- Capnography is mandatory with all methods of airway control. Document results.
- In a sedated patient or one who is suspected of suffering from an overdose, an absolute end-tidal CO2 value of 50 mm Hg or an increase of >10 mmHg over baseline may indicate respiratory inadequacy.
- Ventilatory rate should maintain a EtCO2 of 35-45. Avoid hyperventilation.
- Maintain C-spine immobilization for patients with suspected spinal injury.
- Sellick's and/or 'BURP' maneuver should not be used to assist with difficult intubations.
- It is important to secure airway devices well and consider c-collar to better maintain placement.
- Advanced airways should be avoided in patients who have a gag reflex.

Respiratory Distress / Dyspnea

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

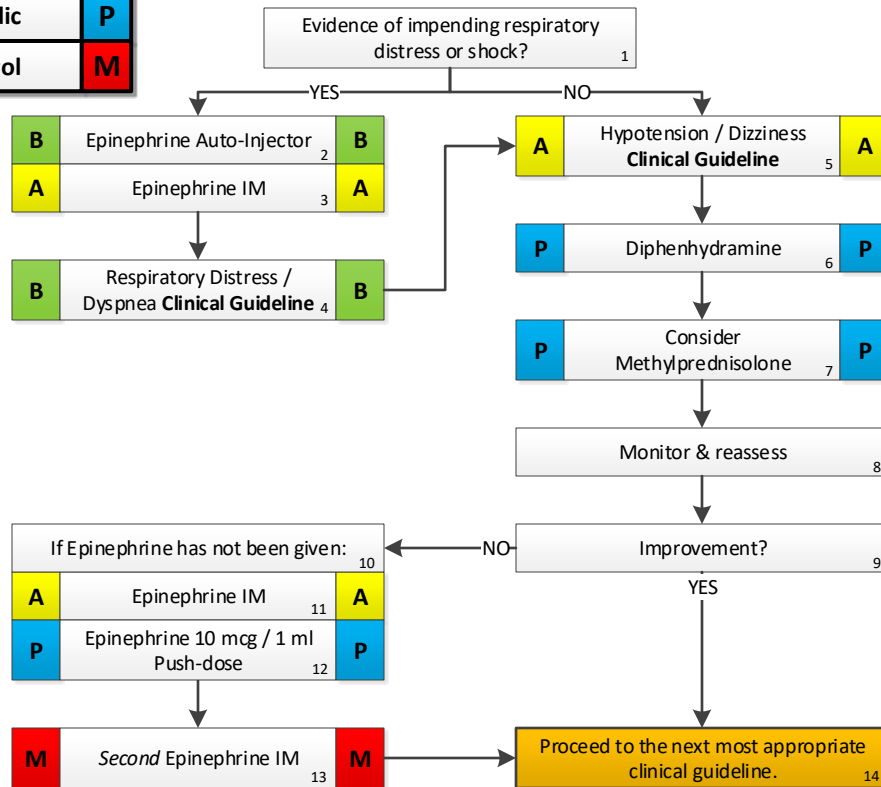


Pearls:

- Steroids like Solu-Medrol have not been shown to improve outcomes when administered pre hospital and may be harmful. Carefully consider their administration and do not give them routinely or without specific cause.
- Avoid Nitroglycerin in any patient who has used Viagra or Levitra in the past 24 hours or Cialis in the past 36 hours due to potential severe hypotension.
- Furosemide and Narcotics have NOT been shown to improve the outcomes of EMS patients with pulmonary edema. Even though this historically has been a mainstay of EMS treatment, it is no longer recommended.
- Consider myocardial infarction in all these patients. Diabetics and geriatric patients often have atypical pain, or only generalized complaints.
- Carefully monitor the level of consciousness, BP, and respiratory status with the above interventions. (Epinephrine may precipitate cardiac ischemia. These patients should receive a 12 lead ECG.)
 - > 50 years of age - Use caution when administering epinephrine in older patients: USE HALF OF NORMAL DOSE
 - Have a history of cardiac disease
 - Heart rate is > 150
- A silent chest in respiratory distress is a pre-respiratory arrest sign.

Allergic Reaction / Envenomation

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

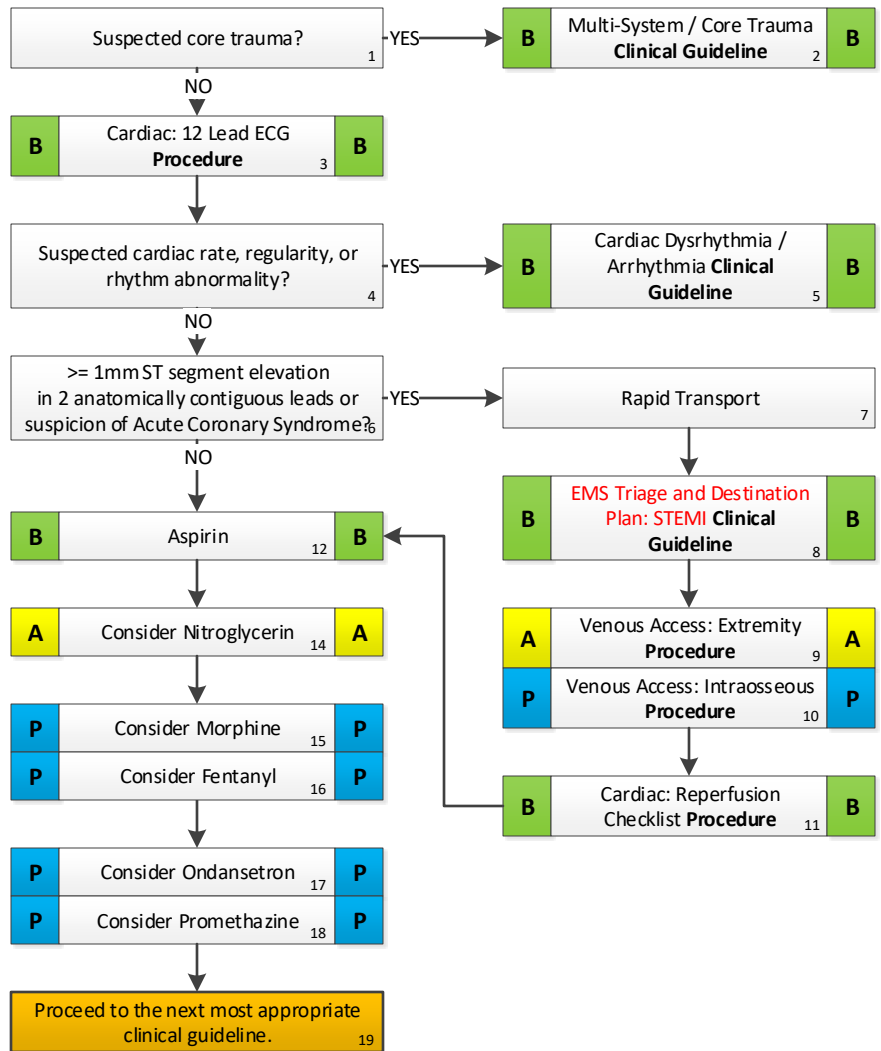


Pearls:

- Use caution when administering epinephrine in geriatric patients: USE HALF OF NORMAL DOSE
- Epinephrine may precipitate cardiac ischemia. These patients should receive a 12lead ECG.
- Be mindful of these patients ability to perfuse, hypotension can occur quickly.
- The shorter the onset from symptoms to contact, the more severe the reaction.

Chest Pain

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

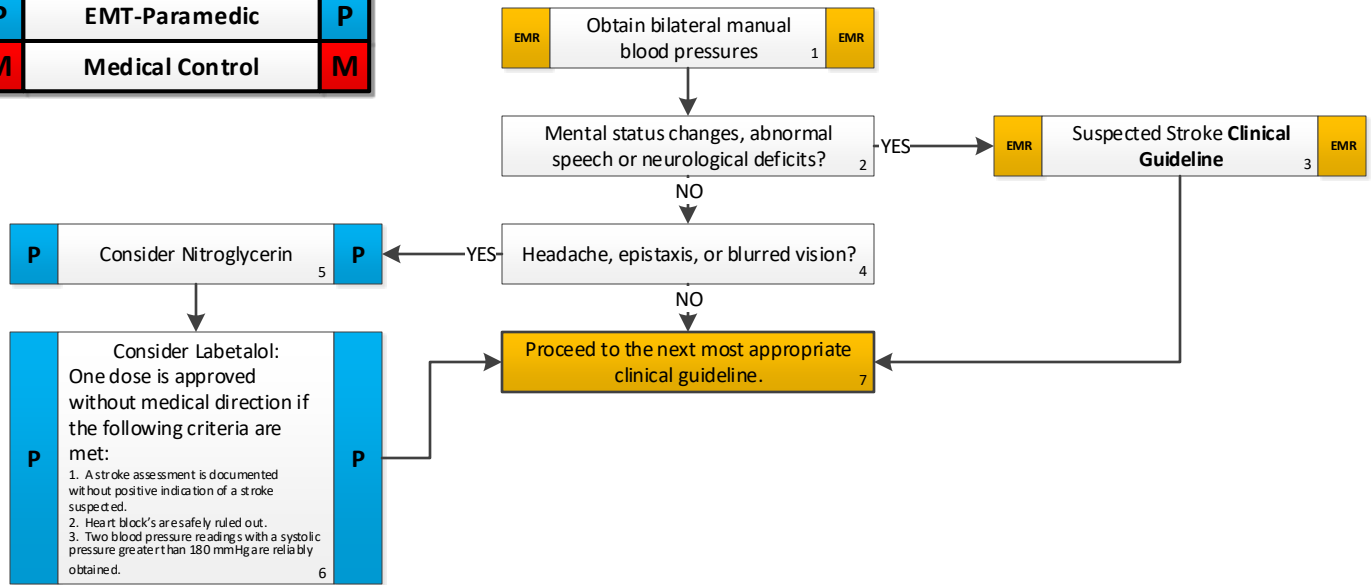


Pearls:

- Avoid Nitroglycerin in any patient who has used Viagra or Levitra in the past 24 hours or Cialis in the past 36 hours due to potential severe hypotension.
- If patient has taken nitroglycerin without relief, consider potency of the medication.
- Nitroglycerin and Narcotics (Morphine) may be repeated per dosing clinical guidelines in Drug List.
- Diabetics and geriatric patients often have atypical pain, or only generalized complaints.
- **Exceptions to a Scene Time greater than 10 minutes measured from "patient contact" to "left scene" must be explained in ePCR narrative.**
- Ondansetron may cause elongation of the Q-T segment, avoid administration of anti-emetics unless severe nausea, or significant active emesis is present.

Hypertension / Headache

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

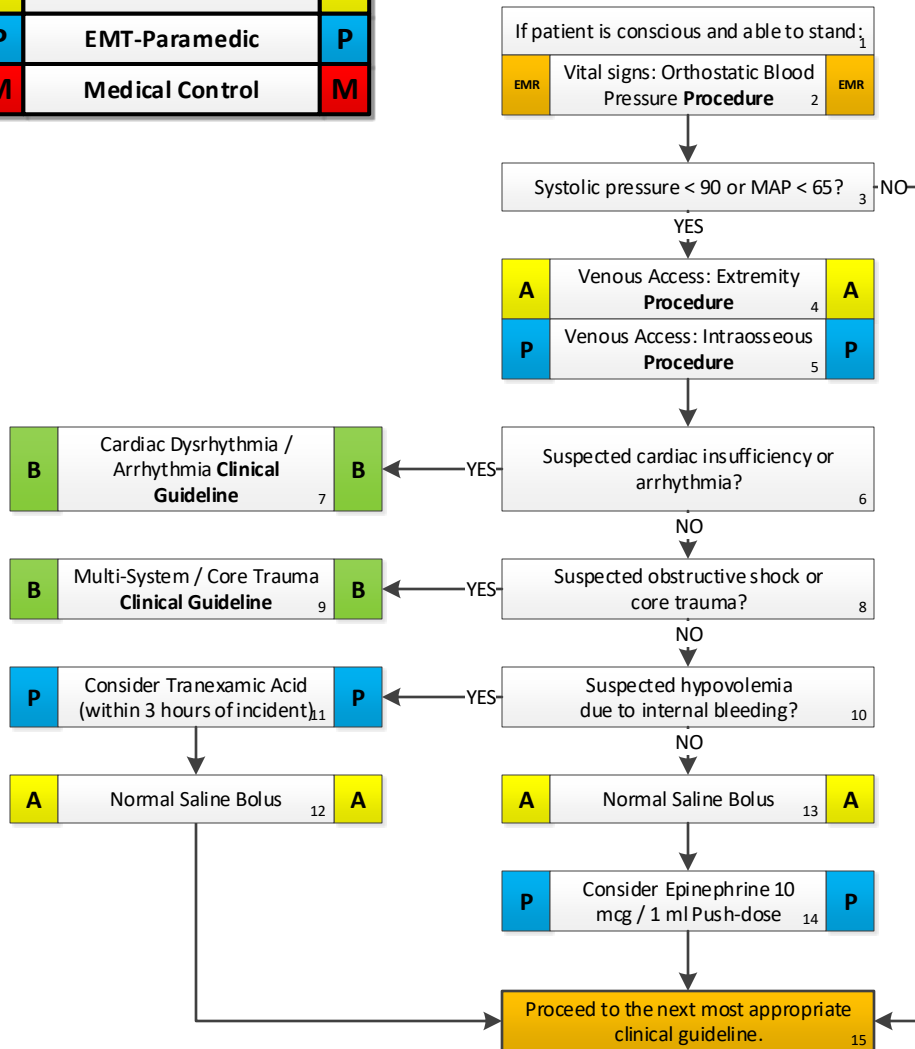


Pearls:

- Avoid Nitroglycerin in any patient who has used Viagra or Levitra in the past 24 hours or Cialis in the past 36 hours due to potential severe hypotension.
- Never treat elevated blood pressure based on one set of vital signs.
- Nitroglycerin may be given to lower blood pressure in patients who have an elevated diastolic BP of > 100 or a systolic blood pressure > 180 and are symptomatic with chest pain, respiratory distress, syncope, headache or mental status changes.
- Symptomatic hypertension is typically revealed through end organ damage to the cardiac, CNS or renal systems.
- All symptomatic patients with hypertension should be transported with their head elevated.
- **In the setting of an acute mental status change or focal neurologic deficit consistent with a stroke, aggressive reduction in blood pressure is not indicated and may worsen outcome. Contact Medical Control.**

Hypotension / Dizziness

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

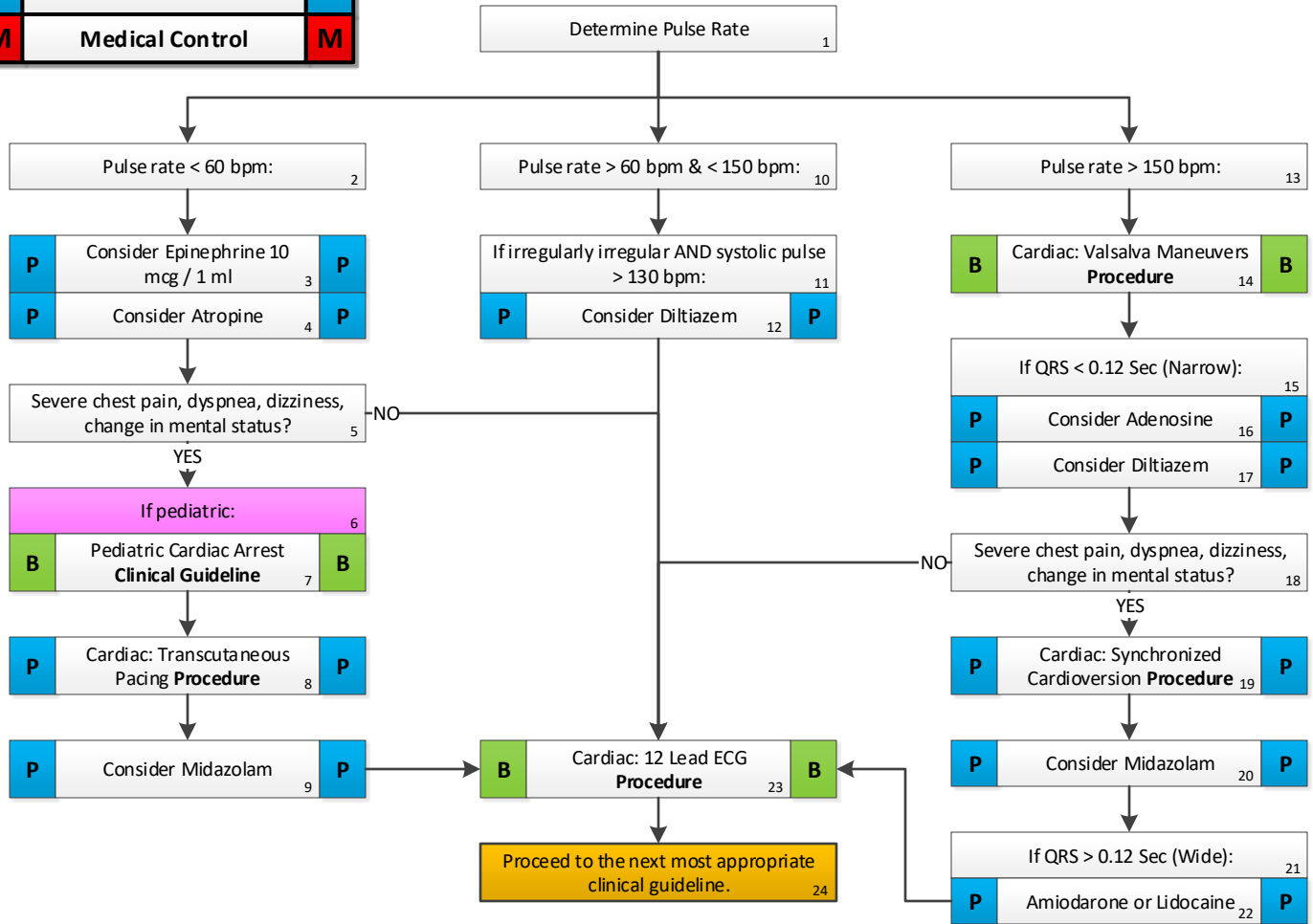


Pearls:

- **IV access represents a risk and should not be routinely performed, but should be considered when a specific intervention is indicated.**
- In the setting of cardiac arrest, any preexisting dialysis shunt or external central venous catheter may be used
- Avoid accessing existing ports or shunts.
- A life threatening event is defined as:
 - Heart Rate > 120
 - Respiratory Rate > 30 or < 10
 - Systolic Blood Pressure < 90
 - Altered Level of Consciousness
- Any prehospital fluids or medications approved for IV use, may be given through an intraosseous IV.
- All IV rates should be at KVO (minimal rate to keep vein open) unless administering fluid bolus.
- Use micro drips for all patients 8 years old or less.
- Upper extremity IV sites are preferable to lower extremity sites.
- Lower extremity IV sites are discouraged in patients with vascular disease or diabetes.
- In post-mastectomy patients, avoid IV, blood draw, injection, or blood pressure in arm on affected side.
- No IV therapy has been shown to improve outcome in pre hospital patients. **Do Not Delay Transport to initiate IV therapy.**

Cardiac Dysrhythmia / Arrhythmia

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M



Cardiac Clinical Guidelines

Pearls:

- Consider underlying causes before treating any cardiac dysrhythmias or arrhythmias. For example a patient post-exercise, hypovolemic, or anxious, with sinus tachycardia > 150 bpm does not require treatment using this guideline without careful consideration.
- For witnessed / monitored ventricular tachycardia, try having patient cough.
- If patient has history or 12 Lead ECG reveals Wolfe Parkinson White (WPW), DO NOT administer Diltiazem or Adenosine.
- Adenosine is not harmful in atrial flutter and may be useful to reveal the rhythm.
- Monitor for hypotension after administration of Calcium Channel Blocker or Beta Blockers.
- Monitor for respiratory depression and hypotension associated with Midazolam.
- Continuous pulse oximetry is required for all SVT Patients.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
- The use of Lidocaine, Beta Blockers, and Calcium Channel Blockers in heart block can worsen bradycardia and lead to asystole and death.
- Treatment of Bradycardia is based upon the presence or absence of symptoms.
 - If symptomatic treat.
 - If symptomatic with chest pain, dizziness, cyanosis, altered mental status, etc. Consider cardiac Transcutaneous Pacing as first treatment.
 - If asymptomatic, monitor only, be prepared for changes in patient presentation.
- In wide complex slow rhythm consider hyperkalemia
- Remember: The use of Atropine for PVCs in the presence of a MI may worsen heart damage.
- Consider treatable causes for bradycardia (Beta Blocker OD, Calcium Channel Blocker OD, etc.).

Cardiac Arrest

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

AT ANY TIME

Return of spontaneous circulation (ROSC) defined as **sudden** and **sustained** rise in ETCO₂ or purposeful movement or sounds:

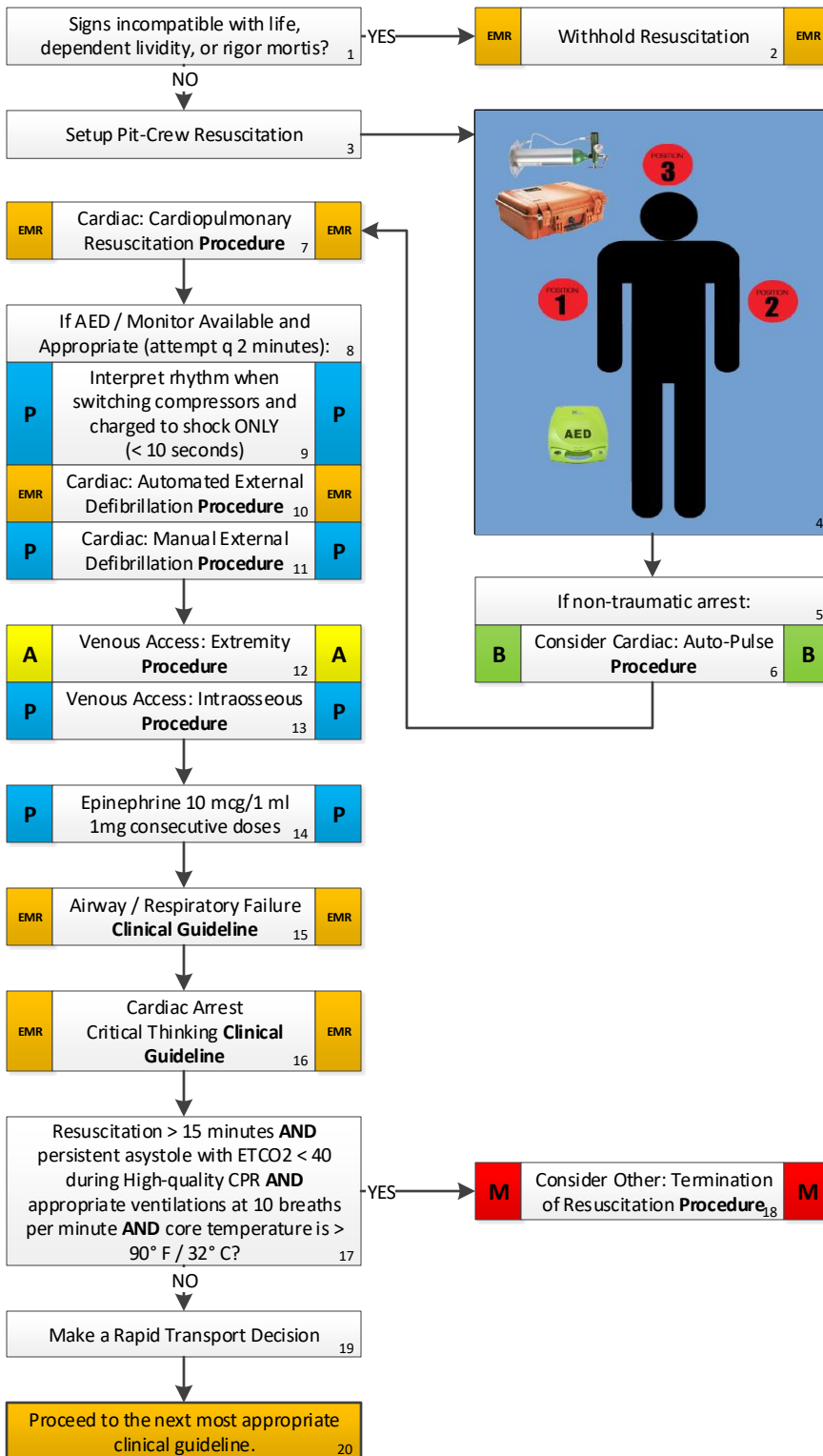
Return of Spontaneous Circulation **Clinical Guideline**

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ADULT CARDIAC ARREST PRIORITIES

1. Compressions
2. Cardioversion
3. Airway
4. Critical Thinking

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Pearls:

- Success is based on proper planning and execution.
- Procedures require space and patient access. **Make room to work or MOVE the patient.**
- Reassess airway frequently and with every patient move.
- Maternal Arrest - Treat mother with immediate notification to Medical Control and rapid transport.
- **Effective compressions & timely defibrillation are the keys to success.**
- **Monitor ETCO₂, even with BVM, for a abrupt and sustained elevation as a sensitive indicator of a return of spontaneous circulation.**
- Pulse checks may be performed only during charged rhythm checks but are known to be unreliable – ETCO₂ is the definitive ROSC identifier.

