



Fort Worth Regional EMS System
Out-of-Hospital & Mobile Integrated
Healthcare Protocols

These protocol's jurisdictional authority pertains to the following members of the Fort Worth Regional EMS System:

Bell Helicopter Fire Department

Blue Mound Fire Department

Edgecliff Village Fire Department

Forest Hill Fire Department

Fort Worth Fire Department

Fort Worth Police Department

Fort Worth Zoo

Haltom City Fire Department

Haslet Fire Department

Lake Worth Fire Department

Richland Hills Fire Department

River Oaks Fire Department

Saginaw Fire Department

Sansom Park Fire Department

Westover Hills Police Department

Westworth Village Police Department

White Settlement Fire Department

These protocols apply to clinicians who are credentialed by the Fort Worth Office of the Medical Director (FWOMD). Clinicians are authorized to practice within these protocols while considered to be "On-Duty" by their respective agencies. When outside the service area jurisdiction and not responding with another agency, credentialed clinicians may operate under these protocols within the borders of the State of Texas. Any advanced procedures may be performed, if allowed within the system, only at the request of the on-scene EMS agency.

Clinicians will remain authorized under these protocols for all deployments out-of-state with state programs (EMTF or TIFMAS) under EMAC requests. All deployments must be reviewed by and approved by the medical director.

Questions regarding the applicability of this document within any specific jurisdiction or for a particular event should be directed to the FWOMD by calling 817-923-1500 or in writing to the following address:

Fort Worth Office of the Medical Director
2900 Alta Mere Drive
Fort Worth, Texas 76116

EFFECTIVE:

October 1, 2026



Jeffrey L. Jarvis, MD, MS, EMT-P, FACEP, FAEMS
Chief Medical Officer / System Medical Director

Medical Direction and Oversight of the system includes the following components:

Medical Control Advisory Board

By resolution, the City of Fort Worth established the Medical Control Advisory Board (MCAB) to advise the City about the clinical performance of the EMS System, review medical protocols, clinical policies and procedures for the EMS System, and make recommendations to the Medical Director. MCAB should also represent the interests of the medical community, first responders, medical transportation clinicians, and ambulance standby clinicians by making recommendations for improvements to the EMS System as needed, and recommending and reviewing research conducted within the associated service area of the EMS System. The MCAB is composed of the System area hospital Emergency Department Medical Directors and additional specialty physicians.

Medical Director

The Medical Director is responsible for all aspects of clinical care for the System, including establishing clinical care requirements, credentialing standards, training & education, quality improvement processes, and research. The Medical Director must approve all medical protocols. The Medical Director's power and duties are defined in the Texas Medical Board Rules in the Texas Administrative Code, Title 22, Part 9, Chapter 169, Subchapter C, and in the employment agreement and job description. The Medical Director is also the Chief Medical Officer of the EMS System and has all powers and duties afforded and required of EMS medical directors under state law. The Medical Director provides all independent medical direction and is the exclusive source of medical direction and oversight for the EMS System.

Office of the Medical Director

The Medical Director may appoint members of staff to aid in the provision of medical direction and oversight, which may include physician (Associate/Assistant Medical Directors), and non-physician staff. The Medical Director may delegate certain tasks and responsibilities to this staff. The selection, hiring, separation, and day-to-day direction of members of this staff solely resides with the Medical Director.

Medical Directives

Medical Directives are issued by the Medical Director and describe specific clinical changes that modify these protocols. Each System Agency is responsible for disseminating Medical Directives to their stakeholders and credentialed EMS clinicians.

Medical Advisories

Medical Advisories are issued by the Medical Director and describe general medical topics that do not modify these protocols. Each System Agency is responsible for disseminating Medical Advisories to their stakeholders and credentialed EMS clinicians.

On-line Medical Control (OLMC)

OLMC is provided through direct communication with FWOMD EMS Physicians and is to be used for the purpose of further guidance and advisement of patient treatment, transport, and medical direction outside of, or as required within, these protocols. Contact FWOMD EMS Physicians by calling 682-302-4911.