Clinical Guideline Cardiac-5

Pediatric Cardiac Arrest

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

AT ANY TIME

Return of spontaneous circulation (ROSC) defined as **sudden** and **sustained** rise in ETCO₂ or purposeful movement or sounds:

Return of Spontaneous Circulation **Clinical Guideline**

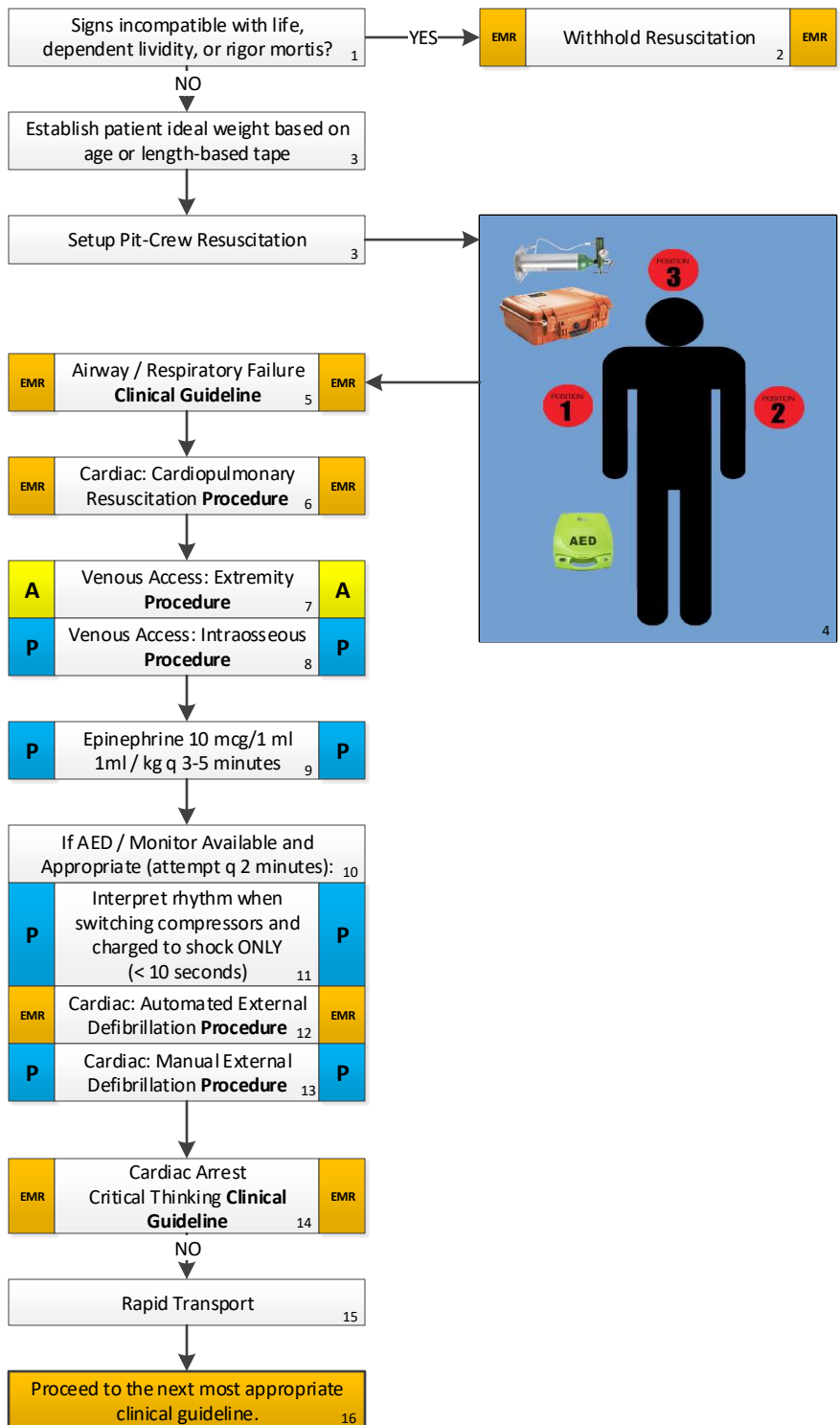
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PEDIATRIC CARDIAC ARREST PRIORITIES

1. Arrive
2. Breathe
3. Compress
4. Drill (Access)
5. Epinephrine
6. *Then* Transport

Credit: "Restart the Heart Before You Depart." *Handtevy Pediatric Emergency Standards, Inc*

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Pearls:

- Success is based on proper planning and execution.
- Procedures require space and patient access. **Make room to work or MOVE the patient.**
- Reassess airway frequently and with every patient move.
- Maternal Arrest - Treat mother with immediate notification to Medical Control and rapid transport.
- **Effective compressions & timely defibrillation are the keys to success.**
- **Monitor ETCO₂, even with BVM, for a abrupt and sustained elevation as a sensitive indicator of a return of spontaneous circulation.**

Clinical Guideline Cardiac-6

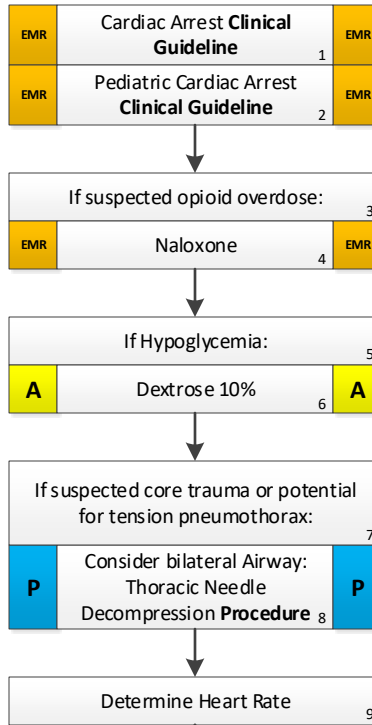
Cardiac Arrest Critical Thinking

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

AT ANY TIME

Return of spontaneous circulation (ROSC) defined as **sudden** and **sustained** rise in ETCO₂ or purposeful movement or sounds:

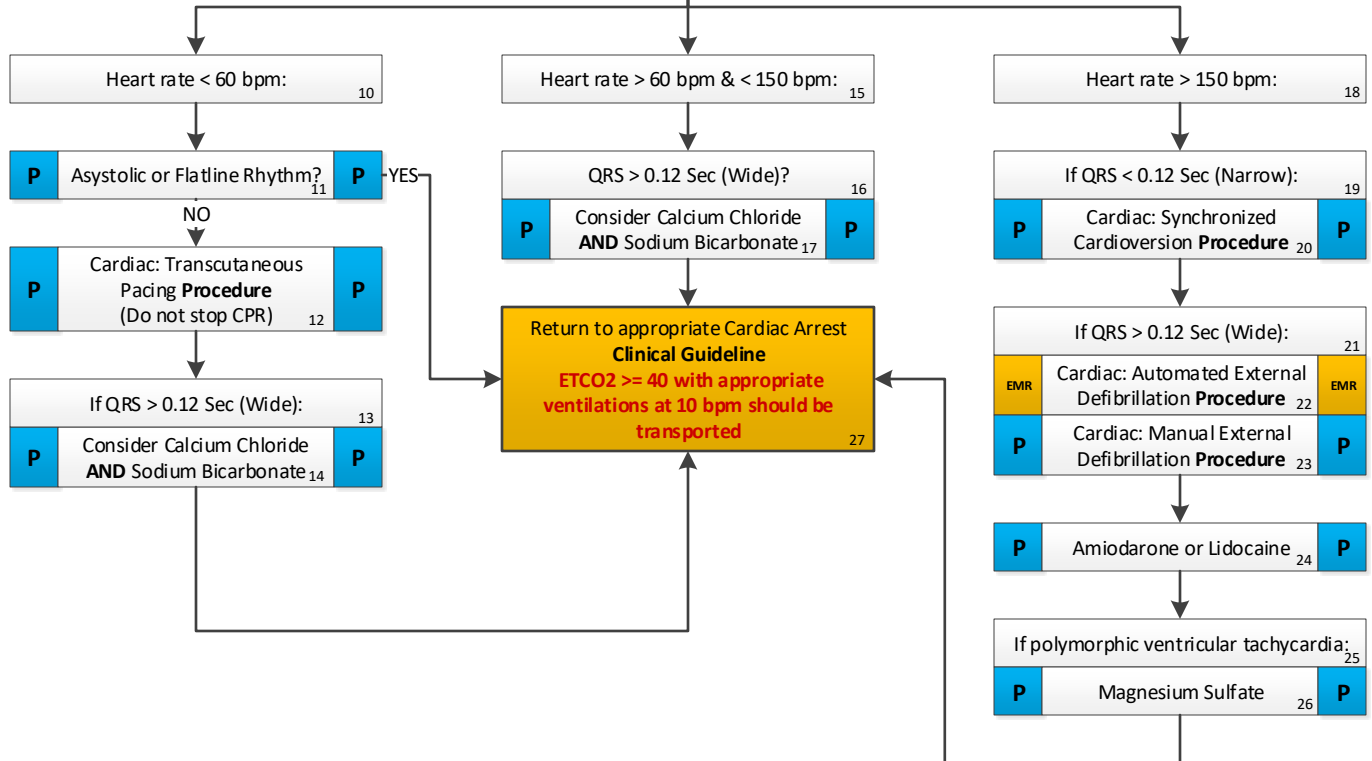
Return of Spontaneous Circulation **Clinical Guideline**



CARDIAC ARREST PRIORITIES ARE ONGOING

THIS GUIDELINE IS ALWAYS CONSIDERED IN ADDITION TO THE CARDIAC ARREST AND PEDIATRIC CARDIAC ARREST PRIORITIES 29

- Correctable Causes – Also known as H's & T's**
- If Hypovolemia, consider **Fluids**
 - If Hypoxia, consider **Ventilate**
 - If Hydrogen-ion (acidosis), consider **Ventilate**
 - If Hyperkalemia, consider **Calcium & Sodium**
 - If Hypoglycemia, consider **Dextrose**
 - If Hypothermia, consider **Warming**
 - If Toxicity, consider **Narcan/Atropine/Transport**
 - If Tamponade (cardiac), consider **Transport**
 - If Tension Pneumothorax, consider **Needle Decompression**
 - If Thrombosis (coronary, cranial, pulmonary), consider **Transport**
 - If Trauma, consider **Bleeding Control, Needle Decompression**

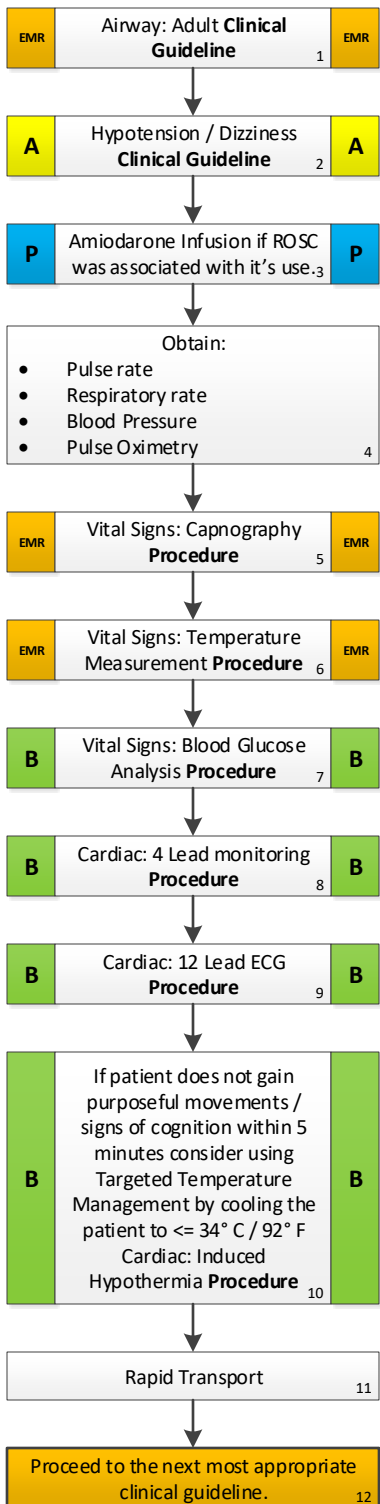
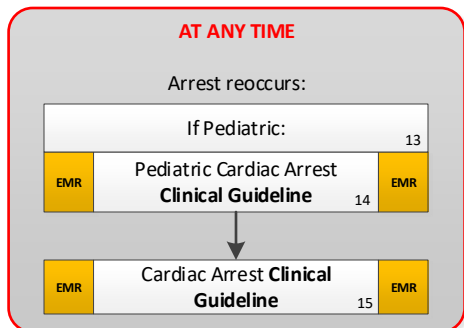


Cardiac Clinical Guidelines

- Pearls:**
- Success is based on proper planning and execution.
 - Procedures require space and patient access. **Make room to work or MOVE the patient.**
 - Reassess airway frequently and with every patient move.
 - Maternal Arrest - Treat mother per appropriate clinical guideline with immediate notification to Medical Control and rapid transport.
 - Effective compressions & timely defibrillation are the keys to success.
 - Monitor ETCO₂, even with BVM, for sudden and sustained elevation is a sensitive indicator of a return of spontaneous circulation.

Return of Spontaneous Circulation

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
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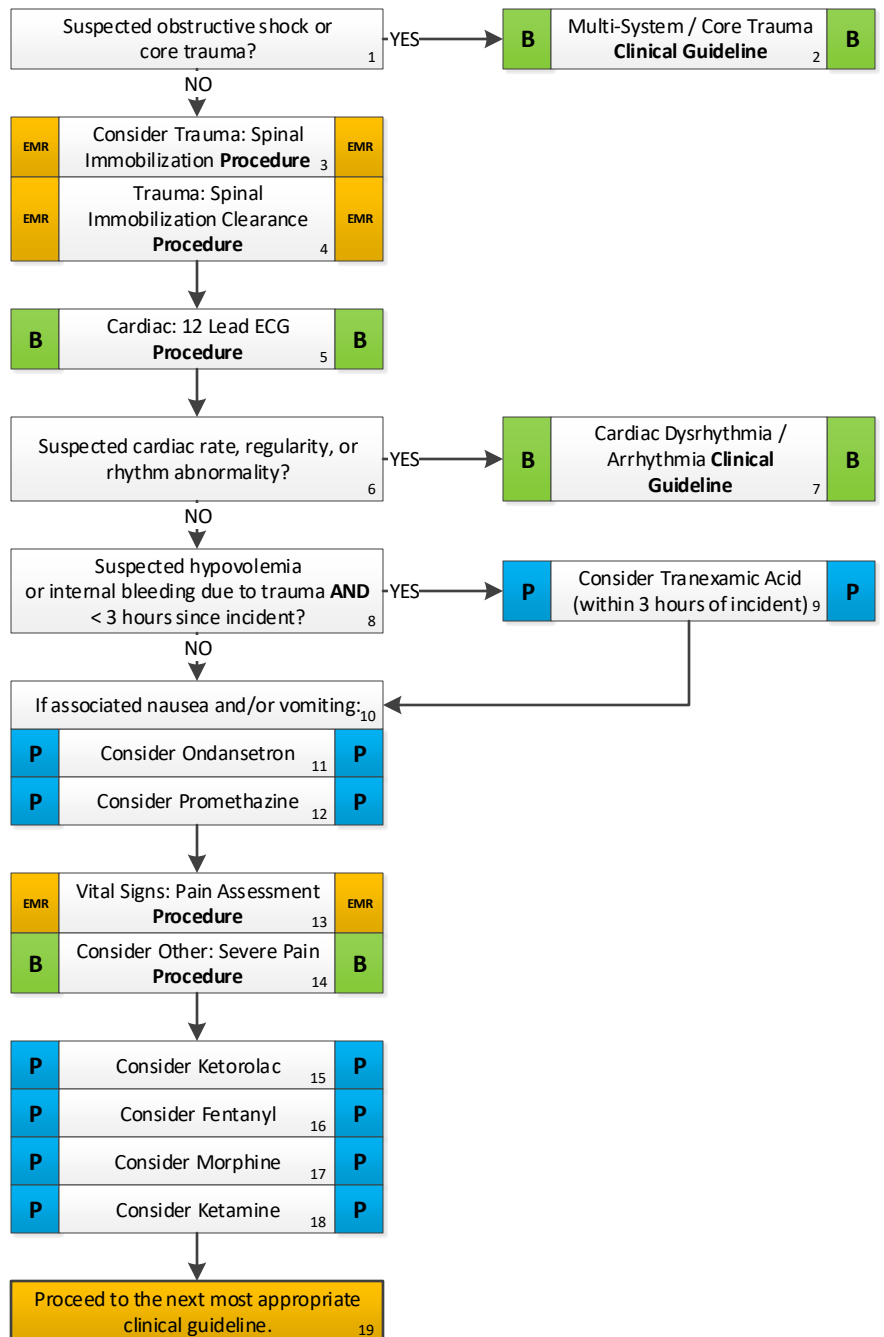


Pearls:

- **Hyperventilation is a significant cause of hypotension and recurrence of cardiac arrest in the post resuscitation phase and must be avoided at all costs.**
- Most patients immediately post resuscitation will require ventilation assistance.
- The condition of post resuscitation patients fluctuates rapidly and continuously, and they require close monitoring.
- Appropriate post resuscitation management may best be planned in consultation with medical control.
- Common causes of post resuscitation hypotension include hyperventilation, hypovolemia, pneumothorax, and medication reaction to ALS drugs.

Abdominal Pain / Back Pain / Nausea

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
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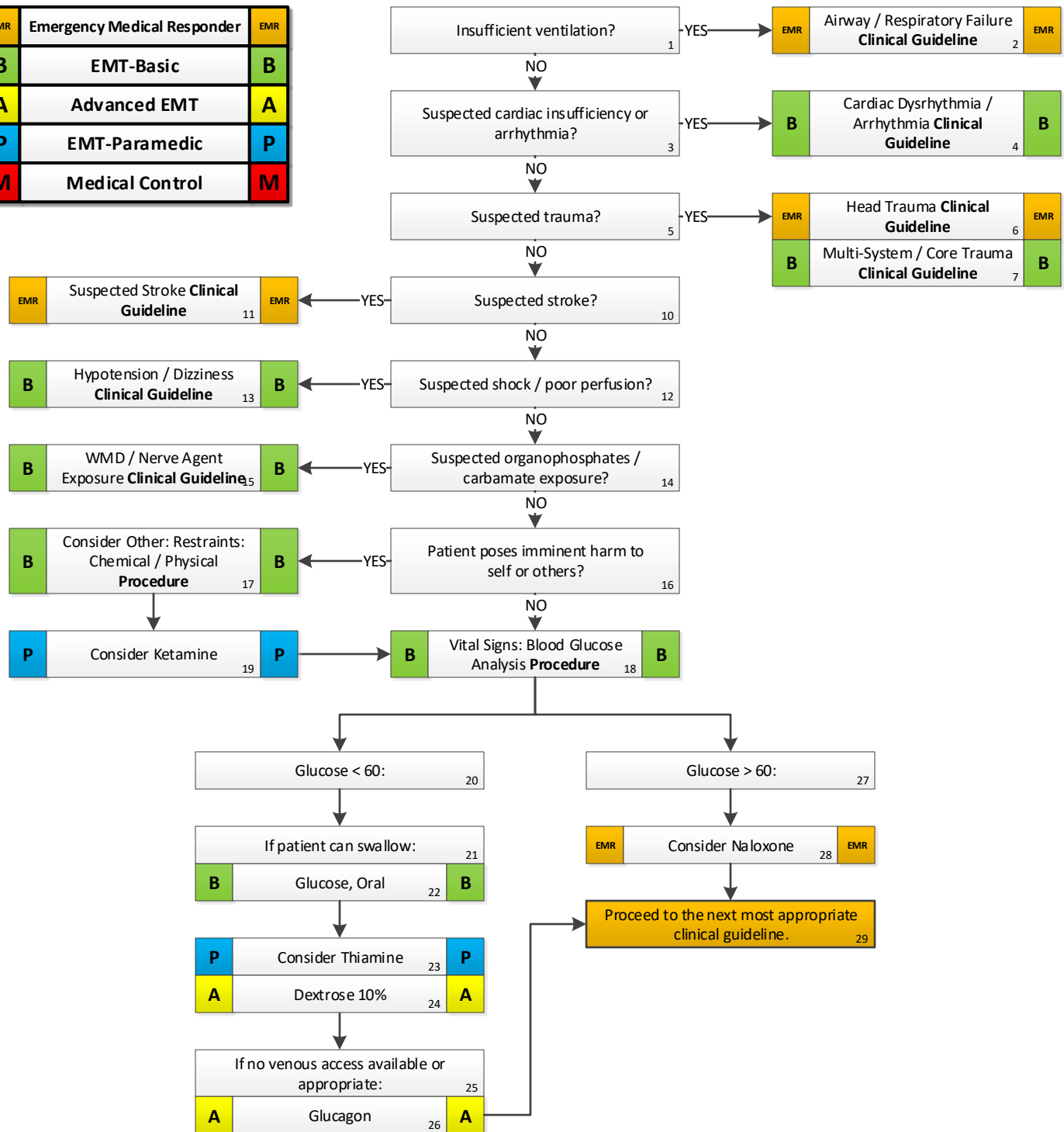


Pearls:

- **Recommended Exam: Mental Status, Skin, HEENT, Neck, Heart, Lungs, Abdomen, Back, Extremities, Neuro.**
- **Large amounts of blood coming from ureter or rectum indicates a potential life threatening emergency.**
- Choose the lower dose of promethazine (Phenergan) for patients likely to experience sedative effects (e.g., elderly, debilitated, etc.) Document the mental status and vital signs prior to administration of Promethazine.
- Beware of vomiting only in children. Pyloric stenosis, bowel obstruction, and CNS processes (bleeding, tumors, or increased CSF pressures) all often present with vomiting.
- Orthostatic VS's should never delay transport. Compare supine to sitting VS's while enroute.
- **Abdominal aneurysms are a concern in patients over the age of 50.**
- Kidney stones typically present with an acute onset of flank pain which radiates around to the groin area.
- Patients with midline pain over the spinous processes should be spinally immobilized.
- Any bowel or bladder incontinence is a significant finding which requires immediate medical evaluation
- Abdominal pain in women of childbearing age should be treated as an ectopic pregnancy until proven otherwise.
- Appendicitis may present with vague, peri-umbilical pain which migrates to the RLQ over time.

Altered Mental Status

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

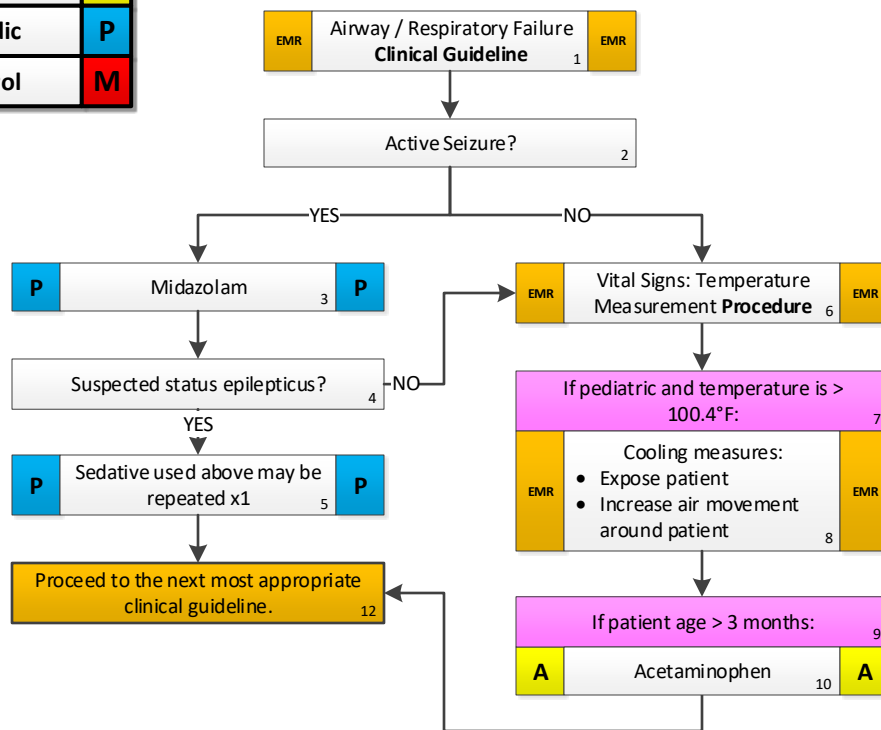


Pearls:

- Pay careful attention to the head exam for signs of bruising or other injury.
- Be aware of AMS as presenting sign of an environmental toxin or Hazardous Material exposure and protect personal safety.
- It is safer to assume hypoglycemia than hyperglycemia if doubt exists. **Recheck blood glucose after Dextrose or Glucagon administration.**
- Do not let alcohol confuse the clinical picture. Alcoholics frequently develop hypoglycemia and may have unrecognized injuries.
 - Low glucose (< 60)
 - Normal glucose (60 - 120)
 - High glucose (120 - 250)
 - Severely high glucose (> 250)
- Consider restraints if necessary for patient's and/or personnel's protection per the restraint procedure.
- In a sedated patient or one who is suspected of suffering from an overdose an absolute end-tidal CO2 value of 50 mm Hg or an increase of >10 mm Hg over baseline may indicate respiratory depression.

Seizure

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

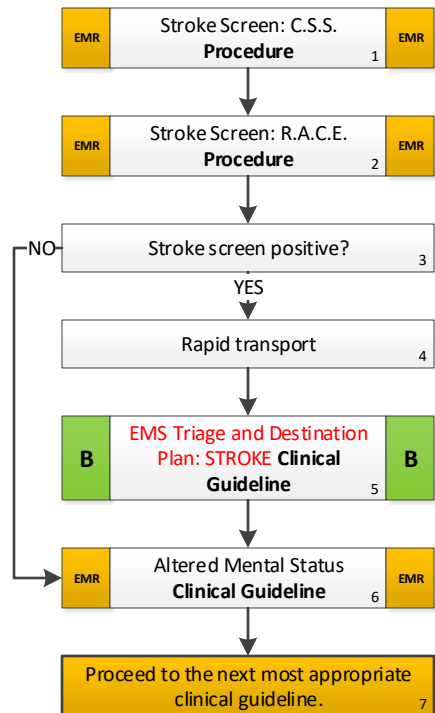


Pearls:

- Repeat doses of benzodiazepines will NOT exceed MAX DOSE without Medical Control.
- Medication administration is only indicated if patient is actively seizing.
- Addressing the ABCs and verifying blood glucose is more important than stopping the seizure.
- Avoiding hypoxemia is extremely important.
- Status Epilepticus is defined as two or more successive seizures without a period of consciousness or recovery. This is a true emergency requiring attentive airway control, treatment, and transport.
- Grand mal seizures (generalized) are associated with loss of consciousness, possible incontinence, and tongue trauma.
- Focal seizures (petit mal) effect only a part of the body and do not usually result in a loss of consciousness.
- Jacksonian seizures start as a focal seizure and become generalized.
- Be prepared to assist ventilations, especially if a benzodiazepine is used.

Suspected Stroke

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

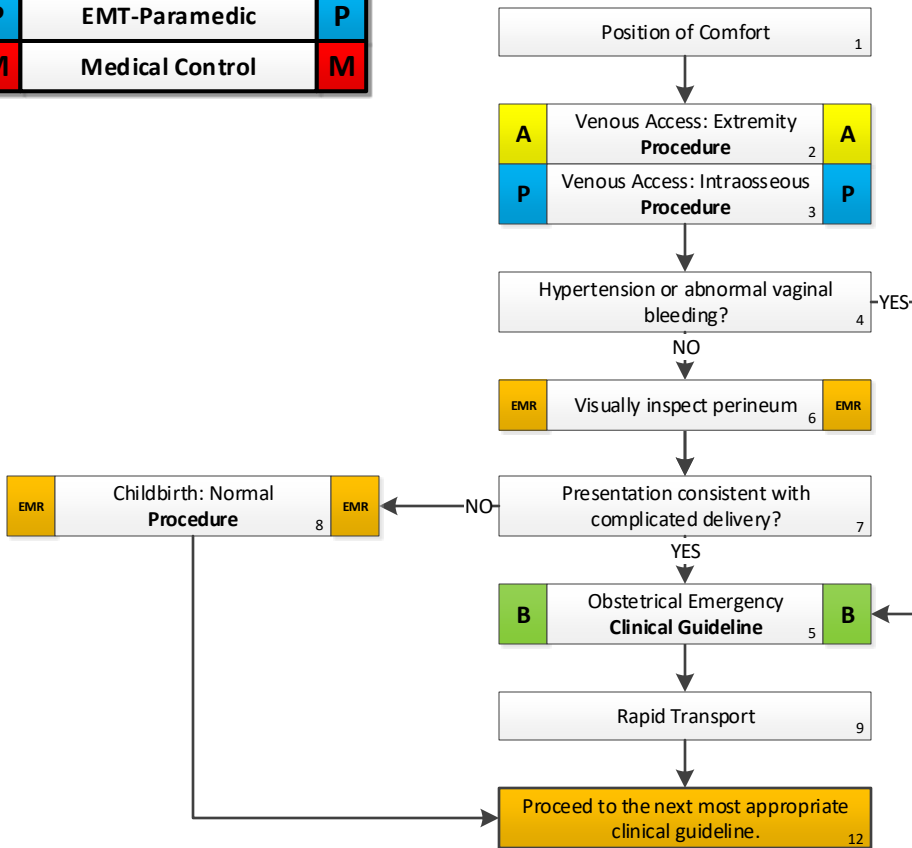


Pearls:

- The Reperfusion Checklist should be completed for any suspected stroke patient.
- Scene times should be limited to 10 minutes.
- Onset of symptoms is defined as the last witnessed time the patient was symptom free (i.e. awakening with stroke symptoms would be defined as an onset time of the previous night when patient was symptom free).
- The differential listed on the Altered Mental Status Clinical Guideline should also be considered.
- Elevated blood pressure is commonly present with stroke.
- Be alert for airway problems (swallowing difficulty, vomiting/aspiration).
- Hypoglycemia can present as a localized neurologic deficit, especially in the elderly.
- Document the Stroke Screen results in the PCR.
- Scene times, defined from "patient contact" to "left scene," greater than 10 minutes must be explained in the narrative

Childbirth / Labor

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

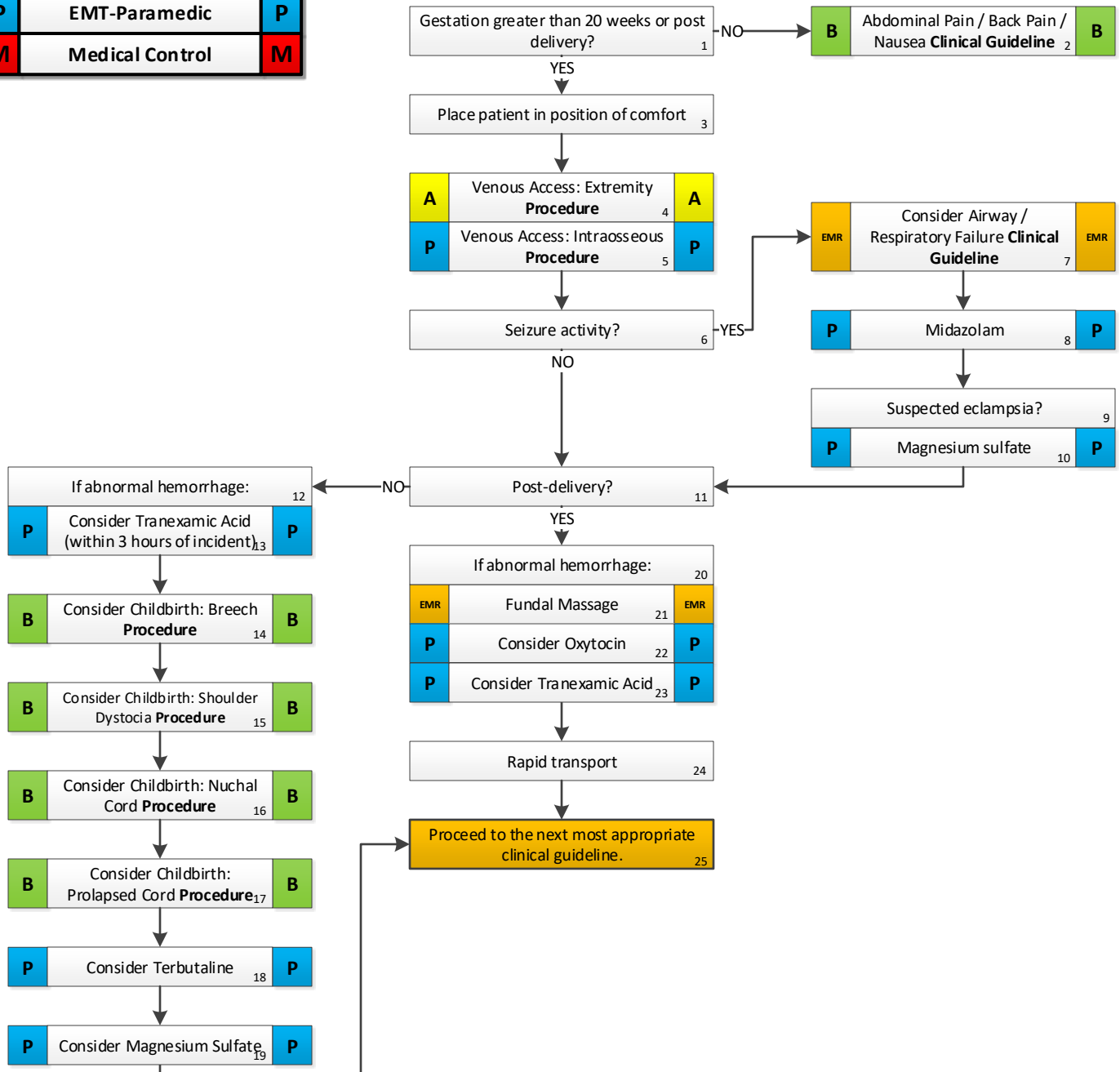


Pearls:

- Document all times (delivery, contraction frequency, and length).
- If maternal seizures occur, refer to the Obstetrical Emergencies Clinical Guideline.
- After delivery, massaging the uterus (lower abdomen) will promote uterine contraction and help to control post-partum bleeding.
- Some perineal bleeding is normal with any childbirth.
- Record APGAR at 1 minute and 5 minutes after birth.
- Complicated delivery includes:
 - Prolapsed Cord (apply gentle pressure to head to relieve pressure on cord).
 - Large quantities of blood or free bleeding.
 - Breach Birth (presentation of a limb before head).
 - Known or suspected placenta previa.

Obstetrical Emergency

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

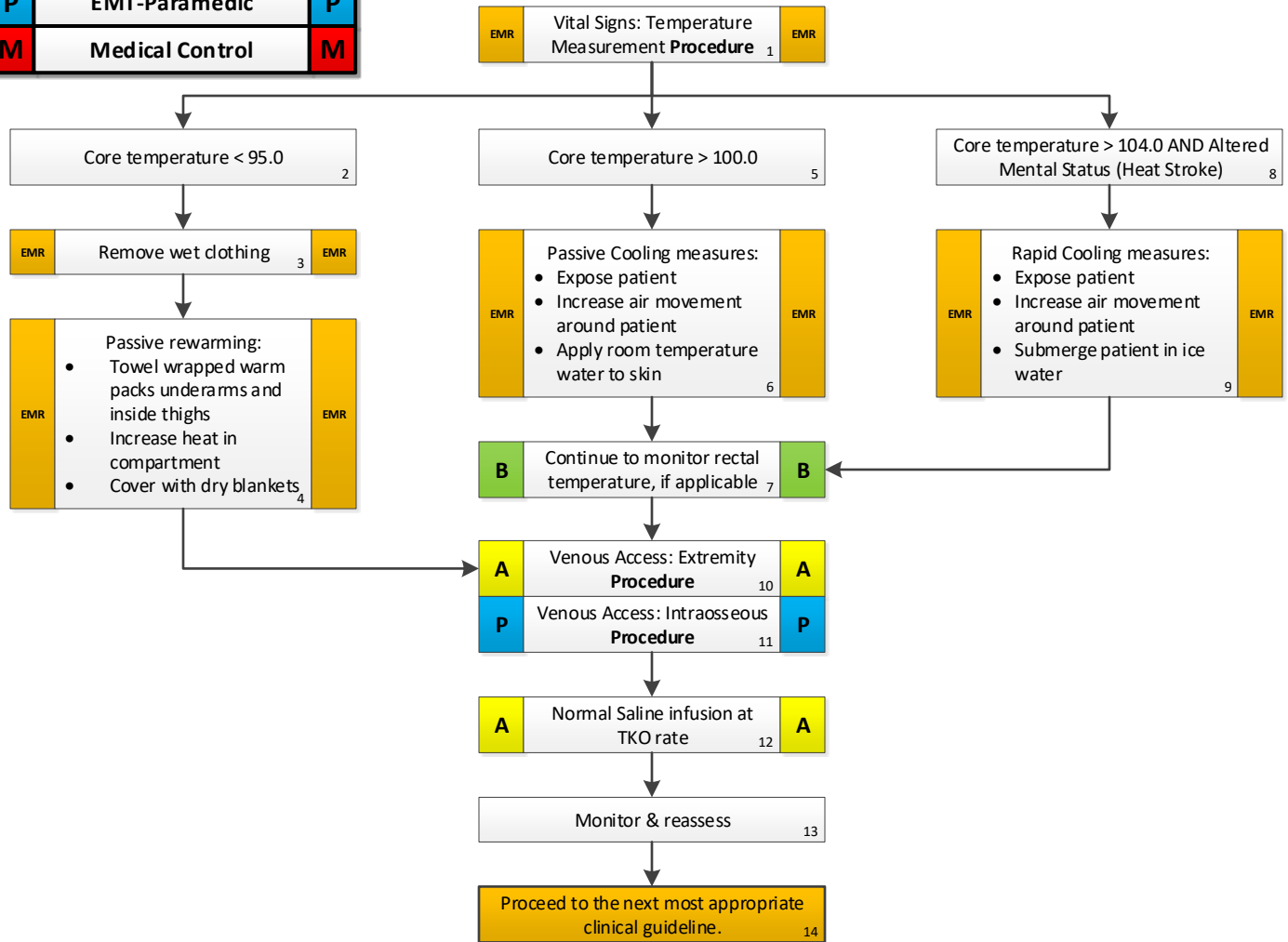


Pearls:

- **Severe headache, vision changes, or RUQ pain may indicate preeclampsia if over 20 weeks.**
- In the setting of pregnancy, hypertension is defined as a BP greater than 140 systolic **OR** greater than 90 diastolic, or a relative increase of 30 systolic and 20 diastolic from the patient's normal (pre-pregnancy) blood pressure.
- Place patient in a position of comfort. **Consider placing patient in left lateral position to minimize risk of supine hypotensive syndrome.**
- Ask patient to quantify bleeding. i.e. Number of pads used / hour.
- Any pregnant patient involved in a MVC should be seen immediately by a physician for evaluation and fetal monitoring.
- **Magnesium sulfate may cause hypotension and decreased respiratory drive. Use with caution.**
- This clinical guideline is intended to be used for women who are greater than 20 weeks gestation. *By palpating the umbilicus with one finger, the uterus height should be above the umbilicus and finger.*

Hypothermia / Hyperthermia

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

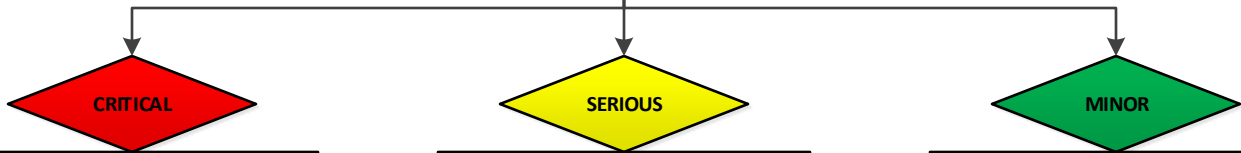
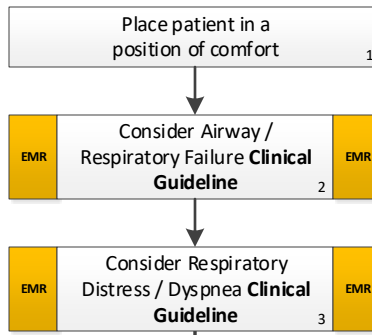


Pearls:

- Extremes of age are more prone to heat emergencies (i.e. young and old).
- Predisposed by use of: tricyclic antidepressants, phenothiazine's, anticholinergic medications, and alcohol.
- Cocaine, Amphetamines, and Salicylates may elevate body temperatures.
- Sweating generally disappears as body temperature rises above 104° F (40° C).
- **Intense shivering may occur as patient is cooled – which should be avoided.**
- Heat Stroke: consists of dehydration, tachycardia, hypotension, temperature > 104° F (40° C), and an altered mental status.
- **NO PATIENT IS DEAD UNTIL 95 DEG RECTAL AND DEAD or findings incompatible with life.**
- Defined as core temperature < 35° C (95° F).
- Extremes of age are more susceptible (i.e. young and old).
- With core temperature less than 30° C (86° F):
 - Ventricular fibrillation is common cause of death. Handling patients gently may prevent this.
 - Pacing/Defibrillation should not be done.
 - Defibrillate 1 time if defibrillation is required and withhold IV medicines
 - Normal defibrillation procedure may resume once patient reaches 30 degrees C or 86 F.
 - If the temperature is unable to be measured, treat the patient based on the suspected temperature.
 - Hypothermia may produce severe bradycardia-
 - Hot packs can be activated and placed in the armpit and groin area if available. Care should be taken not to place packs directly against the patient's skin.
- Intubation can cause ventricular fibrillation as can hyperventilation.

Burn Algorithm

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M



- > 15% Total Burn Surface Area 2nd/3rd Degree Burn
- Burns with Multiple Trauma
- Burns with definitive airway compromise
- TRANSPORT to a burn center

- 5 - 15% Total Burn Surface Area 2nd/3rd Degree Burn
- Suspected inhalation injury or requiring intubation for airway stabilization
- Hypotension or GCS < 14
- TRANSPORT to a burn center or trauma center

- < 5% Total Burn Surface Area 2nd/3rd Degree Burn
- No inhalation injury, not intubated, normotensive
- GCS > 14
- TRANSPORT to hospital of choice

- For eye involvement:
- Continuous saline flush in affected eye.
 - Flush area with water or Normal Saline for 10-15 minutes
 - Remove clothing or expose area.
 - Remove rings, bracelets, and other constricting items.
 - Cover burn with dry sterile dressing.

13 Cool wound with normal saline

14 Cover burn with dry sterile dressing.

15 Vital Signs: Pain Assessment Procedure

16 Consider Other: Severe Pain Procedure

17 Consider Fentanyl

18 Consider Morphine

19 Consider Ketamine

20 Proceed to the next most appropriate clinical guideline.

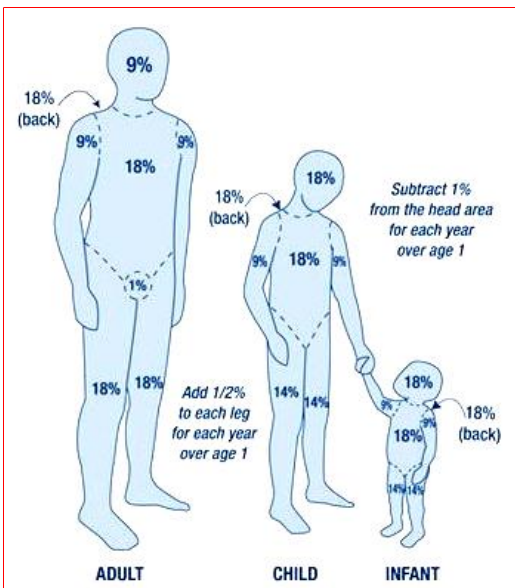
7 Venous Access: Extremity Procedure

8 Venous Access: Intraosseous Procedure

9 Normal Saline

10 Rapid transport

11 EMS Triage and Destination Plan: TRAUMA Clinical Guideline



Trauma Clinical Guidelines

Burn Pearls

CRITICAL

- > 15% Total Burn Surface Area 2nd/3rd Degree Burn
- Burns with Multiple Trauma
- Burns with definitive airway compromise
- TRANSPORT to a burn center

SERIOUS

- 5 - 15% Total Burn Surface Area 2nd/3rd Degree Burn
- Suspected inhalation injury or requiring intubation for airway stabilization
- Hypotension or GCS < 14
- TRANSPORT to a burn center or trauma center

MINOR

- < 5% Total Burn Surface Area 2nd/3rd Degree Burn
- No inhalation injury, not intubated, normotensive
- GCS > 14
- TRANSPORT to hospital of choice

Critical Burns:

- **Critical or Serious Burns > 5-15% total body surface area (TBSA);**
- 2nd or 3rd degree burns, or
- 3rd degree burns > 5% TBSA for any age group, or
 - circumferential burns of extremities, or
 - electrical or lightning injuries, or
 - suspicion of abuse or neglect, or
 - inhalation injury, or
 - chemical burns, or
 - burns of face, hands, perineum, or feet, or
 - any burn requiring hospitalization.
- These burns will require direct transport to a burn center, or transfer once seen at a local facility where the patient can be stabilized with interventions such as airway management or pain relief if this is not available in the field or the distance to a Burn Center is significant.

Thermal Pearls:

- **Burn patients are Trauma Patients, evaluate for multisystem trauma.**
- Assure whatever has caused the burn, is no longer contacting the injury.
(Stop the burning process!)
- Recommended Exam: Mental Status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, and Neuro.
- Early intubation is required when the patient experiences significant inhalation injuries. Follow airway clinical guideline.
- Potential CO exposure should be treated with 100% oxygen. (For patients with the primary event is CO inhalation, transport to a hospital equipped with a hyperbaric chamber is indicated [when reasonably accessible].)
- Circumferential burns to extremities are dangerous due to potential vascular compromise secondary to soft tissue swelling.
- Burn patients are prone to hypothermia - never apply ice or cool burns, must maintain normal body temperature.
- Evaluate the possibility of child abuse with children and burn injuries.

Chemical Pearls:

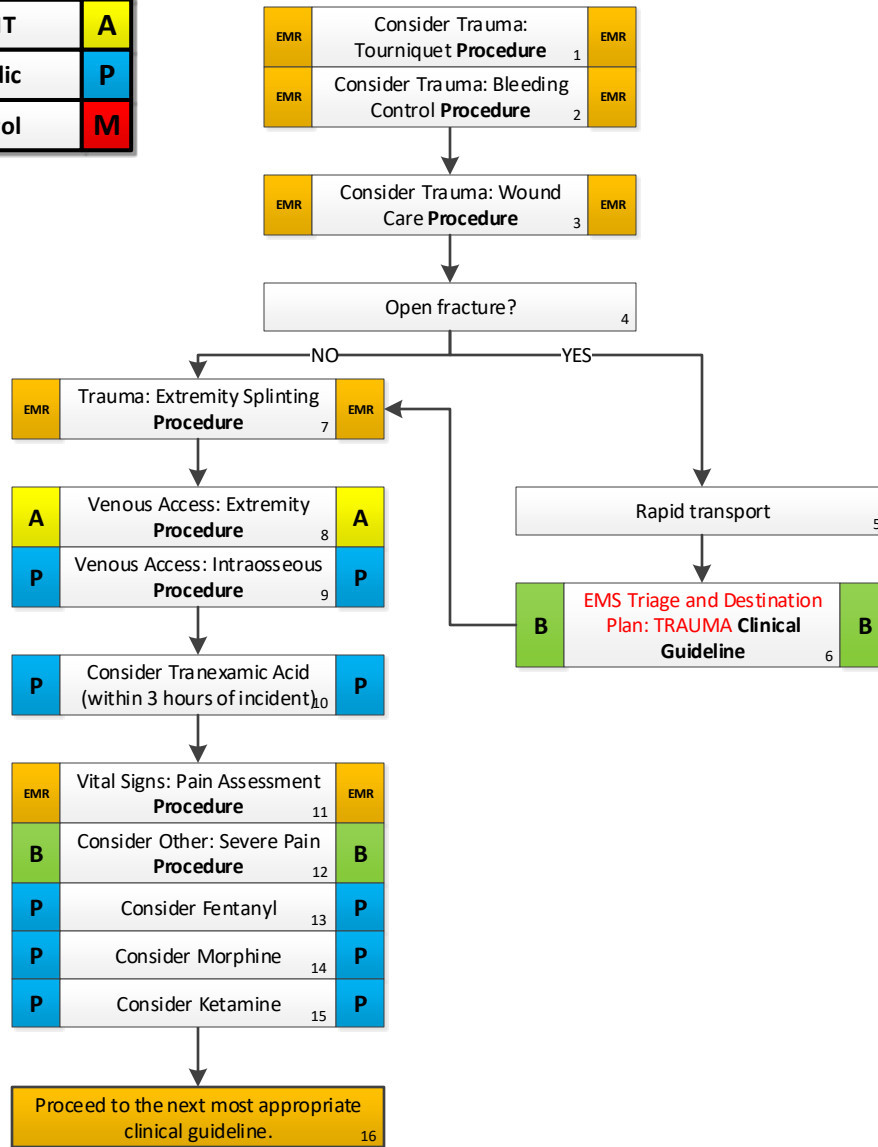
- **Refer to Decontamination Standard**
- Procedure (Skill) WMD Page
- Certainly 0.9% Normal Saline or Sterile Water is preferred, however if it is not readily available, do not delay, use tap water for flushing the affected area or other immediate water sources.
- Flush the area as soon as possible with the cleanest readily available water or saline solution using copious amounts of fluids.

Electrical Pearls:

- **Do not contact the patient until you are certain the source of the electric shock has been disconnected.**
- Attempt to locate contact points, (entry wound where the AC source contacted the patient, an exit at the ground point) both sites will generally be full thickness.
- Cardiac monitor, anticipate ventricular or atrial irregularity, to include V-tach, Vfib, heart blocks, etc.
- Attempt to identify the nature of the electrical source (AC vs DC), the amount of voltage and the amperage the patient may have been exposed to during the electrical shock.

Extremity Trauma

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

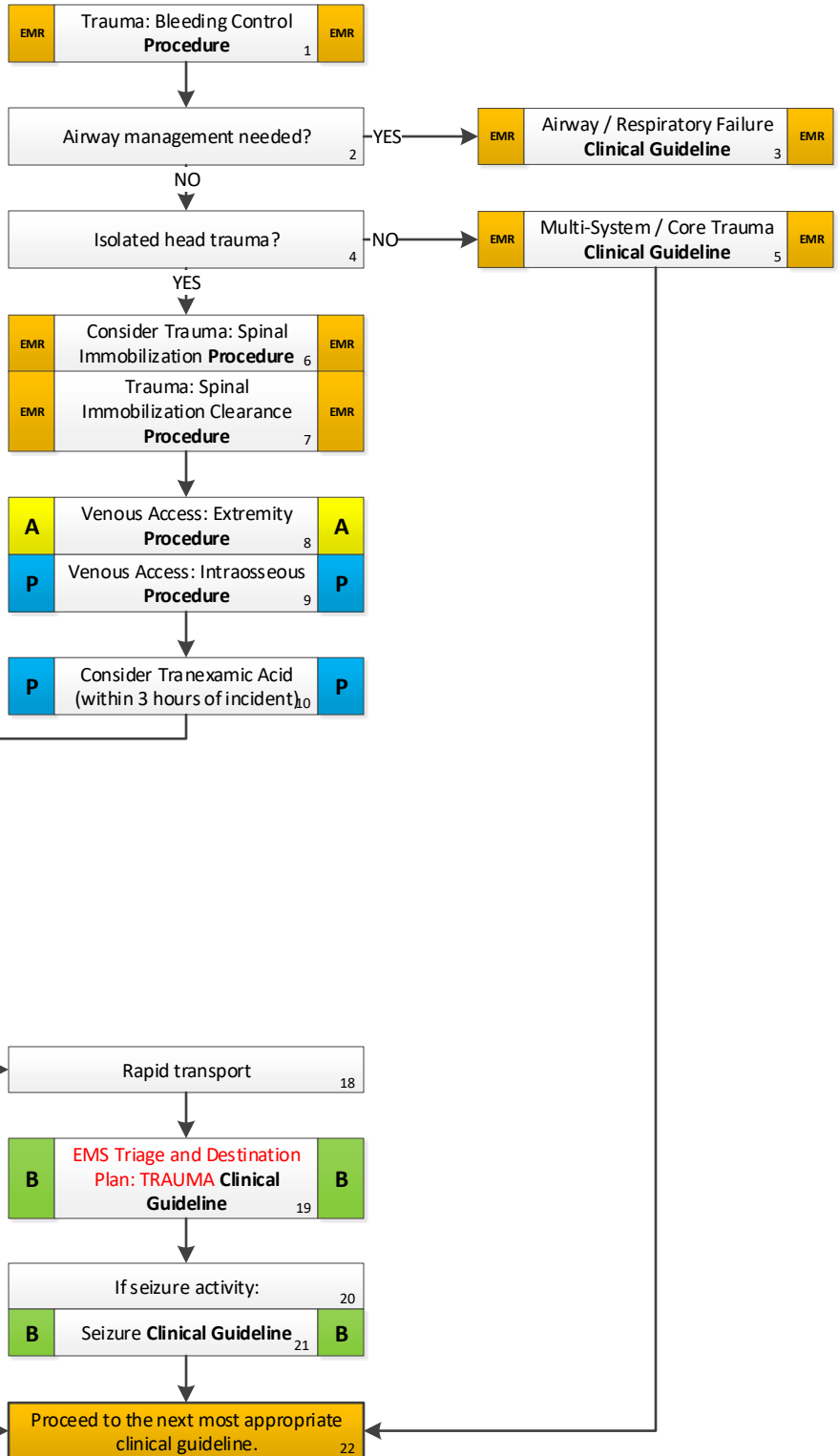


Pearls:

- Peripheral neurovascular status is important.
- In amputations, time is critical. Notify medical control immediately, so that the appropriate destination can be determined.
- For patients trapped by a partially amputated limb, call Medical Control to request a trauma surgeon on scene.
- Hip dislocations and knee and elbow fracture / dislocations have a high incidence of vascular compromise.
- Urgently transport any injury with vascular compromise.
- Blood loss may be concealed or not apparent with extremity injuries.