Organization of the Protocol Document

This document was designed for efficient navigation. Protocol, Procedures, and Pharmacopeia references are underlined and in red. OMD clinical policies referenced are underlined, italicized, and in purple.

The major sections are color coded to allow for rapid identification and are organized as follows:

The master sections are identified by the top-most heading within each protocol, e.g. cardiac, medical, trauma, environmental, and distinguished by their color-coding. The definition of an adult and pediatric patients is outlined in the Patient Assessment protocol.

General

Spans multiple protocols due to their relevance to all facets of patient care, including Drug Assisted Airway, Circulatory Support, Respiratory Support, Acute Pain Management, Release at Scene, Against Medical Advice

Cardiac

Cardiac Arrest, Ischemic Chest Pain, and treatment of dysrhythmias

Medical

General medical emergencies, including Abdominal Pain, Respiratory Distress, Stroke/CVA/TIA

Environmental

Bites/Envenomation, Hypothermia, Hyperthermia, Near Drowning

Trauma

Treatment protocols for the injured patient

OB/GYN

Emergency Childbirth and Newly Born

Protocol Conventions

- All 911 protocols are listed in their entirety on a single page.
- Interventions, including the use of skills or medications, are preceded by individual bullets or lists of bullets.

- Hemorrhage Control
- Cover the stump with saline-soaked sterile dressing and wrap with dry dressing
- Wrap severed part in saline-moistened sterile dressing

- Simple *If* statements provide specific indications for the interventions that follow.

If suspected eclampsia/peripartum seizure, see Preeclampsia / Eclampsia

- While bullets are generally listed in the order of importance, numbers are avoided for the purpose of deemphasizing a rote, *cookbook*, approach to patient management
- The following pages provide a visual guide to the key elements of each protocol page, including:
 - Master and Subsection identification
 - Provider Tabs for individual credentialing levels, i.e. Basic, Paramedic, Critical Care Paramedic (CCP)
 - Pearls & Pitfalls

Procedures

Detailed Procedures are provided in either the Procedure section or, in some cases, are located directly within the individual protocols (Respiratory Support) to standardize the approach to high-risk low-frequency procedures (endotracheal intubation, cricothyrotomy, needle thoracostomy, and vasopressor administration for shock).

Pharmacopeia

Summarization of medications use within protocol with dosing and mixing references along with indication and contraindication of the medication.

Master & Subsection Identification

Master Section (Medical)

Medical

Toxicology

Disease Process

Bulleted
Actions

If
statement

Adult and Pediatric
Treatment Plan

Basic

Paramedic

If suspected exposure to toxic agent.

- Remove patient from environment if safe/trained/equipped (PPE) to do so
- Ensure appropriate decontamination

If known or suspected *opiate intoxication*, see [Opiate Use Disorder](#)

If *carbon monoxide (CO)* exposure.

- Consider with CO levels above 5% in non-smoker or 10% in a smoker if available
 - High flow O₂ by NRB+ HFNC (as available) 15 LPM each

If *caustic ingestion*

- Do not induce vomiting or allow the patient to eat or drink

If *tachycardia associated with sympathomimetic intoxication* (e.g., cocaine, amphetamine, MDMA),

- [Midazolam](#)
 - Adult - 2.5-5.0 mg slow IV/IO or 5 mg IM/IN, repeat PRN q 5 min (max total dose 10 mg)
 - Pedi - 0.05 mg/kg (max dose 2.5 mg) IV, repeat PRN q 5 min x 1

If *dystonic reaction*.

- [Diphenhydramine](#)
 - Adult - 50 mg IV/IM/IO
 - Pedi - 1 mg/kg (max dose 50 mg)

In suspected *cyanide poisoning* (smoke inhalation, dermal or ingestion exposure) AND if altered mental status, hemodynamic instability, or cardiac arrest,

- If available, [Hydroxocobalamin](#) over 15-minutes through a dedicated IV/IO; contact [OLMC](#) following initial dose
 - Adult - 5 g IV/IO, repeat PRN x 1
 - Pedi - 0-2 years: 0.625 g IV/IO (1/8 bottle)
 - 3-5 years: 1.25 g IV/IO (1/4 bottle)
 - 6-13 years: 2.5 g IV/IO (1/2 bottle)

Hydroxocobalamin
1 bottle = 5 g

Consider the following *toxidromes/treatments*:

Tricyclic Antidepressant (TCA)

- [Sodium Bicarbonate](#)
 - Adult - 1 mEq/kg IV/IO, repeat PRN 1 mEq/kg x 1
 - Pedi - Same as Adult, repeat PRN 0.5 mEq/kg x 1

Beta-blocker

- [Glucagon](#)
 - Adult - 1 mg IV/IO slow push over 1-minute, repeat PRN q 5 min x 1
 - Pedi - 0.1 mg/kg IV/IO, slow push over 1-minute (max single dose 1 mg), repeat PRN 0.2 mg/kg IV/IO x1

Calcium Channel Blocker

- [Calcium Chloride](#)
 - Adult - 1 g IV slow push
 - Pedi - 20 mg/kg (0.2 ml/kg) IV/IO, slow push (max dose 1 g)

Organophosphate

- [Atropine](#)
 - Adult - 2 mg IV/IO, repeat PRN q 3 min until secretions dry up
 - Pedi - 0.02 mg/kg IV/IO/IM, repeat until secretions dry up

- SpO₂ may be a poor indicator of severity in CO poisoning; therefore, regardless of SpO₂, always treat the patient
- Toxidromes secondary to toxic substances or to toxic doses of common medications may result from exposure in the form of ingestion, inhalation, injection, skin absorption
- Dystonias may result from a number of psychiatric and GI medications, including droperidol, haloperidol, fluphenazine, fluoxetine, duloxetine, sertraline, metoclopramide

Provider Tabs

Interventions for each provider credentialing level are listed within their individual tabs on the right of the page:

- Basic
- Paramedic
- Critical Care Paramedic (CCP)

Each successive credentialing level includes interventions for that specific tab, as well as those interventions in the tabs preceding it. Paramedic level providers perform all interventions in both the Basic and Paramedic tabs, while Critical Care level providers are responsible for all interventions in the Basic, Paramedic, and CCP tabs.

OB/GYN	
Pre-Eclampsia / Eclampsia	
→ Pre-Eclampsia is present in patients between 20 weeks gestation and 6 weeks postpartum with: • SBP ≥ 140 <u>and</u> DBP ≥ 90 with severe features, <i>or</i> • Severe Features: new onset headache, visual changes, or RUQ pain • SBP ≥ 160 <u>or</u> DBP ≥ 110 <i>regardless of symptoms</i> → Eclampsia should be considered present for all tonic-clonic seizures in pregnancy or post-partum patients	Basic
<i>If SBP ≥ 140 <u>and</u> DBP ≥ 90 with Severe Features confirmed by correctly fitted cuff on 2 readings 5 minutes apart</i> • <u>Magnesium Sulfate (10g / 250mL NS)</u> bolus 6 g IV/IO over 15 min; followed by 2 g/hr infusion • Bolus: rate = 648 mL/hr; total volume = 150 • Infusion: rate = 50 mL/hr <i>If SBP ≥ 160 <u>or</u> DBP ≥ 110 confirmed by correctly fitted cuff on 2 readings 5 minutes apart</i> • <u>Nifedipine</u> 10 mg SL • <u>Magnesium Sulfate (10g / 250mL NS)</u> bolus 6 g IV/IO over 15 min; followed by 2 g/hr infusion • Bolus: rate = 648 mL/hr; total volume = 150 • Infusion: rate = 50 mL/hr <i>If suspected eclamptic seizure</i> • <u>Midazolam</u> as per <u>Seizure</u> protocol (only for ongoing seizure) • <u>Magnesium Sulfate (10g / 250mL NS)</u> bolus 6 g IV/IO over 15 min; followed by 2 g/hr infusion • Bolus: rate = 648 mL/hr; total volume = 150 • Infusion: rate = 50 mL/hr (administered even if seizure stops)	Paramedic
<i>If maternal HR is > 60 and SBP ≥ 160 <u>or</u> DBP ≥ 110 confirmed by correctly fitted cuff on 2 readings 5 minutes apart and severe symptoms described above are present</i> • <u>Labetalol</u> 20mg IV over 2 minutes, repeat 40 mg IV PRN q 10 minutes	CCP