Head Trauma

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M



Pearls:

- Increased intracranial pressure (ICP) may cause hypertension and bradycardia (Cushing's Response).
- Hypotension usually indicates injury or shock unrelated to the head injury and should be aggressively treated.
- The most important item to monitor and document is a change in the level of consciousness.
- Consider restraints if necessary for patient's and/or personnel's protection per the Other: Restraints: Chemical / Physical Procedure.
- **Concussions are periods of confusion or LOC associated with trauma which may have resolved by the time EMS arrives. Any prolonged confusion or mental status abnormality which does not return to normal within 15 minutes or any loss of consciousness should be evaluated by a physician ASAP.**
- Evidence suggests that endotracheal intubation of the patient with a head injury may have a negative effect on that patient's outcome.

Multi-System / Core Trauma

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

EMR	Trauma: Chest Seal Procedure	EMR
P	Airway: Thoracic Needle Decompression Procedure	P

External Hemorrhage or penetrating / open wound? ¹

EMR	Trauma: Bleeding Control Procedure	EMR
EMR	Trauma: Tourniquet Procedure	EMR
EMR	Trauma: Wound Packing Procedure	EMR

Expose injuries as needed ⁵

Penetrating or open wound to the core? ⁶

Airway management needed? ⁹

EMR	Airway / Respiratory Failure Clinical Guideline	EMR
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EMR	Consider Trauma: Spinal Immobilization Procedure	EMR
EMR	Trauma: Spinal Immobilization Clearance Procedure	EMR

External bleeding, open wounds or other damage to skin? ¹³

EMR	Consider Trauma: Extremity Splinting Procedure	EMR
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A	Venous Access: Extremity Procedure	A
P	Venous Access: Intraosseous Procedure	P

EMR	Consider Trauma: Wound Care Procedure	EMR
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Consider Tranexamic Acid (within 3 hours of incident) ¹⁸

EMR	Vital Signs: Pain Assessment Procedure	EMR
B	Consider Other: Severe Pain Procedure	B
P	Consider Fentanyl	P
P	Consider Morphine	P
P	Consider Ketamine	P

Rapid transport ²⁴

B	EMS Triage and Destination Plan: TRAUMA Clinical Guideline	B
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Proceed to the next most appropriate clinical guideline. ²⁶

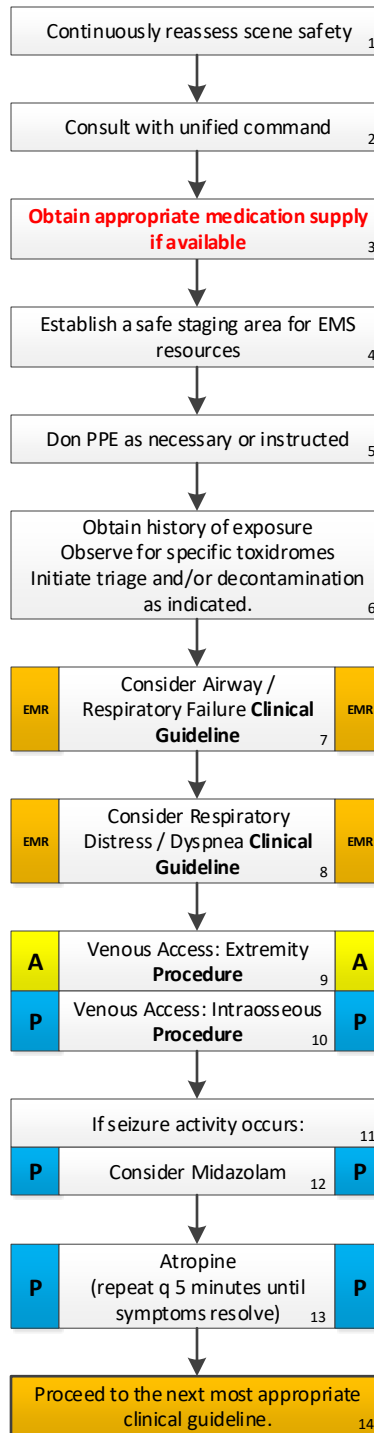
Trauma Clinical Guidelines

Pearls:

- Transport Destination is chosen based on the EMS System Trauma Plan with EMS pre-arrival notification.
- Geriatric patients should be evaluated with a high index of suspicion. Often occult injuries are more difficult to recognize and patients can decompensate unexpectedly with little warning.
- Mechanism is the most reliable indicator of serious injury.
- Do not overlook the possibility of associated domestic violence or abuse.
- Scene times should not be delayed for procedures. These should be performed en route when possible. Rapid transport of the unstable trauma patient is the goal. IV fluid boluses have not been shown to improve outcome and will not delay transport.
- Scene times (patient contact to left scene) greater than 10 minutes must be explained in the narrative

WMD / Nerve Agent Exposure

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M



Pearls:

- In the face of a bona fide attack, begin with 1 Nerve Agent Kit for patients less than 7 years of age, 2 Nerve Agent Kits from 8 to 14 years of age, and 3 Nerve Agent Kits for patients 15 years of age and over.
- Nerve Agent Kits will have to be obtained through EMS chain of command or Medical Control.
- If Triage/MCI issues exhaust supply of Nerve Agent Kits, use atropine. Use the 0.5 mg dose if patient is less than 40 pounds (18 kg), 1 mg dose if patient weighs between 40 to 90 pounds (18 to 40 kg), and 2 mg dose for patients greater than 90 pounds (> 40 kg).
- Follow local HAZMAT clinical guidelines for decontamination and use of personal protective equipment.
- For patients with major symptoms, there is no limit for atropine dosing.
- Carefully evaluate patients to ensure they not from exposure to another agent (e.g., narcotics, vesicants, etc.)
- The main symptom that the atropine addresses is excessive secretions so atropine should be given until salivation improves.

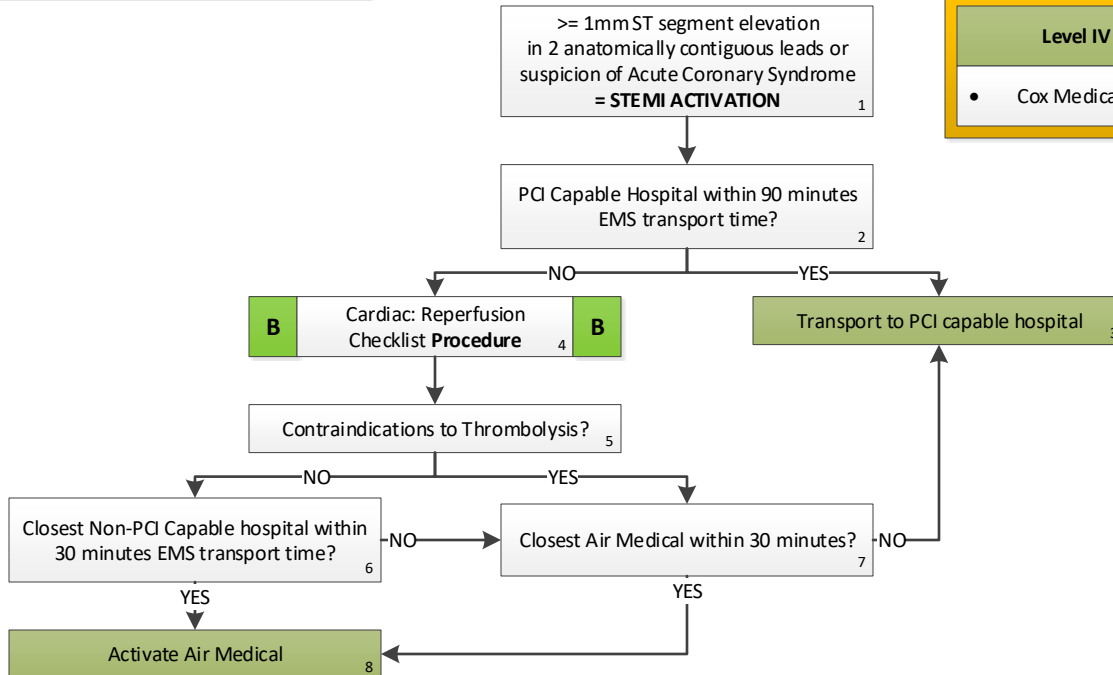
EMS Triage and Destination Plan: STEMI

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

Level I STEMI Centers:
<ul style="list-style-type: none"> Cox Medical Center South Mercy Health Center Springfield

Level II STEMI Centers:
<ul style="list-style-type: none"> Citizens Memorial Hospital Ozarks Medical Center Cox Medical Center Branson

Level IV STEMI Centers:
<ul style="list-style-type: none"> Cox Medical Center Monett



Pearls:

- **All STEMI Patients must be triaged and transported using this plan.**
- Refer to Patient Contact Decision Tree Clinical Guideline for patient care.
- **PCI hospital:** A hospital with an emergency interventional cardiac catheterization laboratory capable of providing the following services to acute STEMI patients: (**Free standing emergency departments and satellite facilities are not considered part of the PCI capable hospital.**)
 - 24/7 PCI capability within 30 minutes of notification (interventional cardiologist present at the start of the case)
 - Single Call Activation number for use by EMS
 - Amlepts all patients regardless of bed availability
 - Provides outcome and performance measure feedback to EMS including case review
- **Non-PCI Hospital:** A local hospital within the EMS System's service area which provides emergency care, including thrombolytic administration, to an acute STEMI patient but does NOT provide PCI services.

EMS Triage and Destination Plan: **STROKE**

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

Level I Stroke Centers:

- Cox Medical Center South

Level II Stroke Centers:

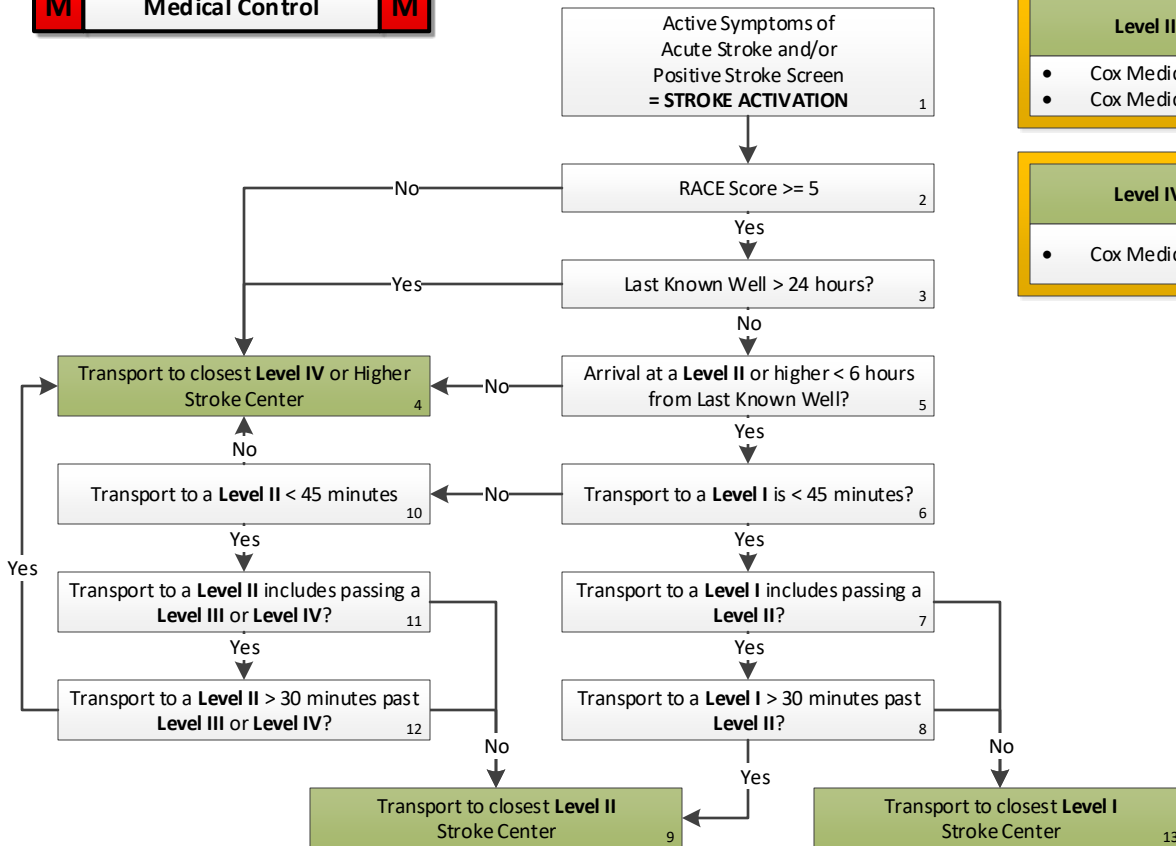
- Mercy Health Center Springfield
- Ozarks Medical Center

Level III Stroke Centers:

- Cox Medical Center Branson
- Cox Medical Center Barton County

Level IV Stroke Centers:

- Cox Medical Center Monett



Pearls:

- All **STROKE** Patients must be triaged and transported using this plan.
- Refer to Patient Contact Decision Tree Clinical Guideline for patient care.
- Level I Stroke Center:** A hospital which is currently accredited by the Joint Commission as a Level I Stroke Center. (Free standing emergency departments and satellite facilities are not consider part of the Level I Stroke Center).
- Stroke Centers:**
 - CT availability with in-house technician availability 24/7/365
 - Ability to rapidly evaluate an acute stroke patient to identify patients who would benefit from thrombolytic administration
 - Ability and willingness to administer thrombolytic agents to eligible acute stroke patients
 - Accepts all patients regardless of bed availability
 - Provides outcome and performance measure feedback to EMS including case review
- Non-Stroke Center Hospital:** A local hospital within the EMS System's service area which provides emergency care but does not meet the criteria for a Stroke Center.

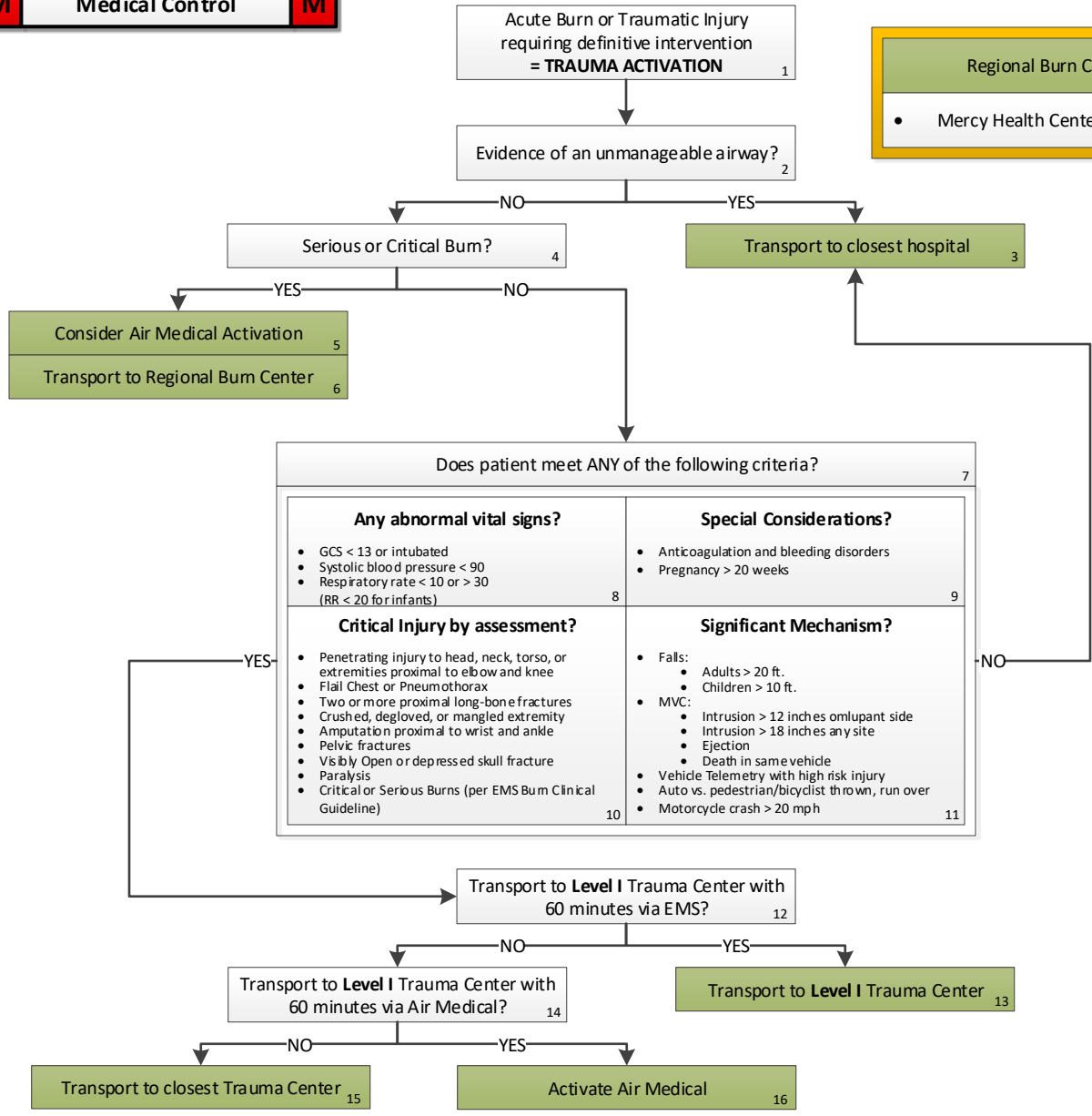
EMS Triage and Destination Plan: TRAUMA

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P
M	Medical Control	M

Level I Trauma Centers:
<ul style="list-style-type: none"> Cox Medical Center South Mercy Health Center Springfield

Level III Trauma Centers:
<ul style="list-style-type: none"> Citizens Memorial Hospital

Regional Burn Center:
<ul style="list-style-type: none"> Mercy Health Center Springfield

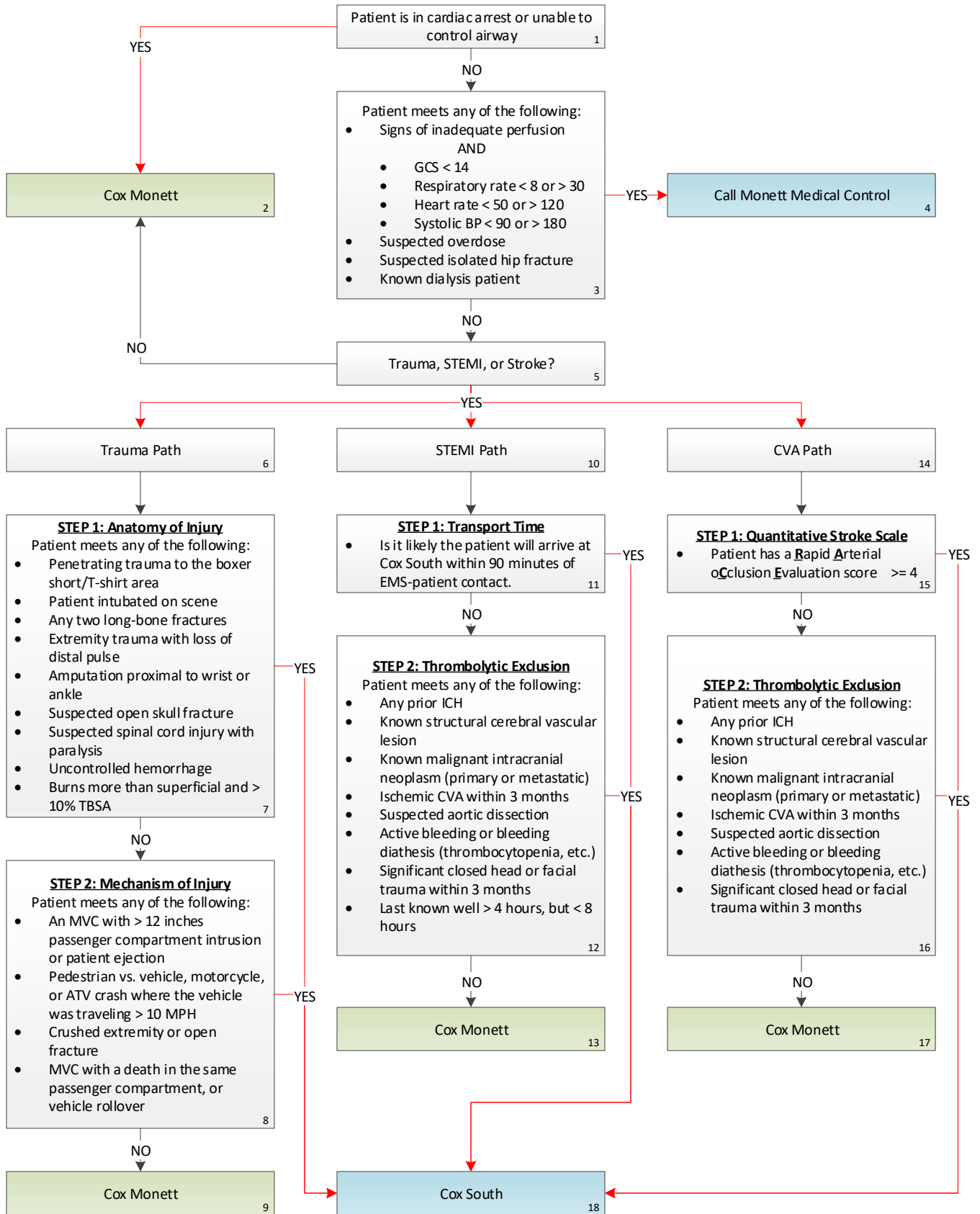


Special Circumstances Clinical Guidelines


Pearls:

- All potentially critical TRAUMA & Burn Patients must be triaged and transported using this plan.
- Refer to Patient Contact Decision Tree Clinical Guideline for patient care.
- Transport Destination is chosen based on the EMS System Trauma Plan with EMS pre-arrival notification.
- Scene times should not be delayed for procedures. These should be performed en route when possible. Rapid transport of the unstable trauma patient is the goal. IV fluid boluses have not been shown to improve outcome and will not delay transport.
- Bag valve mask is an acceptable method of managing the airway if pulse oximetry can be maintained above 92%.
- Scene times (patient contact to left scene) greater than 10 minutes must be explained in the narrative.

Monett Diversion Plan



Medications

Medication	Adult	Pediatric
<p>Acetaminophen (Tylenol)</p> <p>Clinical Guideline:</p> <p>➤ M3 - Seizure</p> <p>Indications:</p> <ul style="list-style-type: none"> Indicated for pain and fever control <p>Contraindications:</p> <ul style="list-style-type: none"> Avoid in patients with severe liver disease 	<ul style="list-style-type: none"> 650 mg PO <p style="text-align: center;">B</p>	<ul style="list-style-type: none"> 10 mg/kg PO <p style="text-align: center;">A</p>
<p>Adenosine (Adenocard)</p> <p>Clinical Guideline:</p> <p>➤ C4 – Cardiac Dysrhythmia / Arrhythmia</p> <p>Indications:</p> <ul style="list-style-type: none"> Specifically for treatment or diagnosis of supraventricular tachycardia 	<ul style="list-style-type: none"> 6 mg IV/IO fast-push over 1-3 seconds. Repeat with 12 mg IV/IO fast-push if needed. <p style="text-align: center;">P</p>	<ul style="list-style-type: none"> 0.1 mg/kg IV/IO fast-push. MAX DOSE = 6 mg Repeat with 0.2 mg/kg IV/IO fast-push if needed. MAX DOSE = 12 mg <p style="text-align: center;">P</p>
<p>Albuterol</p> <p>Clinical Guideline:</p> <p>➤ B1 – Respiratory Distress / Dyspnea</p> <p>Indications:</p> <ul style="list-style-type: none"> Beta-agonist nebulized treatment for use in respiratory distress with bronchospasm <p>Contraindications:</p> <ul style="list-style-type: none"> Avoid in ADULT patients with HR > 150. 	<ul style="list-style-type: none"> 2.5 - 5.0 mg in NEB continuously as needed. MAX DOSE = 15 mg <p style="text-align: center;">A</p>	<ul style="list-style-type: none"> 2.5 mg in NEB continuously as needed, if HR < 200. MAX DOSE = 7.5 mg <p style="text-align: center;">A</p>
<p>Amiodarone (Cordarone)</p> <p>Clinical Guideline:</p> <p>➤ C4 – Cardiac Dysrhythmia / Arrhythmia</p> <p>➤ C7 – Cardiac Arrest Critical Thinking</p> <p>Indications:</p> <ul style="list-style-type: none"> Antiarrhythmic used in V. Fib/V. Tach. <p>Contraindications:</p> <ul style="list-style-type: none"> Avoid in patients with heart block or bradycardia. 	<p><u>V. Fib / Perfusionless V-Tach</u></p> <ul style="list-style-type: none"> 300 mg IV/IO first dose 150 mg IV/IO <p><u>V-Tach with a pulse</u></p> <ul style="list-style-type: none"> 150 mg in 100 ml NS IV/IO over 10 min <p style="text-align: center;">P</p>	<p><u>V. Fib / Perfusionless V-Tach</u></p> <ul style="list-style-type: none"> 5 mg/kg IV/IO push over 5 minutes <p><u>V-Tach with a pulse</u></p> <ul style="list-style-type: none"> 5 mg/kg IV/IO push over 5 minutes <p style="text-align: center;">P</p>
<p>Aspirin</p> <p>Clinical Guideline:</p> <p>➤ C1 – Chest Pain</p> <p>Indications:</p> <ul style="list-style-type: none"> An antiplatelet drug for use in cardiac chest pain 	<ul style="list-style-type: none"> 81 mg chewable (baby) x4 or 325 mg chewable tablet. <p style="text-align: center;">B</p>	
<p>Atropine</p> <p>Clinical Guideline:</p> <p>➤ C4 – Cardiac Dysrhythmia / Arrhythmia</p> <p>➤ S1 – WMD / Nerve Agent Exposure</p> <p>Indications:</p> <ul style="list-style-type: none"> Anticholinergic drug used in bradycardias. In organophosphate toxicity, large doses may be required. 	<p><u>Bradycardia</u></p> <ul style="list-style-type: none"> 0.5 - 1.0 mg IV/IO every 3 - 5 minutes. MAX DOSE = 3 mg. <p><u>Organophosphate</u></p> <ul style="list-style-type: none"> 1 - 2 mg IV/IM q prn <p style="text-align: center;">P</p>	<p><u>Organophosphate</u></p> <ul style="list-style-type: none"> 0.02 mg/kg IV/IO or otherwise as per medical control <p style="text-align: center;">P</p>

Medications

Medication	Adult	Pediatric
<p>Calcium Chloride</p> <p>Clinical Guideline:</p> <p>➤ C7 – Cardiac Arrest Critical Thinking</p> <p>Indications:</p> <ul style="list-style-type: none"> Indicated for severe hyperkalemia, hypermagnesemia, calcium channel blocker overdose. <p>Contraindications:</p> <ul style="list-style-type: none"> Avoid use if patient is taking digoxin. 	<ul style="list-style-type: none"> 1 g IV/IO slowly To be used with sodium bicarbonate <p style="text-align: center;">P</p>	<ul style="list-style-type: none"> 20 mg/kg IV/IO slowly To be used with sodium bicarbonate <p style="text-align: center;">P</p>
<p>Cardiac Electrical Intervention</p> <p>Clinical Guideline:</p> <p>➤ C4 – Cardiac Dysrhythmia / Arrhythmia</p> <p>➤ C5 – Cardiac Arrest</p> <p>➤ C6 – Pediatric Cardiac Arrest</p> <p>➤ C7 – Cardiac Arrest Critical Thinking</p> <p>Indications:</p> <ul style="list-style-type: none"> Unstable cardiac dysrhythmias 	<p><u>Perfusionless V. Fib/V.Tach:</u></p> <ul style="list-style-type: none"> 200 j initially. 300 j secondary. 360 j subsequently. <p style="text-align: center;"><u>Synchronized:</u></p> <ul style="list-style-type: none"> 100 j initially. 200 j subsequently or in wide QRS initially. <p style="text-align: center;"><u>Pacing:</u></p> <ul style="list-style-type: none"> Begin pacing \geq 80 bpm. Initial settings of 150 mA are acceptable. <p style="text-align: center;">P</p>	<p><u>Perfusionless V. Fib/V.Tach:</u></p> <ul style="list-style-type: none"> 2 j/kg initially. 4 j/kg subsequently. <p style="text-align: center;"><u>Synchronized:</u></p> <ul style="list-style-type: none"> 1 j/kg initially. 2 j/kg subsequently or in wide QRS initially. <p style="text-align: center;">P</p>
<p>Dextrose 10% Glucose</p> <p>Clinical Guideline:</p> <p>➤ C7 – Cardiac Arrest Critical Thinking</p> <p>➤ M2 – Altered Mental Status</p> <p>Indications:</p> <ul style="list-style-type: none"> Use in unconscious or hypoglycemic states 	<ul style="list-style-type: none"> 25g in 250 ml NS IV/IO prn until patient is fully alert to normal and BGL is normal <p style="text-align: center;">A</p>	<ul style="list-style-type: none"> 2-10 ml/kg IV/IO starting at low dose Repeat as needed <p style="text-align: center;">A</p>
<p>Diltiazem (Cardizem)</p> <p>Clinical Guideline:</p> <p>➤ C4 – Cardiac Dysrhythmia / Arrhythmia</p> <p>Indications:</p> <ul style="list-style-type: none"> Calcium channel blocker used to treat narrow complex SVT & atrial arrhythmias (generally $>$ 130 bpm) <p>Contraindications:</p> <ul style="list-style-type: none"> Use caution as severe hypotension can result 	<ul style="list-style-type: none"> 0.25 mg/kg IV/IO slow push Administer a second dose after 5-10 minutes if minimal or no change from first dose. <p>MAX PER DOSE = 20 mg.</p> <p style="text-align: center;">P</p>	<p>∅</p>
<p>Diphenhydramine (Benadryl)</p> <p>Clinical Guideline:</p> <p>➤ B2 – Allergic Reaction / Envenomation</p> <p>Indications:</p> <ul style="list-style-type: none"> Antihistamine for control of allergic reactions. <p>Contraindications:</p> <ul style="list-style-type: none"> Do not give in infants $<$ 3 mo. 	<ul style="list-style-type: none"> 25-50 mg IV/IO/IM slow push 25-50 mg Flavored Oral Suspension PO <p style="text-align: center;">P</p>	<ul style="list-style-type: none"> 1 mg/kg IV/IO/IM slow push 1 mg/kg Flavored Oral Suspension PO <p>MAX DOSE = 25 mg</p> <p style="text-align: center;">P</p>

Medications

Medication	Adult	Pediatric
<p><u>Epinephrine 1 mg/1 ml (Adrenaline)</u></p> <p>Clinical Guideline:</p> <ul style="list-style-type: none"> > B1 – Respiratory Distress / Dyspnea > B2 – Allergic Reaction / Envenomation <p>Indications:</p> <ul style="list-style-type: none"> Vasopressor used in allergic reactions or anaphylaxis 	<ul style="list-style-type: none"> 0.3 mg IM (if age < 50 yrs) 0.15 mg IM (if age > 50 yrs) <p><u>Nebulized Epinephrine</u></p> <ul style="list-style-type: none"> 1 mg mixed with 2 ml of Normal Saline <p>A</p>	<ul style="list-style-type: none"> 0.01 mg/kg IM MAX DOSE = 0.3 mg <p><u>Nebulized Epinephrine</u></p> <ul style="list-style-type: none"> 1 mg mixed with 2 ml of Normal Saline <p>A</p>
<p><u>Epinephrine 10 mcg/1 ml</u></p> <p>Clinical Guideline:</p> <ul style="list-style-type: none"> > C3 – Hypotension / Dizziness > C5 – Cardiac Arrest > C6 – Pediatric Cardiac Arrest <p>Indications:</p> <ul style="list-style-type: none"> Vasopressor used in hypotensive shock, distributive shock & cardiac arrest. <p>Contraindications:</p> <ul style="list-style-type: none"> Hypovolemic shock, obstructive shock, or trauma. 	<p><u>Cardiac Arrest</u></p> <ul style="list-style-type: none"> Add 1 ml of Epi 1 mg/1 ml to 100 ml of NS wide open IV/IO Repeat q 3-5 minutes prn <p><u>Hypotension</u></p> <ul style="list-style-type: none"> Add 1 ml of Epi 1 mg/1 ml to 100 ml of NS, administer 2 ml IV/IO q 3-5 minutes prn, titrate to a MAP > 65 mmHg <p>P</p>	<p><u>Cardiac Arrest</u></p> <ul style="list-style-type: none"> Add 1 ml of Epi 1 mg/1 ml to 100 ml of NS, administer 1 ml/kg IV/IO Repeat q 3-5 minutes prn <p>P</p>
<p><u>Fentanyl (Sublimaze)</u></p> <p>Clinical Guideline:</p> <ul style="list-style-type: none"> > C1 – Chest Pain > T1 – Burn Algorithm > T3 – Extremity Trauma > T4 – Head Trauma > T5 – Multi-System / Core Trauma <p>Indications:</p> <ul style="list-style-type: none"> Narcotic pain relief <p>Contraindications:</p> <ul style="list-style-type: none"> Avoid use if Systolic BP < 110 	<ul style="list-style-type: none"> 50 - 100 mcg IV/IO/IM/IN then 50-100 mcg IV/IO/IM/IN every 15 minutes as needed, monitor respiratory drive and LOC. MAX DOSE = 100 mcg <p>P</p>	<ul style="list-style-type: none"> 1 - 2 mcg/kg IV/IO/IM single dose only. MAX DOSE = 50 mcg 0.5 - 2 mcg/kg IN. MAX DOSE = 100 mcg <p>P</p>
<p><u>Furosemide (Lasix)</u></p> <p>Clinical Guideline:</p> <ul style="list-style-type: none"> > B1 – Respiratory Distress / Dyspnea <p>Indications:</p> <ul style="list-style-type: none"> Diuretic for pulmonary edema or CHF; has no proven benefit in prehospital care 	<ul style="list-style-type: none"> 20 mg IV/IO or dose to equal patient's normal single home PO dose MAX DOSE = 160 mg <p>P</p>	<p>∅</p>
<p><u>Glucagon</u></p> <p>Clinical Guideline:</p> <ul style="list-style-type: none"> > M2 – Altered Mental Status <p>Indications:</p> <ul style="list-style-type: none"> Drug acting to release glucose into blood stream by glycogen breakdown Use in patients with no IV access 	<ul style="list-style-type: none"> 1 mg IM Follow-up blood glucose in 15 minutes, if result < 60, repeat dose. <p>A</p> <p><u>Beta blocker overdose</u></p> <ul style="list-style-type: none"> 3-10 mg IV/IO slow push <p>P</p>	<ul style="list-style-type: none"> Age > 3 years 0.5 mg IM if < 25 kg 1 mg IM if > 25 kg Follow-up blood glucose in 15 minutes, if result < 60, repeat dose. <p>A</p>


Medications

Medication	Adult	Pediatric
<p>Glucose, Oral</p> <p>Clinical Guideline:</p> <p>➤ M2 - Altered Mental Status</p> <p>Indications:</p> <ul style="list-style-type: none"> Use in conscious hypoglycemic states only if patient is able to swallow on command 	<ul style="list-style-type: none"> One tube PO Repeat based on blood glucose results <p>B</p>	<ul style="list-style-type: none"> One tube PO Repeat based on blood glucose results Age > 3 years <p>B</p>
<p>Ketamine</p> <p>Clinical Guideline:</p> <p>➤ M2 - Altered Mental Status</p> <p>➤ T1 – Burn Algorithm</p> <p>➤ T3 – Extremity Trauma</p> <p>➤ T4 – Head Trauma</p> <p>➤ T5 – Multi-System / Core Trauma</p> <p>Indications:</p> <ul style="list-style-type: none"> Use in patients with suspected agitated delirium. Use in patients with significant painful traumatic injury to control pain. 	<p><u>Agitated Delirium</u></p> <ul style="list-style-type: none"> 1 mg/kg IV/IO 3 mg/kg IM/IN <p><u>Pain Control</u></p> <ul style="list-style-type: none"> 25 mg IV/IO Repeat q 15 minutes, as needed. 50 mg IM/IN <p>P</p>	<p>∅</p>
<p>Ketorolac (Toradol)</p> <p>Clinical Guideline:</p> <p>➤ M1 – Abdominal Pain / Back Pain / Nausea</p> <p>Indications:</p> <ul style="list-style-type: none"> A non-steroidal anti-inflammatory drug for pain. <p>Contraindications:</p> <ul style="list-style-type: none"> Do not use in patients with history of GI bleeding, renal insufficiency, or in patients who may need immediate surgical intervention. Not to be used in patients with allergies to aspirin or other NSAID or patients currently on anticoagulants. 	<ul style="list-style-type: none"> 15 mg IV/IO or 30 mg IM <p>P</p>	<p>∅</p>
<p>Labetalol (Trandate)</p> <p>Clinical Guideline:</p> <p>➤ C2 – Hypertension / Headache</p> <p>Indications:</p> <ul style="list-style-type: none"> Hypertensive emergency <p>Contraindications:</p> <ul style="list-style-type: none"> In the setting of hypertensive emergency consider nitroglycerin first. 	<ul style="list-style-type: none"> 20 mg Labetalol IV one time if the clinical guideline criteria are met. Medical Control Required for repeat doses. MAX DOSE = 300 mg <p>P</p>	<ul style="list-style-type: none"> 0.3 – 1 mg/kg/dose IV/IO as directed per medical control. MEDICAL CONTROL ONLY <p>M</p>
<p>Lidocaine</p> <p>Clinical Guideline:</p> <p>➤ C4 – Cardiac Dysrhythmia / Arrhythmia</p> <p>➤ C7 – Cardiac Arrest Critical Thinking</p> <p>Indications:</p> <ul style="list-style-type: none"> Only use in cardiac if Amiodarone is unavailable. Antiarrhythmic used for control of ventricular dysrhythmias. 	<p><u>Cardiac Arrhythmia</u></p> <ul style="list-style-type: none"> 1.5 mg/kg IV/IO. Initial Dose 0.75 mg/kg if age > 60 years. Repeat 1/2 initial dose in 10 minutes. DO NOT INFUSE <p>P</p>	<ul style="list-style-type: none"> 1 mg/kg IV/IO. Repeat 1/2 initial dose in 10 minutes. DO NOT INFUSE <p>P</p>

Medications

Medication	Adult	Pediatric
<p>Magnesium Sulfate</p> <p>Clinical Guideline:</p> <ul style="list-style-type: none"> ➤ B1 – Respiratory Distress / Dyspnea ➤ C7 – Cardiac Arrest Critical Thinking ➤ M6 – Obstetrical Emergency <p>Indications:</p> <ul style="list-style-type: none"> • Cardiac arrest presenting with Torsades de pointes • Elemental electrolyte used to treat eclampsia during the third trimester of pregnancy. 	<p><u>Respiratory Distress</u></p> <ul style="list-style-type: none"> • 1-2 g in 100 ml of NS over 10 min IV/IO. <p><u>Eclampsia/Tocolytic</u></p> <ul style="list-style-type: none"> • 5 g in 100 ml NS over not less than 10 minutes IV/IO. • Monitor for respiratory insufficiency. <p><u>Torsades de pointes</u></p> <ul style="list-style-type: none"> • 1-2 g IV/IO slow push. • May be repeated once in 5 minutes if needed. <p>P</p>	<p>∅</p>
<p>Methylprednisolone (Solu-medrol)</p> <p>Clinical Guideline:</p> <ul style="list-style-type: none"> ➤ B1 – Respiratory Distress / Dyspnea ➤ B2 – Allergic Reaction / Envenomation <p>Indications:</p> <ul style="list-style-type: none"> • Steroid used to reverse inflammatory and allergic reactions with respiratory distress. 	<ul style="list-style-type: none"> • 125 mg IV/IO/IM. • Post administration blood glucose measurement required. <p>P</p>	<ul style="list-style-type: none"> • 2 mg/kg IV/IO/IM. MAX DOSE = 125 mg • Post administration blood glucose measurement required. <p>P</p>
<p>Midazolam (Versed)</p> <p>Clinical Guideline:</p> <ul style="list-style-type: none"> ➤ A1 – Airway / Respiratory Failure ➤ C4 – Cardiac Dysrhythmia / Arrhythmia ➤ M3 – Seizure ➤ M6 – Obstetrical Emergency ➤ S1 – WMD / Nerve Agent Exposure <p>Indications:</p> <ul style="list-style-type: none"> • Benzodiazepine used to control seizures and sedation • Quick acting Benzodiazepine. <p>Contraindications:</p> <ul style="list-style-type: none"> • Avoid use if systolic BP < 110 	<ul style="list-style-type: none"> • 0.5 - 2.5 mg IV/IO/IM slow-push over 2 minutes as needed. MAX DOSE = 5 mg • 2 - 5 mg IN as needed. MAX DOSE = 5 mg <p>P</p>	<ul style="list-style-type: none"> • 0.1 - 0.2 mg/kg IV/IO slow-push over 2 minutes. MAX DOSE = 2 mg • 0.2 mg/kg IN. • MAX DOSE = 2 mg <p>P</p>
<p>Morphine Sulfate</p> <p>Clinical Guideline:</p> <ul style="list-style-type: none"> ➤ C1 – Chest Pain ➤ T1 – Burn Algorithm ➤ T3 – Extremity Trauma ➤ T4 – Head Trauma ➤ T5 – Multi-System / Core Trauma <p>Indications:</p> <ul style="list-style-type: none"> • Narcotic pain relief <p>Contraindications:</p> <ul style="list-style-type: none"> • Avoid use if systolic BP < 110 	<ul style="list-style-type: none"> • 2 - 5 mg IV/IO/IM, repeat q 10 minutes as needed. • MAX DOSE = 10 mg <p>P</p>	<ul style="list-style-type: none"> • 0.1 mg/kg IV/IO single dose only. MAX DOSE = 5 mg <p>P</p>

Medications

Medication	Adult	Pediatric
<p>Naloxone (Narcan)</p> <p>Clinical Guideline:</p> <ul style="list-style-type: none"> ➤ C7 – Cardiac Arrest Critical Thinking ➤ M2 – Altered Mental Status <p>Indications:</p> <ul style="list-style-type: none"> • Narcotic antagonist 	<ul style="list-style-type: none"> • 0.5 - 2 mg IN. <p style="text-align: center;">EMR</p> <ul style="list-style-type: none"> • 0.5 - 2 mg IV/IO/IM/IN <p style="text-align: center;">A</p>	<ul style="list-style-type: none"> • 0.1 mg/kg IN. MAX DOSE = 2 mg <p style="text-align: center;">EMR</p> <ul style="list-style-type: none"> • 0.1 mg/kg IV/IO/IN. MAX DOSE = 2 mg <p style="text-align: center;">A</p>
<p>Nitroglycerin</p> <p>Clinical Guideline:</p> <ul style="list-style-type: none"> ➤ B1 – Respiratory Distress ➤ C1 – Chest Pain ➤ C2 – Hypertension / Headache <p>Indications:</p> <ul style="list-style-type: none"> • Vasodilator used in anginal syndromes for pain, CHF and Hypertension. <p>Contraindications:</p> <ul style="list-style-type: none"> • If SBP < 110, contact MEDICAL CONTROL. • Use Caution in the presence of an inferior MI. 	<p style="text-align: center;"><u>Cardiac Chest Pain</u></p> <ul style="list-style-type: none"> • 1 tablet SL q 5 minutes for pain. MAX DOSE = 3 tablets. <p style="text-align: center;">A</p> <p style="text-align: center;"><u>Pulmonary Edema / Hypertension</u></p> <ul style="list-style-type: none"> • 1 tablet SL q 5 minutes as needed. <p style="text-align: center;">P</p>	
<p>Normal Saline</p> <p>Clinical Guideline:</p> <ul style="list-style-type: none"> ➤ B1 – Respiratory Distress / Dyspnea ➤ C3 – Hypotension / Dizziness ➤ M7 – Hypothermia / Hyperthermia ➤ T1 – Burn Algorithm <p>Indications:</p> <ul style="list-style-type: none"> • The IV fluid of choice for venous access or volume infusion 	<ul style="list-style-type: none"> • KVO = 100 ml/hr IV/IO. • Bolus = 250 ml IV/IO or sufficient to restore radial pulse, MAP of 65 mm Hg. <p style="text-align: center;">A</p> <p style="text-align: center;"><u>Nebulizer</u></p> <ul style="list-style-type: none"> • 3 ml in Nebulizer. <p style="text-align: center;">B</p>	<ul style="list-style-type: none"> • Bolus = 20 ml/kg IV/IO. • Repeat x3 as needed to maintain appropriate blood pressure for age. <p style="text-align: center;">A</p> <p style="text-align: center;"><u>Nebulizer</u></p> <ul style="list-style-type: none"> • 3 ml in Nebulizer. <p style="text-align: center;">B</p>
<p>Ondansetron (Zofran)</p> <p>Clinical Guideline:</p> <ul style="list-style-type: none"> ➤ C1 – Chest Pain ➤ M1 – Abdominal Pain / Back Pain / Nausea <p>Indications:</p> <ul style="list-style-type: none"> • Anti-emetic used to control nausea and/or vomiting <p>Contraindications:</p> <ul style="list-style-type: none"> • May cause increased QT duration; ventricular arrhythmia may occur in patients with long QT. 	<ul style="list-style-type: none"> • 4 mg IV/IO/IM/SL. MAX DOSE = 4 mg <p style="text-align: center;">P</p>	<ul style="list-style-type: none"> • 0.15 mg/kg IV/IO/IM. MAX DOSE = 4 mg <p style="text-align: center;">P</p>
<p>Oxygen</p> <p>Clinical Guideline:</p> <ul style="list-style-type: none"> ➤ A1 – Airway / Respiratory Failure <p>Indications:</p> <ul style="list-style-type: none"> • Useful in any condition with cardiac work-load, respiratory distress, or altered ventilation or perfusion. • Required for pre-oxygenation whenever possible prior to advanced airways. 	<ul style="list-style-type: none"> • 1 - 6 lpm via nasal cannula. • 6 lpm via Nebulizer (EMT-B). • 15 lpm via NRB mask. • 15 lpm via BVM. • Direct connect for CPAP <p style="text-align: center;">EMR</p>	<ul style="list-style-type: none"> • 1 - 6 lpm via nasal cannula. • 6 lpm via Nebulizer (EMT-B). • 15 lpm via NRB mask. • 15 lpm via BVM. <p style="text-align: center;">EMR</p>

Medications

Medications

Medication	Adult	Pediatric
<p><u>Oxytocin (Pitocin)</u> Clinical Guideline: ➤ M6 – Obstetrical Emergency Indications:</p> <ul style="list-style-type: none"> Post-partum hemorrhage refractory to fundal massage. 	<ul style="list-style-type: none"> 10 units in 100 ml NS IV/IO over 10 min. <p style="text-align: center;">P</p>	∅
<p><u>Promethazine (Phenergan)</u> Clinical Guideline: ➤ C1 – Chest Pain ➤ M1 – Abdominal Pain / Back Pain / Nausea Indications:</p> <ul style="list-style-type: none"> Anti-emetic used to control nausea and/or vomiting 	<ul style="list-style-type: none"> 12.5 - 25 mg IM single dose only. If age > 60 years, 12.5 mg IM <p style="text-align: center;">P</p>	∅
<p><u>Sodium Bicarbonate</u> Clinical Guideline: ➤ C7 – Cardiac Arrest Critical Thinking Indications:</p> <ul style="list-style-type: none"> A buffer used in acidosis to increase pH in cardiac arrest due to hyperkalemia or tricyclic overdose. <p>Contraindications:</p> <ul style="list-style-type: none"> Sodium Bicarbonate is NOT approved for routine use in cardiac arrest patients with asystole or PEA 	<ul style="list-style-type: none"> 50 mEq IV/IO then 25 mEq IV/IO q 10 minutes as needed. <p style="text-align: center;"><u>Tricyclic Overdose</u></p> <ul style="list-style-type: none"> 50 mEq IV/IO then 100 mEq in 1 liter NS INFUSE IV/IO at a rate of 200 ml/hr. <p style="text-align: center;">P</p>	<ul style="list-style-type: none"> 1 ml/kg IV/IO then 0.5 ml/kg IV/IO q 10 minutes as needed. <p style="text-align: center;">P</p>
<p><u>Terbutaline</u> Clinical Guideline: ➤ B1 – Respiratory Distress / Dyspnea ➤ M6 – Obstetrical Emergency Indications:</p> <ul style="list-style-type: none"> Used as a potent tocolytic in complicated labor Used for respiratory distress. 	<ul style="list-style-type: none"> 0.25 mg IM q 15 minutes. MAX DOSE = 1 mg Usually given in conjunction with magnesium. <p style="text-align: center;">P</p>	∅
<p><u>Thiamine</u> Clinical Guideline: ➤ M2 – Altered Mental Status Indications:</p> <ul style="list-style-type: none"> Used to prevent Wernicke’s encephalopathy in patients with a history of malnutrition and hypoglycemia. 	<ul style="list-style-type: none"> 100 mg IV/IO prior to the administration of Dextrose 10%. <p style="text-align: center;">P</p>	∅
<p><u>Tranexamic Acid (TXA)</u> Clinical Guideline: ➤ C3 – Hypotension / Dizziness ➤ M1 – Abdominal Pain / Back Pain / Nausea ➤ M6 – Obstetrical Emergency ➤ T3 – Extremity Trauma ➤ T4 – Head Trauma ➤ T5 – Multi-System / Core Trauma Indications:</p> <ul style="list-style-type: none"> Anti-fibrinolytic. May cause hypotension if administered quickly. Give within 3 hours of injury. 	<ul style="list-style-type: none"> 1 g IV/IO slow push. Trauma patients with suspected or potential hypovolemia or significant head injury within 3 hours of incident. <p style="text-align: center;">P</p>	∅

Airway: Bag-Valve Mask

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

A1 – Airway / Respiratory Failure

Clinical Guideline Indications:

Clinical Contraindications:

- None

Procedure:

1. Gather the appropriately sized Bag-Valve Mask pathogen filtering device and the in-line capnography monitoring device.
2. Open the patient's airway utilizing the head-tilt chin lift or jaw thrust maneuver.
3. Insert an appropriately sized nasopharyngeal airway or oropharyngeal airway.
4. If one provider is managing the airway, place the mask over the bridge of the patient's nose at the top and below the mouth on the bottom. Using an E-C grip, lift the patient's head to the mask, creating a seal around all edges.
5. Give appropriately sized breaths, for adults 400-600 mL or pediatrics 5-8 mL/kg, at the correct rate. For adults, rates should be 1 breath every 5-6 seconds, and pediatrics should have a rate of 1 breath every 2-3 seconds.
6. Confirm that adequate ventilations are being received by looking for equal chest rise and fall and follow the **Airway: Confirmation Procedure**.
7. Monitor capnography and pulse oximetry following the **Vital Signs: Capnography Procedure**.
8. If adequate ventilation is not achieved, see **Airway / Respiratory Failure Clinical Guideline**.
9. Record time and result in ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Airway: Basic Maneuvers

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

A1 – Airway / Respiratory Failure

Clinical Guideline Indications:

Clinical Contraindications:

- If spinal trauma is suspected, open the patient's airway utilizing the jaw-thrust method instead.
- If the patient has sustained facial trauma or head trauma, a nasopharyngeal airway is *still* appropriate.