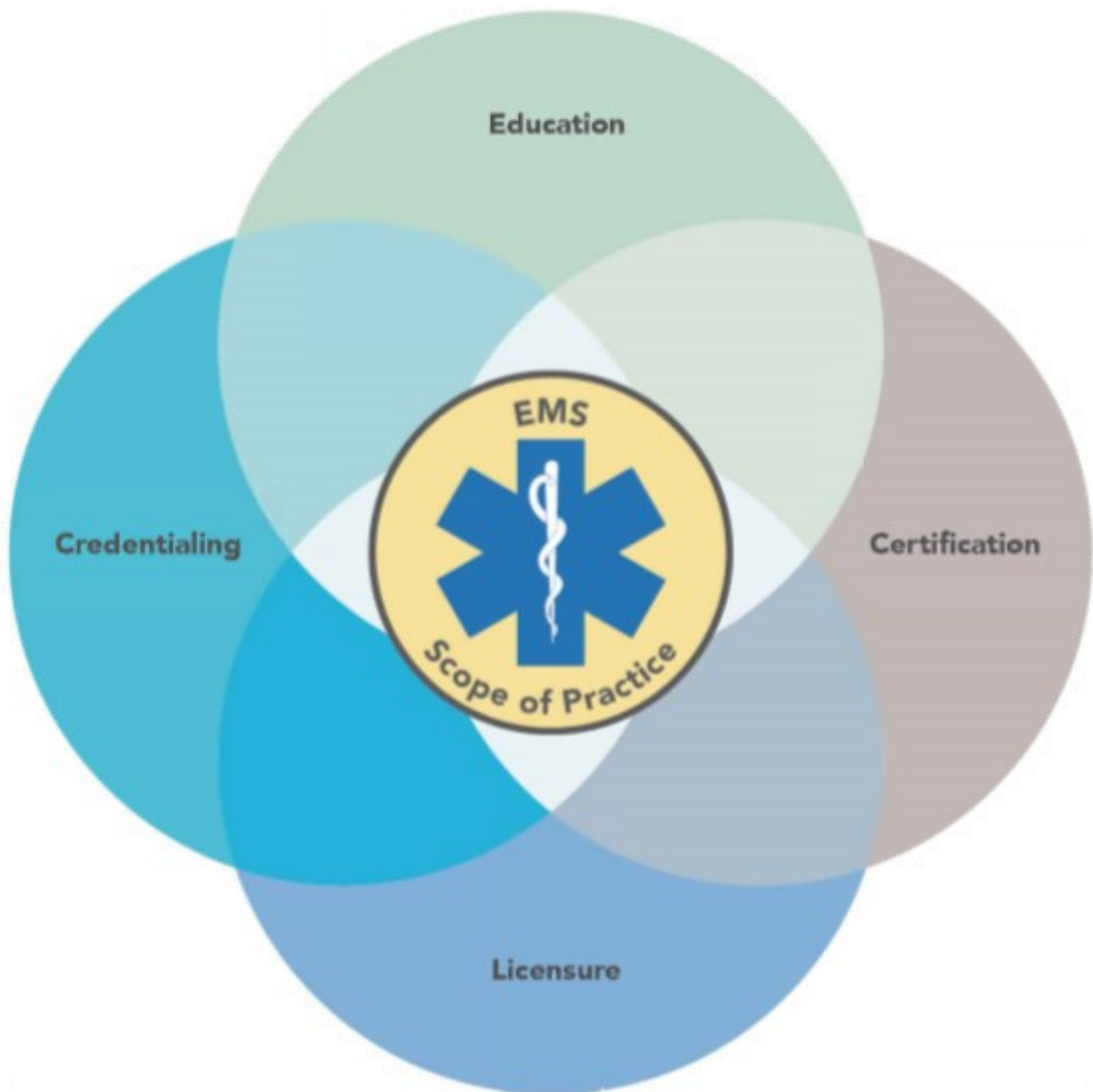
Pearls & Pitfalls

Additional guidance may be listed below the tabs in a white, un-tabbed “Pearls & Pitfalls” box. This may include additional diagnostic and treatment considerations, recommendations, and links to other relevant protocols.