Procedure:

1. If the patient has abnormal respirations, including but not limited to snoring respirations, attempt to open the patient's airway utilizing the head-tilt chin-lift method.
2. If the patient is still conscious or has a gag reflex, but risks airway compromise, lubricate an appropriately sized nasopharyngeal airway and insert it through the nostril with the bevel facing the septum. Insert the NPA straight down toward the patient's chin.
3. If the patient will be receiving assisted ventilations, insert an airway adjunct, either a nasopharyngeal airway or an oropharyngeal airway.
4. If the patient does not have a gag reflex, an appropriately sized oropharyngeal airway can be placed although a nasopharyngeal adjunct is preferred, inserting the adjunct in a horizontal direction, then rotating the adjunct so the longer end points in the direction of the patient's abdomen. Be careful to not cut the patient's palate while inserting an oral airway adjunct.
5. Assist the patient's ventilations at the appropriate rate and depth according to the **Airway: Bag-Valve Mask Procedure**.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Airway: Confirmation

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

A1 – Airway / Respiratory Failure

Clinical Guideline Indications:

Clinical Contraindications:

- None

Procedure:

1. Obtain appropriate airway device.
2. Place in-line capnography adapter on airway port and monitor value of ETCO₂ for duration of patient care with ideal values being 35-45 mmHg on patients not in cardiac arrest.
3. Note moisture presence in the tube on natural exhalation.
4. Visualize equal chest rise.
5. Auscultate for breath sounds bilaterally over lungs and rule out sounds of air by auscultating the epigastrium.
6. Assess for capnometry values greater than 50 mm Hg or an increase of 10 mm Hg above base line which may correspond to changes in respiratory rate/ depth indicating apnea, hypoventilation, or a return of spontaneous circulation.
7. A sudden drop in capnometry greater than 10 m Hg from baseline may indicate hyperventilation, equipment failure, dislodgement of the device, a device occlusion or obstruction, or a loss of spontaneous circulation.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Airway: CPAP (Continuous Positive Airway Pressure)

Approved for the following levels:

B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

B1 – Respiratory Distress / Dyspnea

Clinical Guideline Indications:

Clinical Contraindications:

- Facial injury
- Inability of patient to maintain their own airway
- Systolic blood pressure < 110 mmHg

Procedure:

1. Prior to use, be sure the device is free of obstructions and verify proper function.
2. Ensure adequate oxygen supply to ventilation device.
3. The Pulmodyne device is supplied with 30% FiO₂.
2. Explain the procedure to the patient.
3. Place the delivery mask over the mouth and nose. Oxygen should be flowing through the device.
4. Secure the mask with provided straps until minimal air leak occurs.
6. Evaluate the response of the patient assessing breath sounds, oxygen saturation, and general appearance.
7. Titrate oxygen levels to the patient's response.
8. Encourage the patient to allow forced ventilation to occur. Observe closely for signs of complications. The patient must be breathing for optimal use of the CPAP device.
9. Document time and response on patient care report (PCR).
10. This procedure is contraindicated if the patient is incapable of understanding instructions.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Airway: Bi-Level PPV (Positive Pressure Ventilation)

Approved for the following levels:

P EMT-Paramedic **P**

B1 – Respiratory Distress / Dyspnea

Clinical Guideline Indications:

Clinical Contraindications:

- Apnea
- Pediatric dyspnea in the acute setting (Non physician-directed)
- Adult dyspnea capable of management using lesser interventions
- Adult dyspnea requiring more advanced invasive airway management
- Altered mental status which prevents patient cooperation
- Patients with a high risk of aspiration/emetesis or in patient's without a gag reflex
- Facial trauma or physical features impairing a tight mask-face seal.

Clinical Indications:

- Adult Dyspnea
- Adult Asthma
- Adult COPD
- Adult CHF
- Adult Acute Allergic Reaction
- Adult Water Submersion Event

Procedure:

Newport HT70

1. Prior to use, be sure the device is free of obstructions and verify proper function.
2. Reference ventilator manual for details on set-up instructions.
3. Turn on ventilator and attach patient circuit.
4. Run a circuit check according to manufacturer recommendations.
5. Attach oxygen/air mixer.
6. Settings:
 - a. Mode: "SPONT"
 - b. Control: Pressure Control
 - c. NIV: ON
 - d. Bias Flow: 10L/min
 - e. PS: 5 cmH2O
 - f. PEEP: 5 cmH2O
 - g. Flow Trigger: 2 L/min
 - h. Pressure Trigger: 2 cmH2O
 - i. FIO2: 50% Titrate as needed to maintain 94%-99%
7. Hold mask in place as patient adjusts to Non-Invasive PPV support and adjust to minimize air leak and patient discomfort.
8. Evaluate for patient improvement via normalizing patient symptoms.
9. If patient does not improve:
 - a. Increase PS in increments of 3 cmH2O (MAX: 16)
 - b. Increase PEEP in increments of 2 cmH2O (MAX: 10)

NOTE: PIP = PS + PEEP --- PIP MUST be less than 27 cmH2O

IF NIPPV fails to improve respiratory distress/failure, use alternative methods as needed: BVM, Supraglottic Airway, Intubation, etc.)

Zoll Z-Vent

1. Prior to use, be sure the device is free of obstructions and verify proper function.
2. Reference ventilator manual for details on set-up instructions.
3. Turn on ventilator and attach patient circuit.
4. Run a circuit check according to manufacturer recommendations.
5. Attach oxygen/air mixer.
6. Settings:
 - a. Set IPAP (PIP): 10 cmH2O
 - b. Set EPAP (PEEP): 5 cmH2O
 - i. FIO2: 50% Titrate as needed to maintain 94%-99%
7. Hold mask in place as patient adjusts to Non-Invasive PPV support and adjust to minimize air leak and patient discomfort.
8. Evaluate for patient improvement via normalizing patient symptoms.
9. If patient does not improve:
 - a. Increase IPAP (PIP) in increments of 5 cmH2O (MAX: 27)
 - b. Increase EPAP (PEEP) in increments of 2 cmH2O (MAX: 10)

NOTE: PIP = PIP --- MUST be less than 27 cmH2O

IF NIPPV fails to improve respiratory distress/failure, use alternative methods as needed: BVM, Supraglottic Airway, Intubation, etc.)

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Airway: Cricothyrotomy

Approved for the following levels:

P

EMT-Paramedic

P

A1 – Airway / Respiratory Failure

Clinical Guideline Indications:

Clinical Contraindications:

- Patient must meet the standard of CNV/CNI – Can Not Ventilate by any other means/Can Not Intubate using any airway available.

Procedure:

1. Have suction and supplies available and ready.
2. Locate the cricothyroid membrane utilizing anatomical landmarks
3. Prepare the area with iodine solution.
4. Using an appropriate needle of equal to or greater than 14 gauge with a 3 ml syringe attached, insert the needle perpendicularly through the cricothyroid membrane.
5. During needle insertion apply gentle aspiration to the syringe. Rapid aspiration of air into the syringe indicates successful entry into the trachea. Advance the needle only the distance necessary to ensure that the bevel is within the trachea. Minimal advancement of the catheter is acceptable, but do not advance the needle farther. Remove the syringe and needle from the catheter. Re-attach the syringe barrel to the catheter **with the plunger and needle removed**.
6. Attach the Bag Valve Mask adapter piece of a 7 mm or 6 mm endotracheal tube to the distal and open barrel of the 3 ml syringe. Attempt to supply oxygen through the syringe-catheter apparatus using Bag Valve Mask. If a reliable oxygen saturation of greater than 90% is attained or if patient is a pediatric based on the **Other: Adult-Pediatric Division Procedure**, stop here and continue to oxygenate the patient.
7. If the patient is an adult based on the **Other: Adult-Pediatric Division Procedure** and the needle jet is insufficient in oxygenating the patient, then with the catheter in place make a one inch vertical incision extending $\frac{1}{2}$ " above and $\frac{1}{2}$ " below the catheter then expose the cricoid membrane.
8. Make a small horizontal stabbing incision through the membrane on each side of the catheter. Remove the catheter.
9. Using an endotracheal stylet or gloved finger to maintain the opening, insert an endotracheal tube of sufficient diameter through the incision and direct it caudally down the trachea. The Bougie-Cric tool is preferred to a modified endotracheal tube.
10. Inflate the cuff with 5 - 10 ml of air and ventilate the patient.
11. All standard methods of assessment for tube placement to include ETCO₂ must be used.
12. Secure the tube.
13. Document size of tube, time, and success in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Airway: Foreign Body Obstruction

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

A1 – Airway / Respiratory Failure

Clinical Guideline Indications:

Clinical Contraindications:

- Do not perform blind finger sweeps in the mouth and posterior pharynx. This may push the object farther into the airway.

Procedure:

1. Assess the degree of foreign body obstruction:
 - Do not interfere with a mild obstruction, allow the patient to clear their airway by coughing.
 - In severe foreign-body obstructions, the patient may not be able to make a sound. The victim may clutch his/her neck in the universal choking sign.
2. For an infant, deliver 5 back blows (slaps) followed by 5 chest thrusts repeatedly until the object is expelled or the victim becomes unresponsive.
3. For a child, perform a sub-diaphragmatic abdominal thrust (Heimlich Maneuver) until the object is expelled or the victim becomes unresponsive.
4. For adults, a combination of maneuvers may be required.
 - First, sub-diaphragmatic abdominal thrusts (Heimlich Maneuver) should be used in rapid sequence until the obstruction is relieved.
 - If abdominal thrusts are ineffective, chest thrusts should be used. Chest thrusts should be used primarily in morbidly obese patients and in the patients who are in the late stages of pregnancy
5. If the victim becomes unresponsive, begin **Cardiac: Cardiopulmonary Resuscitation Procedure** immediately, but look in the mouth before administering any ventilations. If a foreign-body is visible, remove it. See the **Airway / Respiratory Failure Clinical Guideline**.
6. In unresponsive patients EMT-Paramedic level professionals should visualize the posterior pharynx with a laryngoscope to potentially identify and remove the foreign-body using Magill forceps.
7. Document the methods used and result of these procedures in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Airway: Intubation, Nasal-Tracheal

Approved for the following levels:

P

EMT-Paramedic

P

A1 – Airway / Respiratory Failure

Clinical Guideline Indications:

Clinical Contraindications:

- Maxillofacial Trauma
- Head Injury
- Apnea

Procedure:

1. Select the largest and least obstructed nostril and insert a lubricated nasal airway to help dilate the nasal passage.
2. Pre-oxygenate the patient. Lubricate the tube.
3. Remove the nasal airway and gently insert the tube keeping the bevel of the tube toward the septum.
4. Continue to pass the tube listening for air movement and looking for vapor condensation in the tube. As the tube approaches the larynx, the air movement gets louder.
5. Gently and evenly advance the tube through the glottic opening on the inspiration. This facilitates passage of the tube and reduces the incidence of trauma to the vocal cords.
6. Upon entering the trachea, the tube may cause the patient to cough, buck, strain, or gag. Do not remove the tube! This is normal, but be prepared to control the cervical spine and the patient, and be alert for vomiting.
7. Auscultate for bilaterally equal breath sounds and absence of sounds of the epigastrium. Observe for symmetrical chest expansion. The 15mm adapter usually rests close to the nostril with proper positioning.
8. Inflate the cuff with 5 - 10 ml of air.
9. Confirm tube placement using end-tidal CO₂ monitoring.
10. Secure the tube.
11. Reassess airway and breath sounds after transfer to the stretcher and during transport. These tubes are easily dislodged and require close monitoring and frequent reassessment.
12. Document the procedure, time, and result (success) in the ePCR.
13. It is required that the patient be monitored through continuous capnography and pulse oximetry.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Airway: Intubation, Oral-Tracheal

Approved for the following levels:

P

EMT-Paramedic

P

A1 – Airway / Respiratory Failure

Clinical Guideline Indications:

Clinical Contraindications:

- Ventilatory success with a less invasive airway.

Procedure:

1. Prepare, position and oxygenate the patient with 100% Oxygen.
2. Select proper ET tube (and stylet, if used), have suction ready.
3. Using laryngoscope, visualize vocal cords.
4. Limit each intubation attempt to 30 seconds with Bag Valve Mask between attempts. 10 seconds during CPR.
5. Visualize tube passing through vocal cords.
6. Confirm and document tube placement using an end-tidal CO2 monitoring.
7. Inflate the cuff with 3 - 10 ml of air; secure the tube to the patient's face.
8. Auscultate for bilaterally equal breath sounds and absence of sounds over the epigastrium. If you are unsure of placement, remove tube and ventilate patient with Bag Valve Mask.
9. Consider using a Blind Insertion Airway Device (I-Gel) if intubation efforts are unsuccessful.
10. Apply end tidal carbon dioxide monitor adapter (Capnography) and record readings on scene, enroute to the hospital, and at the hospital.
11. Document ETT size, time, result (success), and placement location by the centimeter marks either at the patient's teeth or lips in the ePCR. Document positive or negative breath sounds before and after each movement of the patient.
12. Consider placing an NG or OG tube to clear stomach contents after the airway is secured with an ET tube.
13. It is required that the airway, if equipment is available, be monitored continuously through capnography and pulse oximetry.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Airway: Nebulizer Inhalation Therapy

Approved for the following levels:

B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

B1 - Respiratory Distress / Dyspnea

Clinical Guideline Indications:

Clinical Contraindications:

- Inability of patient to maintain their own airway

Procedure:

1. Gather the necessary equipment.
2. Assemble the nebulizer kit.
3. Instill the premixed drug (such as Albuterol, Normal Saline or other approved drug) into the reservoir well of the nebulizer.
4. Connect the nebulizer device to oxygen at **6** liters per minute to produce a steady, visible mist.
5. Instruct the patient to inhale normally through the mouthpiece of the nebulizer. The patient needs to have a good lip seal around the mouthpiece.
6. The treatment should last until the solution is depleted. Tapping the reservoir well near the end of the treatment will assist in utilizing all of the solution.
7. Monitor the patient for medication effects. This should include the patient's assessment of his/ her response to the treatment and reassessment of vital signs, ECG, and breath sounds.
8. Document the treatment and dose in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Airway: Suctioning, Advanced

Approved for the following levels:

P

EMT-Paramedic

P

A1 – Airway / Respiratory Failure

Clinical Guideline Indications:

Clinical Contraindications:

- None

Procedure:

1. Ensure suction device is in proper working order with suction tip in place.
2. Pre-oxygenate the patient with 100% oxygen.
3. Explain the procedure to the patient, if they are coherent.
4. Examine the oropharynx and remove any potential foreign bodies or material which may occlude the airway if dislodged by the suction device following the **Airway: Foreign Body Obstruction Procedure**.
5. If applicable, remove ventilation devices from the airway.
6. Use a flexible suction device to remove any secretions, blood, or other substance from deep airway adjuncts or as product design allows, from deep airway passages.
7. Do not impede ventilation for more than 10 seconds.
8. Reattach ventilation device (e.g., bag-valve mask) and ventilate or assist the patient.
9. Record the time and result of the suctioning in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Airway: Suctioning, Basic

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

A1 – Airway / Respiratory Failure

Clinical Guideline Indications:

Clinical Contraindications:

- Basic suctioning is limited to the visible airways, the immediate anterior to posterior of a tracheostomy is also considered basic.

Procedure:

1. Ensure suction device is in proper working order with suction tip in place.
2. Pre-oxygenate the patient with 100% oxygen.
3. Explain the procedure to the patient, if they are coherent.
4. Examine the oropharynx and remove any potential foreign bodies or material which may occlude the airway if dislodged by the suction device.
5. If applicable, remove ventilation devices from the airway.
6. Use the suction device to remove any secretions, blood, or other substance.
7. The alert patient may assist with this procedure.
8. Reattach ventilation device (e.g., bag-valve mask) and ventilate or assist the patient.
9. Record the time and result of the suctioning in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Airway: Supraglottic (I-Gel)

Approved for the following levels:

B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

A1 – Airway / Respiratory Failure

Clinical Guideline Indications:

Clinical Contraindications:

- Deforming Facial Trauma
- Pulmonary Fibrosis
- Significant Obesity

Procedure:

1. Lubricate device with included water-soluble jelly.
2. Pre-oxygenate the patient with 100% oxygen.
3. Remove the I-Gel from the protective cradle. Grasp the lubricated I-Gel along the integral bite block.
4. Position the device so that the I-Gel cuff outlet is facing towards the chin of the patient.
5. The chin should be gently pressed down before proceeding.
6. Introduce the leading soft tip into the mouth of the patient in a direction towards the hard palate.
7. Glide the device downwards and backwards along the hard palate with a continuous but gentle push until a definitive resistance is felt.
8. If there is early resistance during insertion, a 'jaw thrust' or 'Insertion with Deep Rotation' is recommended.
9. Connect the device to a Bag-Valve-Mask and assess for breath sounds and air entry.
10. Confirm tube placement using **Airway: Confirmation Procedure**.
11. It is required that the airway be monitored continuously through capnography and pulse oximetry.
12. Re-verify device placement after every move and upon arrival in the ED.
13. Document the procedure, time, and result (success) in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Airway: Thoracic Needle Decompression

Approved for the following levels:

P

EMT-Paramedic

P

C7 - Cardiac Arrest Critical Thinking
T5 – Multi-System / Core Trauma

Clinical Guideline Indications:

Clinical Contraindications:

- None

Procedure:

1. Don personal protective equipment (gloves, eye protection, etc.).
2. Identify and prep the site:
 - a. Locate the second intercostal space just lateral to the mid clavicular line on the same side of the suspected tension pneumothorax often found just inferior to the clavicle.
 - b. Prepare the site with iodine ointment or solution.
3. Insertion:
 - a. Manual: Insert the catheter of diameter not less than 14 gauge and a length of not less than 3 inches perpendicular to the relative chest wall until the pleural cavity has been reached, indicated by a rush of air or the hub of the catheter has contacted the skin. Remove the needle from the catheter and leave the catheter in place.
 - b. SPEAR: Remove SPEAR from packaging, insert perpendicular to the relative chest wall until the superior-anterior 3rd rib is reached. Mark the 3rd cm line on the SPEAR above the level of the skin, then angle the needle slightly superior and advance the SPEAR into the pleural space until the marked cm line is reached. Unscrew the catheter and withdraw the needle from the catheter ½ inch and then swing the angle of the SPEAR as superior to the patient as possible without withdrawing and then hold the needle still while advancing the catheter to the hub. Remove the needle and then place the one-way valve on the catheter.
4. Secure the catheter hub to the chest wall with dressings and tape.
5. Document the procedure, time, and result (success) in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Airway: Ventilator Operation (Newport HT70)

Approved for the following levels:

P

EMT-Paramedic

P

A1 – Airway / Respiratory Failure

Clinical Guideline Indications:

Clinical Contraindications:

- EMT-Basic can only monitor a set up ventilator, change ventilation rate, and cease use of ventilator

Procedure:

Transfer Patient

1. Transporting personnel should review the operation of the ventilator with the treating personnel (physician, nurse, or respiratory therapy) in the referring facility prior to transport, if possible. Reference ventilator manual for detailed instructions.
2. All ventilator settings, including respiratory rate, FiO2, mode of ventilation, and tidal volumes should be manually recorded for EPCR prior to initiating transport. Additionally, the recent trends in oxygen saturation experienced by the patient should be noted.
3. Attach air/oxygen mixer to ventilator and set FiO2 as prescribed by patients physician.
4. Set ventilator settings as prescribed by patient's physician.
5. Stage on scene for approximately 5-10 minutes with Respiratory Therapy to evaluate ventilator-patient compliance. RT can alter ventilator settings as needed.
6. Prior to transport, specific orders regarding any anticipated changes to ventilator settings as well as causes for significant alarms should be reviewed with the referring medical personnel and medical control as needed.
7. Once in the transporting unit, confirm adequate oxygen deliver to the ventilator.
8. Frequently assess breath sounds to identify possible tube dislodgement during transport.
9. Frequently assess the patient's respiratory status, noting any decreases in oxygen saturation or changes in tidal volumes, peak pressures, etc.
10. Note any changes in ventilator settings or patient condition in the EPCR and address clinically as appropriate.
11. Consider placing nasogastric or orogastric tube to clear stomach contents.
12. End-tidal CO2 waveform capnography is required.
13. **If any significant change in patient condition, including vital signs or oxygen saturation, or there is a concern regarding ventilator performance/ alarms, remove the ventilator from the endotracheal tube and use a Bag Valve Mask with 100% O2. Contact medical control immediately.**

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Assessment: Adult

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

G1 - Patient Contact

Clinical Guideline Indications:

Clinical Contraindications:

- None

Procedure:

1. Scene size-up, including universal precautions, scene safety, environmental hazards assessment, need for additional resources, bystander safety, and patient/caregiver interaction
2. Assess need for additional resources.
3. Assess and treat according to the MARCH Algorithm:
 - Major hemorrhage
 - Airway (patency)
 - Respirations (gas exchange and elimination of tension pneumothorax)
 - Circulation (evaluate for internal bleeding and blood movement)
 - Hypoglycemia/Hyperglycemia/Hypothermia/Hypovolemia/Head Injury
4. Assess mental status using AVPU and GCS. Alert and oriented is defined by appropriate answers relating to Person, Place, Time, and Event.
5. Assess overall priority of patient.
6. Perform a focused history and physical based on patient's chief complaint.
7. Complete critical interventions and perform a complete secondary exam to include a baseline set of vital signs:
 - Blood pressure
 - SPO2
 - Heart Rate
 - Respiratory Rate
 - Pain Level / Severity
 - Blood GlucoseTo include when appropriate:
 - Temperature
 - ETCO2
8. Maintain an on-going assessment throughout transport; to include patient response / possible complications of interventions, need for additional interventions, and assessment of evolving patient complaints / conditions.
9. Document all findings and information associated with the assessment, performed procedures, and any administration of medications in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Assessment: Pediatric

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

G1 – Patient Contact

Clinical Guideline Indications:

Clinical Contraindications:

- NOTE: In pediatric patients, airway and ventilations are a focus of priority. Respiratory associated differential diagnosis is a common cause of pediatric decompensation and demise avoid misguided assessment steps.

Procedure:

- Scene size-up, including universal precautions, scene safety, environmental hazards assessment, need for additional resources, bystander safety, and patient/caregiver interaction
- Assess need for additional resources.
- Determine patient's ideal weight based on Handtevy Length-Based tape or Handtevy Age-Based determinant.**
- Assess and treat according to the MARCH Algorithm:
 - Major hemorrhage
 - Airway (patency)
 - Respirations (gas exchange and elimination of tension pneumothorax)
 - Circulation (evaluate for internal bleeding and blood movement)
 - Hypoglycemia/Hyperglycemia/Hypothermia/Hypovolemia/Head Injury
- Assess mental status using AVPU and GCS. Alert and oriented is defined by appropriate answers relating to Person, Place, Time, and Event.
- Assess overall priority of patient.
- Perform a focused history and physical based on patient's chief complaint.
- Complete critical interventions and perform a complete secondary exam to include a baseline set of vital signs:
 - Blood pressure
 - SPO2
 - Heart Rate
 - Respiratory Rate
 - Pain Level / Severity
 - Blood GlucoseTo include when appropriate:
 - Temperature
 - ETCO2
- Maintain an on-going assessment throughout transport; to include patient response / possible complications of interventions, need for additional interventions, and assessment of evolving patient complaints / conditions.
- Document all findings and information associated with the assessment, performed procedures, and any administration of medications in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Cardiac: 4 Lead

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

G1 – Patient Contact

Clinical Guideline Indications:

Clinical Contraindications:

- Note: EMT-B can and should obtain a 4-Lead without rhythm interpretation.

Procedure:

- All transported patients should have a 4 Lead attached for monitoring of patient condition.**
- Turn monitor and connect patient cable with electrodes.
- Expose limbs or core as necessary. Modesty of the patient should be respected.
- Apply leads using the following landmarks:
 - RA - Right arm
 - LA - Left arm
 - RL - Right leg
 - LL - Left leg
- Determine the rate, regularity, and if capable, the rhythm for support of perfusion.
- Monitor the patient while continuing with the treatment clinical guideline.
- Document results in the ePCR and download the data to be included with the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Cardiac: 12 Lead ECG

Approved for the following levels:

B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

G1 – Patient Contact
C1 – Chest Pain
C8 – Return of Spontaneous Circulation
M1 – Abdominal Pain / Back Pain / Nausea

Clinical Guideline Indications:

Clinical Contraindications:

- Note: EMT-B can and should obtain a 12-Lead ECG without rhythm interpretation whenever a complaint exists between nose and navel.

Procedure:

- Administer oxygen as patient condition warrants.
- If patient is unstable, definitive treatment is the priority. If patient is stable or stabilized after treatment, then perform a 12 Lead ECG.
- Prepare ECG monitor and connect patient cable with electrodes.
- Enter the required patient information (patient name, etc.) into the 12 lead ECG device.
- Expose chest and prep as necessary. Modesty of the patient should be respected.
- Apply chest leads and extremity leads using the following landmarks:
 - RA - Right arm
 - LA - Left arm
 - RL - Right leg
 - LL - Left leg
 - V1 - 4th intercostal space at right sternal border
 - V2 - 4th intercostal space at left sternal border
 - V3 - Directly between V2 and V4
 - V4 - 5th intercostal space at midclavicular line
 - V5 - Level with V4 at left anterior axillary line
 - V6 - Level with V5 at left mid-axillary line
- Instruct patient to remain still.
- Press the appropriate button to acquire the 12 Lead ECG.
- If the monitor detects signal noise (such as patient motion or a disconnected electrode), the lead acquisition will be interrupted until the noise is removed.
- Determine the rhythm present on the EKG, if capable.
- Determine the presence or absence of ST segment elevation greater than 1 mm in 2 or more anatomically contiguous leads.
- Monitor the patient while continuing with the treatment clinical guideline.
- Document the procedure, time, and results in the ePCR and download the data to be included with the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Cardiac: Automated External Defibrillation

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

Clinical Guideline Indications:

C5 – Cardiac Arrest
C6 – Pediatric Cardiac Arrest
C7 – Cardiac Arrest Critical Thinking

Clinical Contraindications:

- Pediatric patients who are so small that the pads cannot be placed without touching one another.
- Responsive Patients

Procedure:

1. If multiple rescuers available, one rescuer should provide uninterrupted chest compressions while the AED is being prepared for use.
2. Apply defibrillator pads per manufacturer recommendations. Use alternate placement when implanted devices (pacemakers, AICDs) occupy preferred pad positions.
3. Remove any medication patches on the chest and wipe off any residue.
4. Turn on the AED for analysis of rhythm.
5. Stop CPR and clear the patient for rhythm analysis. Keep interruption in CPR as brief as possible, resume CPR while any charging occurs.
6. Defibrillate, if appropriate, by depressing the “shock” button. Assertively state “CLEAR” and visualize that no one, including yourself, is in contact with the patient prior to defibrillation.
7. Begin CPR (chest compressions and ventilations) immediately after the delivery of the defibrillation.
8. After 2 minutes of CPR, analyze rhythm and defibrillate if indicated. Repeat this step every 2 minutes.
9. If “no shock advised” is presented, perform CPR for two minutes and then reanalyze.
10. Transport and continue treatment as indicated.
11. Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation.
12. If pulse returns please use the **Return of Spontaneous Circulation Clinical Guideline**.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Cardiac: Auto-Pulse

Approved for the following levels:

B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

C5 – Cardiac Arrest

Clinical Guideline Indications:

Clinical Contraindications:

- Responsive patients or those patients with a palpable pulse
- Pediatric patients based on the **Adult-Pediatric Division Procedure**
- Traumatic cardiac arrest patients

Procedure:

1. Remove the device from the bag and place it above the head of the patient oriented in accordance with the diagram on the board. Lift the life band gently and then separate the band at the Velcro.
2. Turn the Auto-Pulse on
3. Lift the patient into a sitting position and pull the Auto-Pulse board beneath patient. Gently allow the patient to recline back onto the board.
4. Reattach the life band sides such that the yellow bar is centered on the anterior chest.
5. Push the green button on the Auto-Pulse twice. Press the center button twice to activate continuous chest compression mode. Press the orange button to pause compressions for defibrillation
6. Secure the patient to the board by deploying the Auto-Pulse shoulder straps, c-collar, and tape.
7. In the event of a User Advisory red light: lift the life band slowly, reposition the patient's hips, press the green button three times.
8. Extend the flexible litter and lift the patient to the cot.
9. Document procedure in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Cardiac: Cardiopulmonary Resuscitation

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

C5 – Cardiac Arrest
C6 – Pediatric Cardiac Arrest

Clinical Guideline Indications:

Clinical Contraindications:

- Responsive patients.
- Adult patients with a palpable femoral, carotid, or radial pulse.
- Pediatric patients with a pulse rate > 60.

Procedure:

1. Determine the patient's level of responsiveness by shouting and gently shaking the patient.
2. Determine if the patient has a normal or acceptable pattern and volume of respiration.
3. If the patient is unresponsive to voice and has no normal respirations, place the patient on a hard surface in a supine position and begin manual continuous chest compressions over the lower half of the sternum:
 - To a depth of at least 2 inches for adults, 1 ½ -2 inches for pediatrics.
 - Allow complete chest recoil.
 - Compress at a rate of 110 (100-120) compressions per minute.
 - Rotate providers every 2 minutes.
4. Consider the flow of the **Cardiac Arrest Clinical Guideline** or the **Pediatric Cardiac Arrest Clinical Guideline** as determined by the **Other: Adult-Pediatric Division Procedure**.
5. Provide supplemental oxygen.
6. Ensure that the patient's environment does not impede the ability to provide good care. Move the patient if needed.
7. Document procedure in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Cardiac: Transcutaneous Pacing

Approved for the following levels:

P EMT-Paramedic **P**

Clinical Guideline Indications:

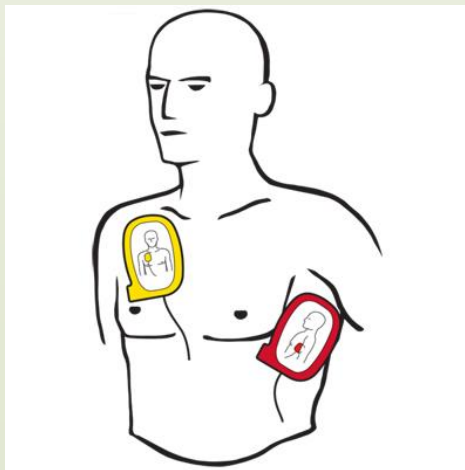
C4 – Cardiac Dysrhythmia / Arrhythmia
C7 – Cardiac Arrest Critical Thinking

Clinical Contraindications:

- None

Procedure:

1. Attach standard four-lead monitor.
2. Apply defibrillation/pacing as follows:
 - a. One pad to the right of the sternum below the clavicle.
 - b. One pad to the left lateral chest at the level of the xiphoid process.
3. Press pacing button to select pacing option.
4. Adjust heart rate to 80 BPM for an adult and 100 BPM for a child.
5. Note pacer spikes on EKG screen.
6. Begin pacing at not less than 80 bpm with an amperage not less than expected to achieve a correction in perfusion. Initial settings of 150 mA are acceptable. Increase amperage aggressively until unequivocal signs of adequate perfusion are documented.
7. If unable to capture while at maximum current output, stop pacing immediately.
8. Consider the use of sedation or analgesia if patient is uncomfortable.
10. Document the dysrhythmia and the response to Transcutaneous Pacing in the ePCR; download the monitor data to the ePCR.



Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Cardiac: Induced Hypothermia

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

Clinical Guideline Indications:
C8 – Return of Spontaneous Circulation

Clinical Contraindications:

- Patients deemed responsive using AVPU

Procedure:

1. Using AVPU, determine the post resuscitation patients responsiveness; if unresponsive after 5 minutes post-resuscitation, continue.
2. Maintain any necessary medical interventions. (i.e. manual ventilation, medication infusions, etc.)
3. Limit patient movement, especially if spinal immobilization is in place.
4. Use basic cooling measures:
 - a. Remove patients clothing and expose maximum skin surface area.
 - b. Increase cool air movement within the ambulance compartment.
 - c. Apply towel-wrapped cool packs to underarms and between thighs if available.
5. Continuously monitor & reassess patient condition. Be prepared to return to the **Cardiac Arrest Clinical Guideline** or **Pediatric Cardiac Arrest Clinical Guideline** if necessary, then underlying goal is to achieve a core temperature $\leq 34^{\circ}\text{C} / 93^{\circ}\text{F}$.
6. Notify receiving facility of patient status and that cooling measures were started.
7. Record process, time of application, time of ROSC and any vitals / changes in condition in the ePCR; attach monitor data to ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Cardiac: Manual External Defibrillation

Approved for the following levels:

P

EMT-Paramedic

P

Clinical Guideline Indications:

C5 – Cardiac Arrest
C6 – Pediatric Cardiac Arrest
C7 – Cardiac Arrest Critical Thinking

Clinical Contraindications:

- Pediatric patients who are so small that the pads cannot be placed without touching one another.
- Responsive patient.
- Patients with a rhythm other than ventricular fibrillation or ventricular tachycardia without perfusion.

Procedure:

1. Ensure that chest compressions are adequate and interrupted only when absolutely necessary.
2. Clinically confirm the diagnosis of cardiac arrest and identify the need for defibrillation.
3. Apply defibrillation pads in accordance with package instructions
4. Set the appropriate energy level.
5. Charge the defibrillator to the selected energy level. Continue chest compressions while the defibrillator is charging.
6. Hold Compressions, assertively state, "CLEAR" and visualize that no one, including yourself, is in contact with the patient.
7. Deliver the shock by pressing the shock button.
8. Immediately resume chest compressions and ventilations. After 2 minutes of CPR repeat from step 4.
9. Repeat the procedure every two minutes, as indicated by patient response and ECG rhythm.
10. Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation.
11. If capnometry suddenly rises and sustains go to the **Return of Spontaneous Circulation Clinical Guideline**.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Cardiac: Reperfusion Checklist

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

Clinical Guideline Indications:

C1 – Chest Pain
S2 – EMS Triage and Destination Plan: STEMI

Clinical Contraindications:

- None

Procedure:

1. Follow the appropriate clinical guideline for the patient's complaint to assess and identify an acute condition which could potentially benefit from fibrinolysis. If a positive finding is noted on one of the following assessments, proceed to step 2. Perform a 12-lead ECG to identify an acute ST elevation myocardial infarction (STEMI).
2. Complete the following Reperfusion Checks and document to identify any potential contraindications to fibrinolysis.
 - a. Systolic blood pressure greater than 180 mm Hg
 - b. Diastolic blood pressure greater than 110 mm Hg
 - c. Right vs. Left arm systolic blood pressure difference of greater than 15 mm Hg
 - d. History of structural central nervous system disease (tumors, masses, hemorrhage, etc.)
 - e. Significant closed head or facial trauma within the previous 3 months
 - f. Recent (within 6 weeks) major trauma, surgery (including laser eye surgery), gastrointestinal bleeding, or severe genital-urinary bleeding
 - g. Bleeding or clotting problem or on blood thinners
 - h. CPR performed greater than 10 minutes
 - i. Currently pregnant
 - j. Serious systemic disease such as advanced/terminal cancer or severe liver or kidney failure.
3. Identify if the patient is currently in heart failure or cardiogenic shock. For these patients, a percutaneous coronary intervention is more effective.
 - a. Presence of pulmonary edema (rales greater than halfway up lung fields)
 - b. Systemic hypo-perfusion (cool and clammy)
4. If any contraindication is noted using the check list and a STEMI is confirmed by ECG, go to the **EMS Triage and Destination Plan: STEMI Clinical Guideline** for fibrinolytic ineligible patients. This may require the EMS Agency or Air Medical Service to transport directly to a specialty center capable of interventional care within the therapeutic window of time.
5. Record all findings in the ePCR and report to receiving definitive care.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Cardiac: Synchronized Cardioversion

Approved for the following levels:

P

EMT-Paramedic

P

Clinical Guideline Indications:

C4 – Cardiac Dysrhythmia / Arrhythmia
C7 – Cardiac Arrest Critical Thinking

Clinical Contraindications:

- None

Procedure:

1. Ensure the patient is attached properly to a monitor/defibrillator capable of synchronized cardioversion.
2. Have all equipment prepared for unsynchronized cardioversion/defibrillation if the patient fails synchronized cardioversion and the condition worsens.
3. Consider the use of pain or sedating medications.
4. Set energy selection to the appropriate setting.
5. Set monitor/defibrillator to synchronized cardioversion mode.
6. Make certain all personnel are clear of patient.
7. Press and hold the shock button to administer shock. Stay clear of the patient until you are certain the energy has been delivered. NOTE: It may take the monitor / defibrillator several cardiac cycles to “synchronize.” **There may be a delay between activating the cardioversion and the actual delivery of energy.**
8. Note patient response and perform immediate unsynchronized cardioversion / defibrillation if the patient’s rhythm has deteriorated into Perfusionless Ventricular Tachycardia or Ventricular Fibrillation following the procedure for cardioversion.
9. If the patient’s condition is unchanged, repeat steps 2 through 8 above using prescribed escalating doses of energy.
10. Repeat until maximum setting or until efforts succeed. Consider consulting medical control if cardioversion is unsuccessful after 2 attempts
11. Note procedure, response and time in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Cardiac: Valsalva Maneuver

Approved for the following levels:

B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

Clinical Guideline Indications:
C4 – Cardiac Dysrhythmia / Arrhythmia

Clinical Contraindications:

- Recent core surgery (Chest, abdomen, pelvis) or history of an aneurysm.
- Current hernia
- Altered Mental Status

Procedure:

1. Place patient in a sitting or semi-fowlers position.
2. Begin printing a 4 lead cardiac strip to monitor changes.
3. Have patient take a deep breath.
4. Have *patient* hold their mouth and nose shut.
5. Have patient attempt to breathe out, increasing thoracic pressure to a count of 5 seconds.
6. Have patient relax and breathe normal again. Be aware syncope is a potential side-effect of this procedure. Be prepared to assist ventilations if patients breathing becomes abnormal.
7. Record all findings in the ePCR and attach monitor data to ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Cardiac: LVAD Management

Approved for the following levels:

B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

Clinical Guideline Indications:

Clinical Contraindications:

Procedure:

1. Determine level of responsiveness of the patient.
2. Minimize time on scene.
3. Transport VAD equipment with patient. Bring primary caretaker, if available, to act as the patient's device expert if patient is incoherent or unresponsive. Family and caregivers are intensely trained on management of these devices.
4. Do not provide the patient anything by mouth unless necessary to treat known diabetes.
5. Blood pressure may be difficult to measure on these patients, attempt automated measurements for best results. Normal mean arterial pressure for these patients is between 60 and 90 mmHG. Treatment determinations should be based on MAP.
6. If the patient is responsive, handle patient management per clinical guidelines.
 - a. Locate the device, usually worn near the waist. Identify which device the patient has and follow manufacturer guides, if possible or contact number listed on device to speak with an on-call LVAD Coordinator. (Emergency procedure guides for VADs can be found at mylvad.com/medical-professionals/resource-library/ems-field-guides)
 - b. Mild sedation (1mg Versed) is acceptable for conscious defibrillation with a MAP of 65 mmHG or greater.
7. If the patient is unresponsive:
 - a. Determine if the patient has a normal or acceptable pattern and volume of respiration.
 - b. Provide oxygen/ventilation as needed. Pulse oximetry may not produce an accurate measurement for these patients.
 - i. Advanced airway procedures will be followed as normal.
 - c. If no palpable pulse is present, listen to heart tones. A functioning device should produce a continuous mechanical sound (whirring, whooshing, humming, etc.)
 - i. If mechanicals sounds are detected, DO NOT perform CPR.
 - ii. Perform CPR only when no mechanical sounds are detected, or a VAD Coordinator advises.
 1. Do not perform CPR on a patient with a Syncardia TAH. These patients should have a back-up driver that will need changed. Speak with caregiver or call the manufacturer.
 - d. Perform cardiac and vital sign monitoring including capture of 12-lead if symptoms indicated need. Dependent on device, the patient may register as asystolic. If patient meets STEMI or dysrhythmia criteria, follow appropriate clinical guidelines.
 - e. Defibrillation can be performed without turning off or disconnecting any part of the device.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Childbirth: Breech

Approved for the following levels:

B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

M6 – Obstetrical Emergency

Clinical Guideline Indications:

Clinical Contraindications:

- None

Procedure:

1. Consider contacting Medical Control for guidance.
2. Allow presenting part to deliver (legs or buttock) while supporting the presenting part.
3. Support the trunk and chest, allowing the legs to dangle freely, as needed.
4. If head delivers slowly or becomes trapped, insert fingers of a gloved hand into birth canal and create a pocket between the fetus' face and the vaginal wall by creating a V with your fingers and placing the fetus' nose and mouth between them.
5. Administer oxygen via nonrebreather at 15 lpm to mom in order to maintain adequate fetal oxygenation.
6. If the delivery is not a successful delivery, place mother in a knee-chest position. Place stretcher in a Trendelenburg position.
7. Follow **Obstetrical Emergency Clinical Guideline**.
8. Facilitate rapid transport to the appropriate facility.
9. Document procedure and results in a separate ePCR each for mother and each baby.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Childbirth: Normal

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

M5 – Childbirth / Labor

Clinical Guideline Indications:

Clinical Contraindications:

- Presentation of a non deliverable child i.e., breech presentation, prolapsed cord, nuchal cord which cannot be removed from child's neck, etc.

Procedure:

1. Support the infant's head with a clean towel and a gloved hand to allow a slow and controlled delivery, If any other presentation than the fetal head, see the appropriate Childbirth Procedure.
2. Sliding a gloved finger along the infant's neck check to ensure the umbilical cord is free. If the umbilical cord has one or more wraps around the infant's neck attempt to pull the wraps over the head. If the cord is wrapped too tightly see the **Childbirth: Nuchal Cord Procedure**.
3. Gently guide the delivery of the anterior shoulder, if the anterior shoulder is lodged and preventing delivery, see the **Childbirth: Shoulder Dystocia Procedure**.
4. Gently pull up on the head to allow delivery of the posterior shoulder.
5. Slowly deliver the remainder of the infant.
6. Ensure the infant's airway is clear of obstruction and that ventilatory effort is sufficient.
7. Clamp the cord 2 inches from the abdomen with 2 clamps and cut the cord between the clamps.
8. Record APGAR scores at 1 and 5 minutes.
9. The placenta will deliver spontaneously, usually within 5 minutes of the infant. Do not force the placenta to deliver.
10. Massaging the uterus (fundal massage) may facilitate delivery of the placenta and decrease bleeding by facilitating uterine contractions.
11. Continue transport to the hospital.
12. Document procedure and results in a separate ePCR each for mother and each baby.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Childbirth: Nuchal Cord

Approved for the following levels:

B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

M6 – Obstetrical Emergency

Clinical Guideline Indications:

Clinical Contraindications:

- None

Procedure:

1. Consider contacting Medical Control for guidance.
2. Support the infant's head with a clean towel and a gloved hand to allow a slow and controlled delivery.
3. Sliding a gloved finger along the infant's neck check to ensure the umbilical cord is free.
4. If the umbilical cord has one or more wraps around the infant's neck attempt to pull the wraps over the head. If this removes the cord from the infant's neck, continue to the **Childbirth / Labor Clinical Guideline**.
5. If the cord is wrapped too tightly, strongly consider contacting medical control; see the **Obstetrical Emergency Clinical Guideline**. If this is not an option and the life of the infant is in jeopardy, clamp the cord in two places and cut the cord between the clamps. The infant must now be delivered emergently, continuing to the **Childbirth / Labor Clinical Guideline**.
6. Document procedure and results in a separate ePCR each for mother and each baby.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Childbirth: Prolapsed Cord

Approved for the following levels:

B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

M6 – Obstetrical Emergency

Clinical Guideline Indications:

Clinical Contraindications:

- None

Procedure:

1. Consider contacting Medical Control for guidance.
2. Prolapsed cord is when the umbilical cord precedes the infant.
3. Place the mother in a “on all fours” position.
4. Attempt to palpate a pulse in the umbilical cord.
5. If any part of the infant enters the birth canal or a pulse is no longer felt or seen in the cord, insert your hand into the birth canal and manually remove pressure from the cord. This will need to be done until a cesarean section can be done.
6. Tell the mother not to push during contractions, see the **Obstetrical Emergency Clinical Guideline**.
7. Administer oxygen to mother at 15 lpm via nonrebreather to ensure fetal oxygenation.
8. Wrap the presenting umbilical cord in a moist, sterile dressing in order to keep it from drying out.
9. Rapidly transport to a hospital with OB capabilities.
10. Document procedure and results in a separate ePCR each for mother and each baby.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Childbirth: Shoulder Dystocia

Approved for the following levels:

B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

M6 – Obstetrical Emergency

Clinical Guideline Indications:

Clinical Contraindications:

Procedure:

1. Consider contacting Medical Control for guidance.
2. If labor is progressing and the head delivers, but the shoulders will not deliver, be prepared to quickly assist in order to reduce infant hypoxia.
3. Utilize the McRoberts maneuver by placing the mother in a knee-chest position. This allows the pubic symphysis to move slightly, allowing the infant's shoulder passage out.
4. If McRoberts maneuver is unsuccessful, provide suprapubic pressure by applying pressure just above the pubic symphysis. Do not apply pressure to the uterine fundus, as it can result in uterine rupture.
5. If suprapubic pressure is also unsuccessful, attempt the Wood's Corkscrew maneuver by placing at least two fingers (index and middle) on the anterior aspect of the fetal posterior shoulder, then apply pressure to abduct/extend the posterior shoulder and rotate the fetal body 180° (After 90° the practitioner may need to switch hands in order to complete the full 180° turn). Next, This movement rotates the anterior shoulder from under the symphysis pubis and releases the impaction. Reversing the direction of the initial turn may be necessary as the next procedure for successful delivery.
6. If McRoberts, suprapubic pressure, and Wood's Corkscrew are all unsuccessful, see the **Obstetrical Emergency Clinical Guideline** and rapidly transport to an OB capable hospital. Provide the mother with oxygen at 15 lpm via nonrebreather to ensure oxygenation to the infant.
7. Document procedure(s) and results in a separate ePCR each for mother and each baby.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Other: Adult-Pediatric Division

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

G1 – Patient Contact

Clinical Guideline Indications:

Clinical Contraindications:

- None

Procedure:

1. Answer the following questions utilizing pediatric length-based tape or other tools as necessary and available:
 - a. Is the patient under the age of 13 years?
 - b. Is the patient under the age of 18 AND weighs less than 60 kg / 130 lbs.?
 - c. Is the patient under the age of 18 AND shorter than 163 cm / 64 in / 5 ft. 4 in.?
2. If any of the above questions can be answered "Yes" then the patient is considered a pediatric patient.
3. Follow clinical guidelines consistent with the result of this procedure.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Other: Decontamination

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

G1 – Patient Contact

Clinical Guideline Indications:

Clinical Contraindications:

- None

Procedure:

1. In coordination with Hazardous Material and other Emergency Management personnel, establish hot, warm and cold zones of operation.
2. Ensure that personnel assigned to operate within each zone have proper personal protective equipment.
3. In accordance with other public safety procedures, ensure each patient from the hot zone undergoes appropriate initial decontamination.
4. Assist in the evaluation and treatment of patients prior to final decontamination and in accordance with line 2.
5. Assist in the final decontamination of patients in accordance with line 2.
6. Place triage identification on each patient. Match triage information with each patient's personal belongings which were removed during technical decontamination. Preserve these personnel items for law enforcement.
7. Monitor all patients for environmental illness.
8. Transport patients per clinical guidelines.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Other: Restraints, Chemical / Physical

Approved for the following levels:

B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

M2 - Altered Mental Status

Clinical Guideline Indications:

Clinical Contraindications:

- Avoid placing yourself or others in harms way, personal safety and crew safety is paramount. Utilize Police when available.
- NOTE: Advanced EMT and below can administer physical restraints only!

Procedure:

EMERGENCY PATIENT:

1. Attempt less restrictive means of managing the patient.
2. Consider requesting law enforcement assistance and/or Medical Control.
3. Ensure that there are sufficient personnel available to physically restrain the patient safely.
4. Restrain the patient in a lateral or supine position using soft restraints. A soft restraint is ANY device that sufficiently restricts patient mobility to ensure patient and staff safety and if needed can be removed quickly and easily by pre-hospital staff. No devices such as backboards, splints, or other devices will be on top of the patient. The patient will never be restrained in the prone position.
5. The patient must be under constant observation by the EMS crew at all times. Patients to whom chemical/physical restraint or sedation has been administered by EMS personnel must also receive continuous cardiac monitoring by ALS staff, whenever possible.
6. Extremities that are restrained will have a circulation check at least every 15 minutes. The first of these checks should occur as soon after placement of the restraints as possible. This MUST be documented on the ePCR.
7. Documentation in the ePCR should include:
 - a. the reason for the use of restraints
 - b. the type of restraints used, and the time restraints were placed
 - c. If the above actions are unsuccessful, or if the patient is resisting the restraints, consider administering medications per Behavioral **Clinical Guideline**. **(Chemical restraint may be considered earlier in this procedure)**
8. If a patient is restrained by law enforcement personnel with handcuffs or other devices EMS personnel can not remove, a law enforcement officer must accompany the patient to the hospital inside the patient compartment of the transporting EMS vehicle, if officers are unavailable or unwilling to accompany the patient to the hospital inside the transporting EMS vehicle, then patient is to be secured to the stretcher with soft restraints to enable EMS personnel removal in the event of a life threatening emergency. A soft restraint is ANY device that sufficiently restricts patient mobility to ensure patient and staff safety and if needed can be removed quickly and easily by pre-hospital staff. No devices such as backboards, splints, or other devices will be on top of the patient. The patient will never be restrained in the prone position.
9. Per medical direction, no patient who is being transported while in "police custody" can be released by pre-hospital staff.