Medical	
Seizure/Status Epilepticus	
• Position patient to avoid injury and aspiration, consider recovery position <i>If not returned to baseline, evaluate blood glucose and consider Diabetic Emergencies</i>	Basic
<i>If actively seizing, or in status epilepticus (≥ 2-seizures and without intervening lucid period),</i> • Midazolam IM midazolam is the first line route of administration if an IV not already established Adult - 10 mg IM/IN; or 5 mg slow IV/IO, repeat PRN q 5 min x 2 Pedi - 0.15 mg/kg slow IV/IO/IM (max dose 2.5 mg), repeat q 5-min PRN x 1 <i>If post-ictal and not actively seizing or not in status epilepticus, pharmacologic therapy with midazolam is not indicated</i> <i>If refractory despite maximum midazolam,</i> • Ketamine Adult - 1 mg/kg IV/IO Pedi - Same as Adult <i>If suspected eclampsia/peripartum seizure, see Preeclampsia / Eclampsia</i>	Paramedic
→ Consider toxicologic causes of seizure - Organophosphate/nerve gas (see chemical warfare policy) - Sympathomimetic toxidrome (stuffers/packers, methamphetamine) → Anticipate that dispatch or initial clinical picture of seizure may be initial presentation cardiac arrest → Most confused patients following a seizure do not need treatment. Monitor for up to 15-minutes before considering intervention or determining a disposition. → Always consider eclampsia in 3rd trimester pregnancy or up to 6 weeks post-partum.	

Scope of Practice

It is the responsibility of each individual clinician to operate within their credentialed scope of practice. Credential level and scope of practice can only be changed by successful completion of the FWOMD credentialing process. Except when specifically detailed, such as in an FWOMD-approved training program, no provider may authorize or delegate clinical care to another provider, which is outside of either's scope of practice. Consideration may be given in cases of declared disasters, and resource limitation in mass casualty incidents.



Minimum State Certification	ECA	EMT	EMT-P	
Credential Level	ECA	Basic	Paramedic	CCP
Airway				
Airway Adjuncts (OPA & NPA)	X	X	X	X
Airway Maneuvers (Head tilt-chin lift, Jaw-thrust)	X	X	X	X
Airway Obstruction (dislodgement via Magills forceps)			X	X
Airway Obstruction (manual dislodgement techniques)	X	X	X	X
Bag-valve-mask	X	X	X	X
BiPAP via transport ventilator				X
CPAP/BiPAP		X	X	X
Delayed Sequence Intubation (DSI)				X
Emergency Tracheostomy Exchange			X	X
Endotracheal Intubation			X	X
Gastric tube insertion via SGA port		X	X	X
High flow nasal cannula via transport ventilator				X
Nasogastric tube placement			X	X
Orogastric tube placement			X	X
Oxygen therapy (Nasal Cannula or Non-Rebreather Mask)	X	X	X	X
Pulse Oximetry		X	X	X
Rapid Sequence Airway (RSA)			X	X
Suctioning - Tracheobronchial via Endotracheal Tube			X	X
Suctioning - Tracheobronchial via Tracheostomy		X	X	X
Suctioning - Upper Airway	X	X	X	X
Supraglottic Insertion		X	X	X
Surgical Airway			X	X
Thoracostomy - Needle			X	X
Thoracostomy - Simple				X
Transtracheal Ventilation			X	X
Waveform Capnography		X	X	X
Cardiovascular				
Automated External Defibrillator (AED) Placement & Use	X	X	X	X
Blood or Blood Products				
<i>Initiation of Transfusion</i>				X
<i>Continuation of Transfusion</i>			X	X
Blood pressure automated		X	X	X
Blood pressure manual	X	X	X	X
Cardiac monitoring - 12 lead ECG acquisition & transmission		X	X	X
Cardiac monitoring - 12 lead ECG interpretation			X	X
Cardiopulmonary resuscitation (CPR)	X	X	X	X
Electrical Cardioversion			X	X
Manual Defibrillation			X	X
Mechanical Compression Device Placement		X	X	X
Pericardiocentesis				X
Transcutaneous pacing			X	X
Ventricular Assist Device (VAD) NON-VAD therapy complaint			X	X
Skills - Trauma/Restraint				
Extremity stabilization & splinting	X	X	X	X
Hemorrhage Control (direct pressure, tourniquet, wound packing)	X	X	X	X
Manual Cervical Stabilization & Cervical Collar	X	X	X	X
Manual Patient Restraint	X	X	X	X
Pelvic Binder		X	X	X
Spinal Motion Restriction (LSB, Scoop Stretcher, KED)		X	X	X
Traction Splinting		X	X	X
Skills - Access/Maintenance				
Central Catheter Access (Broviac, Central Line) for Emergency			X	X
Central Line Catheter Monitoring Only				X
Intraosseous initiation (adult, pediatric, tibial, humeral, femoral)			X	X
Peripheral intravenous access (extremity, truncal, external jugular)			X	X