NON EMERGENCY PATIENT:

1. Patients must have cardiac and pulse oximetry monitoring throughout transport if:
 - a. The patient has been medicated by a PRN medication for uncooperative behavior within 30 minutes of EMS arrival for transport.
 - b. Patient is currently physically or chemically restrained.
 - c. Attending / sending physician orders chemical or physical restraints for transport.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Other: Severe Pain

Approved for the following levels:

B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

Clinical Guideline Indications:

M1 – Abdominal Pain / Back Pain / Nausea
T1 – Burn Algorithm
T3 – Extremity Trauma
T4 – Head Trauma
T5 – Multi-System / Core Trauma

Clinical Contraindications:

- Systolic blood pressure < 110 mmHg
- Patient reports pain value below < 7 or states they do not want pain medication
- Respiratory rate < 16 or heart rate < 100

Procedure:

1. Ensure patient does not have an allergy to intended medication and verbally agrees to pain control medication administration.
2. In the absence of known bleeding, bleeding disorder, blood thinners, possible surgery or traumatic injury an EMT-Basic and above may administer **acetaminophen** for pain, an EMT-Paramedic may administer **ketorolac**.
3. If the patient complains of chest pain an Advanced-EMT and above may administer **nitroglycerin** for cardiac chest pain, an EMT-Paramedic may add **morphine** or **fentanyl** assuming the patient maintains a sufficient systolic blood pressure.
4. Narcotic administration of opioids may contribute to a patient's continued or new onset addiction, carefully consider the necessity of administration.
5. **Morphine** and **fentanyl** should not be administered to the same patient. If additional pain relief is required consider using **ketamine** with *either morphine* or **fentanyl** to enhance their analgesic properties.
6. Patients who have received narcotic analgesia required continued monitoring by an EMT-Paramedic.
7. Ensure narcotic containers are carefully handled and secured at all times.
8. Ensure all sharps, syringes, and vials which have transported narcotics are properly disposed of in a secure sharps container.
9. Ensure proper narcotic use documentation on narcotic inventory documents.
10. Document pain control measures, time, and dose in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Other: Termination of Resuscitation

Approved for the following levels:

B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

C5 – Cardiac Arrest

Clinical Guideline Indications:

Clinical Contraindications:

- Capnometry value of > 40 mmHg with appropriate ventilation of 10 breaths per minute assuming capnometry is valid and reliable
- Resuscitation < 15 minutes without signs incompatible with life, rigor mortis, or dependent lividity
- Pediatric patients

Procedure:

1. Discontinuation of CPR and ALS intervention may be implemented via online contact with Medical Control if ALL of the following criteria have been met:
 - Patient must be 18 years of age or older.
 - Adequate and continuous high-quality CPR has been administered.
 - Airway has been successfully managed with verification of device placement. Acceptable management techniques include those presented in the **Airway / Respiratory Failure Clinical Guideline**.
 - IV or IO access has been established.
 - Rhythm appropriate medications and defibrillation have been administered according to **Cardiac Arrest Clinical Guideline** for a total of 3 cycles of drug therapy and at least 15 minutes of CPR resuscitation has been attempted without return of spontaneous circulation defined by a sudden and sustained rise in capnometry > 40 mmHg.
 - **All EMS personnel involved in the patient's care and family members/caregivers present and willing to discuss the situation agree that discontinuation of the resuscitation is appropriate.**
2. If the above criteria are not met and discontinuation of prehospital resuscitation is desired, contact Medical Control.
3. Do not remove lines or tubes utilized during the resuscitation attempt unless directed below.
4. Notify the law enforcement agency with jurisdiction, if not already notified.
5. If EMS has attempted to resuscitate the patient and then terminated the resuscitation efforts, the EMS personnel should contact the medical examiner to provide information about the resuscitation attempts unless law enforcement is present on scene and will be completing this task.
6. Transport arrangements should be made in contact with law enforcement and the family's wishes.
7. If the deceased subject's destination is anywhere other than the county morgue, lines or tubes placed by EMS should be removed prior to transport.
8. Document the situation, name of Physician contacted, the agency providing transport of the deceased subject, the time of death, and the destination in the ePCR.
9. All documentation and completion of the ePCR should be handled by the highest licensed provider on scene.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Stroke Screen: C.S.S

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

M4 - Suspected Stroke

Clinical Guideline Indications:

Clinical Contraindications:

- None

Procedure:

Face	Both sides move normally One side is weak or flaccid
Arm	Both arms have equal, normal strength One arm is weak or doesn't move at all
Speech	Speech is normal and appropriate Speech is slurred, inappropriate words, or mute

1. Obtain a score based on the above criteria.
2. 80% of stroke patients will exhibit one or more of these symptoms, but it does not identify posterior circulation strokes.
3. Establish a time of patient's "Last Known Well".
4. Collect patient's next of kin information for decision making at a definitive care hospital.
5. Pre-alert definitive care asap if positive findings of a stroke are noted.
6. Document assessment and results in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Stroke Screen: R.A.C.E.

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

M4 - Suspected Stroke

Clinical Guideline Indications:

- None

Clinical Contraindications:

Procedure:

Item	Instruction	Result	Score	NIHSS Equivalent
Facial Palsy	Ask patient to show their teeth (smile)	Absent (symmetrical movement)	0	0-3
		Mild (slight asymmetrical)	1	
		Moderate to Severe (completely asymmetrical)	2	
Arm Motor Function	Extending the arm of the patient to 90° (if sitting) or 45° (if supine)	Normal to Mild (limb upheld more than 10 seconds)	0	0-4
		Moderate (limb upheld less than 10 seconds)	1	
		Severe (patient unable to raise arm against gravity)	2	
Leg Motor Function	Extending the leg of the patient 30° (in supine)	Normal to Mild (limb upheld more than 5 seconds)	0	0-4
		Moderate (limb upheld less than 5 seconds)	1	
		Severe (patient unable to raise leg against gravity)	2	
Head & Gaze Deviation	Observe eyes and head deviation to one side	Absent (eye movements to both sides were possible and no head deviation was observed)	0	0-2
		Present (eyes and head deviation to one side was observed)	1	
Aphasia (R Side)	Difficulty understanding spoken or written words. Ask patient to follow two simple commands: 1. Close your eyes. 2. Make a fist.	Normal (performs both tasks requested correctly)	0	0-2
		Moderate (performs only 1 of 2 tasks requested correctly)	1	
		Severe (cannot perform either task requested correctly)	2	
Aphasia (L Side)	Inability to recognize familiar objects. Ask patient: 1. "Whose arm is this?" (while showing the affected arm). 2. "Can you move your arm?"	Normal (recognizes arm, and attempts to move arm)	0	0-2
		Moderated (does not recognize arm or is unaware of arm)	1	
		Severe (does not recognize arm and is unaware of arm)	2	

1. Obtain a score based on the above criteria.
2. Establish a time of patient's "Last Known Well".
3. If score is greater than or equal to 4 the likelihood of a Large Vessel Occlusion is significant.
4. Pre-alert definitive care asap if positive findings of a stroke are noted.
5. Document assessment and results in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Trauma: Bleeding Control

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

Clinical Guideline Indications:

G1 – Patient Contact
T3 – Extremity Trauma
T4 – Head Trauma
T5 – Multi-System / Core Trauma

Clinical Contraindications:

- None

Procedure:

1. Don appropriate personal protective equipment (mask, eye protection, and gloves).
2. Locate the source of bleeding, if significant or pooled/stained blood looks to be significant, use a tourniquet according to the **Trauma: Tourniquet Procedure**, otherwise expose the site.
3. If bleeding can be controlled with direct pressure, apply clean, sterile gauze to the site of bleeding using a gloved hand. Sterile gauze or combat gauze can be used. Do not rely on compression dressings as it is much more effective to hold pressure with a gloved hand.
4. For deep wounds to extremity or junctional areas, utilize the **Trauma: Wound Packing Procedure**.
5. For deep wounds to the core, utilize the **Trauma: Chest Seal Procedure**.
6. Document procedure, and time of application, and result in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Trauma: Chest Seal

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

G1 – Patient Contact
T5 – Multi-System / Core Trauma

Clinical Guideline Indications:

Clinical Contraindications:

- None

Procedure:

1. Don appropriate personal protective equipment (mask, eye protection, and gloves).
2. Remove clothing and locate wound on the torso of the body.
3. Utilize clean gauze to wipe away excess blood from the injury site.
4. Remove the backing from the chest seal, according to manufacturer directions, and place seal directly over the wound, adhesive side to the patient.
5. Listen for breath sounds and be prepared for the development of a tension pneumothorax. See **Airway: Thoracic Needle Decompression**.
6. Rapidly transport to the most appropriate facility.
7. Document procedure, and time of application, and result in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Trauma: Extremity Splinting

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

Clinical Guideline Indications:

T3 – Extremity Trauma
T5 – Multi-System / Core Trauma

Clinical Contraindications:

- Splinting prior to bleeding control.

Procedure:

1. Assess and document pulses, sensation, and motor function prior to placement of the splint. If no pulses are present and a fracture is suspected, consider reduction of the fracture prior to placement of the splint.
2. Remove all clothing from the extremity.
3. Select a site to secure the splint both proximal and distal to the area of suspected injury, or the area where the medical device will be placed.
4. Do not secure the splint directly over the injury or device.
5. Place the splint and secure with Velcro, straps, or bandage material (e.g., kling, kerlex, cloth bandage, etc.) depending on the splint manufacturer and design.
6. Document pulses, sensation, and motor function after placement of the splint. If there has been a deterioration in any of these 3 parameters, remove the splint and reassess.
7. If a femur fracture is suspected and there is no evidence of pelvic fracture or instability, a KTD or other traction splint may be used per training and manufacturer's recommendations.
8. Document the time, type of splint, and the pre and post assessment of pulse, sensation, and motor function in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Trauma: Spinal Immobilization

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

Clinical Guideline Indications:

M1 - Abdominal Pain / Back Pain / Nausea
T4 – Head Trauma
T5 – Multi-System / Core Trauma

Clinical Contraindications:

- Long board use with patients who suffer from severe kyphosis or an injury which would be exacerbated through its use.

Procedure:

1. Gather a backboard, straps, C-collar appropriate for patient's size, tape, and device to secure the head as needed.
2. Explain the procedure to the patient
3. Place the patient in an appropriately sized C-collar while maintaining in-line stabilization of the C-spine. This stabilization, to be provided by a second rescuer, should not involve traction or tension but rather simply maintaining the head in a neutral, midline position while the first rescuer applied the collar.
4. Once the collar is secure, the second rescuer should still maintain their position to ensure stabilization (the collar is helpful but will not do the job by itself.)
5. If necessary, place the patient on a long spine board or scoop stretcher, use the log-roll technique if the patient is supine or prone. For a patient in a vehicle or otherwise unable to be placed supine, place them on a backboard by the safest method available that allows maintenance of in-line spinal stability.
6. Stabilize the patient with straps and head rolls/tape or other similar device.
7. Secure the head last. Once the head is secured to a backboard, the second rescuer may release manual in-line stabilization.
8. NOTE: Some patients, due to size or age, will not be able to be immobilized through in-line stabilization with standard backboards and C-collars. Never force a patient into a non-neutral position to immobilize them. Such situations may require a second rescuer to maintain manual stabilization throughout the transport to the hospital. Long boards are NOT required to immobilize a patient's spine.
9. Document the time and the procedure in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Trauma: Spinal Immobilization Clearance

Approved for the following levels:

B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

Clinical Guideline Indications:

M1 - Abdominal Pain / Back Pain / Nausea
T4 – Head Trauma
T5 – Multi-System / Core Trauma

Clinical Contraindications:

- Altered mental status
- Significant mechanism of injury
- Distracting injury

Procedure:

1. A patient may be excluded from cervical spine immobilization if they meet all of the following criteria:
 - They are alert and oriented to person, place, time and event
 - There was not a significant mechanism of injury which could cause spinal column compromise
 - They are not intoxicated beyond decision making capacity
 - They do not have a distracting injury which would distract from a cervical spine injury
 - They do not have positive point tenderness on the spinous process' of the entire spine
 - They do not have wincing pain with range of motion
2. Consider immobilization in any patient with arthritis, cancer, or other underlying spinal or bone disease.
3. Document the time and result of the procedure in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Trauma: Tourniquet

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

Clinical Guideline Indications:

G1 – Patient Contact
T3 – Extremity Trauma
T5 – Multi-System / Core Trauma

Clinical Contraindications:

- Non-extremity hemorrhage
- Proximal extremity location where tourniquet application is not practical

Procedure:

1. Don appropriate personal protective equipment (mask, eye protection, and gloves).
2. Locate source of bleeding.
3. Place tourniquet at least 2 inches proximal to wound on long bone extremity segment.
4. Tighten per manufacturer instructions until hemorrhage stops and/or distal pulses in affected extremity cease.
5. Secure tourniquet per manufacturer instructions
6. Dress wounds per **Trauma: Wound Care Procedure**.
7. Make note on tape, clothing, or other conspicuous surface that will stay with the patient of the application time.
8. Document application time and results in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Trauma: Wound Care

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

T3 – Extremity Trauma
T5 – Multi-System / Core Trauma

Clinical Guideline Indications:

Clinical Contraindications:

- None

Procedure:

1. Don appropriate personal protective equipment (mask, eye protection, and gloves).
2. If active bleeding hold direct pressure. Do not rely on “compression” bandage to control bleeding. Direct pressure is much more effective. See **Trauma: Bleeding Control Clinical Guideline**.
3. If hemorrhage can not be controlled by direct pressure, is located in an extremity, and is life threatening then consider **Trauma: Tourniquet Procedure**.
4. If amputation, clean amputated part, wrap part in sterile dressing soaked in normal saline, and place in air tight container. Place container on ice, if available.
5. For bites with teeth, irrigate the area with normal saline to clean the wound and wrap with a dry, sterile dressing. Make note of distal pulse, motor, and sensory function, rapid transport if distal limb is not perfusing.
6. For dental injuries, attempt to collect avulsed teeth or fragments and avoid contact with tooth root. Submerge teeth in normal saline and transport with patient. Control bleeding by having patient bite gently on a towel / washcloth damp with normal saline and keep patient leaning forward to reduce blood in their airway. If bleeding is serious, be prepared to use **Airway: Suctioning, Basic Procedure** or **Airway: Suctioning, Advanced Procedure**.
7. Once bleeding is controlled, irrigate contaminated wounds with saline as appropriate (this may have to be avoided if bleeding was difficult to control). Consider analgesia per clinical guideline prior to irrigation.
8. Cover wounds with sterile gauze/dressings. Check distal pulses, sensation, and motor function to ensure the bandage is not too tight.
9. Monitor wounds and/or dressings throughout transport for continued bleeding.
10. Document the wound, assessment, treatments and results in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Trauma: Wound Packing

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

G1 – Patient Contact
T5 – Multi-System / Core Trauma

Clinical Guideline Indications:

Clinical Contraindications:

- Do not pack wounds in the torso unless located in a junctional area.

Procedure:

- Don appropriate personal protective equipment (mask, eye protection, and gloves).
- Locate the source of the bleeding, removing clothing as necessary.
- If the wound is deep and direct pressure will not be successful, begin packing the wound with combat gauze or clean, sterile gauze rolls with the intent of compressing the lacerated opening of the bleeding vessel closest to the core of the body to stop bleeding, hold pressure manually for at least 3 minutes.
- When packing a wound, utilize two fingers, one staying inside the wound holding the packing material down tightly the entire time. Using constant pressure, continue adding more packing material down into the wound until there is no more space. Multiple packages of combat gauze or gauze rolls may be needed. Do not release the pressure.
- Once the dressing is tightly packed all the way to the surface of the skin, wrap utilizing self adhesion gauze or a compression bandage to keep the dressing secure.
- Rapidly transport to the most appropriate facility.
- Document procedure, and time of application, and result in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Venous Access: Extremity

Approved for the following levels:

A	Advanced EMT	A
P	EMT-Paramedic	P

C1 – Chest Pain
C3 – Hypotension / Dizziness
C5 – Cardiac Arrest
C6 – Pediatric Cardiac Arrest
M5 – Childbirth / Labor
M6 – Obstetrical Emergency

Clinical Guideline Indications:

M7 – Hypothermia / Hyperthermia
T1 – Burn Algorithm
T3 – Extremity Trauma
T4 – Head Trauma
T5 – Multi-System / Core Trauma
S1 – WMD / Nerve Agent Exposure

Clinical Contraindications:

- Patients where IV medication delivery is not needed or expected.

Procedure:

1. Saline locks may be used as an alternative to an IV tubing and IV fluid in every clinical guideline at the discretion of the ALS professional.
2. Intraosseous access can be used where a threat to life exists as provided for in the **Venous Access: Intraosseous Procedure**.
3. Use the largest catheter bore necessary based upon the patient's condition and size of veins.
4. Fluid and setup choice is preferably:
 - a. Normal Saline with a macro drip (10 gtt/ml) for medical conditions, and
 - b. Normal Saline with a micro drip (60 gtt/ml) for medication infusions.
5. Place a tourniquet around the patient's extremity to restrict venous flow only.
7. Select a vein and an appropriate gauge catheter for the vein and the patient's condition.
8. Prep the skin with an antiseptic solution.
9. Insert the needle with the bevel up into the skin in a steady, deliberate motion until the bloody flashback is visualized in the catheter.
10. Advance the catheter into the vein. Never reinsert the needle through the catheter. Dispose of the needle into the proper container without recapping.
11. Remove the tourniquet and connect the IV tubing or saline lock.
12. Cover the site with a sterile dressing and secure the IV and any tubing.
13. Document the procedure, time and result in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Venous Access: Intraosseous

Approved for the following levels:

P

EMT-Paramedic

P

C1 – Chest Pain
C3 – Hypotension / Dizziness
C5 – Cardiac Arrest
C6 – Pediatric Cardiac Arrest
M5 – Childbirth / Labor
M6 – Obstetrical Emergency

Clinical Guideline Indications:

M7 – Hypothermia / Hyperthermia
T1 – Burn Algorithm
T3 – Extremity Trauma
T4 – Head Trauma
T5 – Multi-System / Core Trauma
S1 – WMD / Nerve Agent Exposure

Clinical Contraindications:

- Patients where IV medication delivery is not needed or expected.
- Patients where **Venous Access: Extremity Procedure** would be more appropriate

Procedure:

1. Don personal protective equipment (gloves, eye protection, etc.).
2. Identify anteromedial aspect of the proximal tibia (bony prominence below the knee cap). The insertion location will be 1 - 2 cm (2 finger widths) below this. An alternative site is the anterior aspect of the right proximal humerus. Prep the site recommended by the device manufacturer with iodine solution.
3. For manual pediatric devices, hold the intraosseous needle at a 60 to 90 degree angle, aimed
 - a. away from the nearby joint and epiphyseal plate, twist the needle handle with a rotating
 - b. grinding motion applying controlled downward force until a “pop” or “give” is felt indicating loss of resistance. Do not advance the needle any further.
4. For the EZ-IO intraosseous device, hold the intraosseous needle at a 60° to 90° angle, aimed away from the nearby joint and epiphyseal plate, power the driver until a “pop” or “give” is felt indicating loss of resistance. Do not advance the needle any further.
5. Remove the stylet and place in an approved sharps container.
6. Attach a syringe filled with at least 5 ml Normal Saline; aspirate bone marrow for manual devices only, to verify placement; then inject at least 5 ml of Normal Saline to clear the lumen of the needle. Consider flushing with 1 - 2 ml of Lidocaine.
7. Attach the IV line and adjust flow rate. A pressure bag may assist with achieving desired flows.
8. Stabilize and secure the needle with dressings and tape.
9. You may administer 10 - 20 mg (1 - 2 ml) Lidocaine in adult patients who experience infusion-related pain.
10. Following the administration of any IO medications, flush the IO line with 10 ml of IV fluid.
11. Document the procedure, time, and result in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Vital Signs: Blood Glucose Analysis

Approved for the following levels:

B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

M2 - Altered Mental Status

Clinical Guideline Indications:

Clinical Contraindications:

- None

Procedure:

1. Gather and prepare equipment.
2. Blood samples for performing glucose analysis can be obtained through a finger-stick or, when possible, simultaneously with intravenous access.
3. Place correct amount of blood on strip or site on glucometer, per the manufacturer's instructions.
4. Time the analysis as instructed by the manufacturer.
5. Document the glucometer reading and treat the patient as indicated by the analysis and clinical guideline.
6. Repeat glucose analysis as indicated for reassessment after treatment and as per clinical guideline.
7. Perform Quality Assurance on glucometers every day, if any clinically suspicious readings are noted, and/or as recommended by the manufacturer and document in the log.
8. Document the result in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Vital Signs: Capnography

Approved for the following levels:

B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

A1 – Airway / Respiratory Failure

Clinical Guideline Indications:

- None

Clinical Contraindications:

Procedure:

1. Attach capnography sensor to the supraglottic, endotracheal tube, or oxygen delivery device.
2. Note CO₂ level and waveform changes. These will be documented on each respiratory failure, cardiac arrest, or respiratory distress patient.
3. The capnometer shall remain in place with the airway and be monitored throughout the prehospital care and transport.
4. A loss of CO₂ detection or waveform may indicate mechanical dysfunction or a deterioration in the status of the patient which must be addressed.
5. End tidal CO₂ does not necessarily correspond to blood CO₂ levels. Use of capnography on patients who are not intubated can be used as an adjunct in the detection of respiratory depression.
6. In most patients, normal ETCO₂ values should remain between 35-45, cardiac arrest patients with adequate CPR, ETCO₂ will likely maintain a value > 20, ROSC in a cardiac arrest patient can typically be recognized as ETCO₂ values > 40 which are sudden and sustained.
7. If head injury is suspected a target range should be ETCO₂ values between 30-35.
8. Document Capnography levels appropriately in ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Vital Signs: Orthostatic Blood Pressure

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

C3 – Hypotension / Dizziness

Clinical Guideline Indications:

Clinical Contraindications:

- None

Procedure:

1. Gather and prepare standard sphygmomanometer and stethoscope.
2. With the patient supine, obtain pulse and blood pressure.
3. Have the patient sit upright.
4. After 30 seconds, obtain blood pressure and pulse.
5. If the systolic blood pressure falls more than 20 mmHg or the pulse rises more than 20 bpm, the patient is considered to be orthostatic.
6. If a patient experiences dizziness upon sitting or is obviously dehydrated based on history or physical exam, formal orthostatic examination should be omitted and fluid resuscitation initiated.
7. Document procedure and results in the ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Vital Signs: Pain Assessment

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

Clinical Guideline Indications:

- M1 – Abdominal Pain / Back Pain / Nausea
- T1 – Burn Algorithm
- T3 – Extremity Trauma
- T4 – Head Trauma
- T5 – Multi-System / Core Trauma

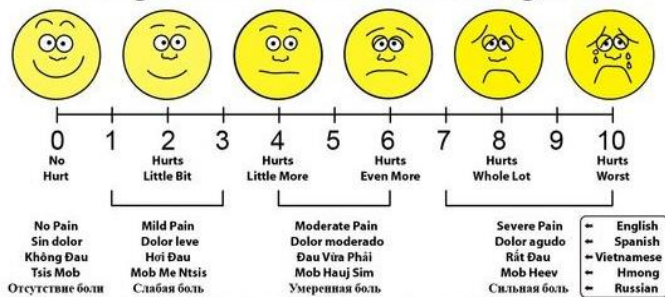
Clinical Contraindications:

- None

Procedure:

1. Initial and ongoing assessment of pain intensity and character is accomplished through the patient's self report.
2. Pain should be assessed and documented in the PCR during initial assessment, before starting pain control treatment, and with each set of vitals.
3. Pain should be assessed using the appropriate approved scale.
4. Three pain scales are available:
 - The 0 - 10 Scale: the most familiar scale used by EMS for rating pain with patients. It is primarily for adults and is based on the patient being able to express their perception of the pain as related to numbers. Avoid coaching the patient; simply ask them to rate their pain on a scale from 0 to 10, where 0 is no pain at all and 10 is the worst pain ever.
 - Wong - Baker "faces": this scale is primarily for use with pediatrics, but may also be used with geriatrics or any patient with a language barrier. The faces correspond to numeric values from 0-10.
 - FLACC Scale: this scale has been validated for measuring pain in children with mild to severe cognitive impairment and in preverbal children (including infants).

Wong-Baker FACES Pain Rating Scale



FLACC scale

Behavioral Observation Pain Rating Scale

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

Each of the five categories (F) Face; (L) Legs; (A) Activity; (C) Cry; (C) Consolability is scored from 0-2, which results in a total score between 0 and 10.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Vital Signs: Temperature Measurement

Approved for the following levels:

EMR	Emergency Medical Responder	EMR
B	EMT-Basic	B
A	Advanced EMT	A
P	EMT-Paramedic	P

M2 – Altered Mental Status
M7 – Hypothermia / Hyperthermia

Clinical Guideline Indications:

Clinical Contraindications:

- None

Procedure:

1. If clinically appropriate, allow the patient to reach equilibrium with the surrounding environment.
2. For adult patients that are conscious, cooperative, and in no respiratory distress, an oral temperature is preferred (steps 3 to 5 below). For infants or adults that do not meet the criteria above, a rectal temperature is preferred (steps 6 to 8 below).
3. To obtain an oral temperature, ensure the patient has no significant oral trauma and place the thermometer under the patient's tongue with appropriate sterile covering.
4. Have the patient seal their mouth closed around thermometer.
5. If using an electric thermometer, leave the device in place until there is indication an accurate temperature has been recorded (per the "beep" or other indicator specific to the device). If using a traditional thermometer, leave it in place until there is no change in the reading for at least 30 seconds (usually 2 to 3 minutes). Proceed to step 9.
6. Prior to obtaining a rectal temperature, assess whether the patient has suffered any rectal trauma by history and/or brief examination as appropriate for patient's complaint.
7. To obtain a rectal temperature, cover the thermometer with an appropriate sterile cover, apply lubricant, and insert into rectum no more than 1 to 2 cm beyond the external anal sphincter.
8. Follow clinical guidelines in step 5 above to obtain temperature.
9. Record time, temperature, method (oral, rectal), and scale (C° or F°) in ePCR.

Certification Requirements

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.