Peripherally Inserted Central Catheter Access (PICC)			X	X
Skill - Miscellaneous				
Blood glucose monitoring	X	X	X	X
Emergency Childbirth	X	X	X	X
Eye irrigation		X	X	X
Telehealth Consultation Facilitation		X	X	X
Venous blood sampling			X	X
Skill - Critical Care				
All Chest Tubes (suction or gravity)				X
Extracorporeal Membrane Oxygenation (ECMO)				X
Impella				X
Intra-Aortic Balloon Pump (IABP)				X
Invasive Line Monitoring (Arterial Line, Swan-Ganz)				X
Mechanical Ventilation				X
Point of Care Ultrasound				X
Ultrasound Guided Peripheral IV				X
Ventricular Assist Device (VAD) with complaint related to VAD therapy				X
Medications				
Aspirin	X	X	X	X
Acetaminophen				
<i>Oral</i>		X	X	X
<i>IV administration</i>			X	X
Adenosine			X	X
Albuterol		X	X	X
Amiodarone			X	X
Atropine				
<i>Symptomatic bradycardia</i>			X	X
<i>All other Indications</i>			X	X
Buprenorphine				X
Calcium Chloride				
<i>Entrapment/Crush/Traumatic Rhabdomyolysis</i>			X	X
<i>All other Indications</i>			X	X
Dexamethasone			X	X
Dextrose 10%			X	X
Diltiazem			X	X
Droperidol			X	X
Diphenhydramine		X	X	X
Epinephrine				
<i>Auto-injector Epinephrine (patient or EMS supplied)</i>	X	X	X	X
<i>Intramuscular (anaphylaxis)</i>		X	X	X
<i>Cardiac Arrest</i>			X	X
<i>Intravenous Push-Dose Pressor</i>			X	X
<i>Intramuscular (asthma)</i>			X	X
<i>Infusion</i>			X	X
Esmolol				X
Fentanyl			X	X
Glucagon			X	X
Glucose - Oral	X	X	X	X
Hydroxocobalamin			X	X
Ibuprofen		X	X	X
Ipratropium		X	X	X
Isopropyl Alcohol	X	X	X	X
Ketamine				
<i>Analgesia</i>			X	X
<i>For facilitation of pacing/cardioversion</i>			X	X
<i>Behavioral Emergencies/Agitation</i>			X	X
<i>Delayed Sequence Intubation (DSI)</i>			X	X
<i>Rapid Sequence Airway (RSA)</i>			X	X
Ketorolac			X	X

Labetalol				X
Lidocaine			X	X
Magnesium			X	X
Midazolam				
<i>Pacing if Ketamine insufficient</i>			X	X
<i>Sedation after invasive airway placement</i>			X	X
<i>All Other Indications</i>			X	X
Naloxone				
<i>Auto-injector</i>	X	X	X	X
<i>Intranasal</i>	X	X	X	X
<i>Intravenous</i>			X	X
Nicardipine			X	X
Nitroglycerin				
<i>Assist with self-administration of already prescribed NTG & on scene</i>	X			
<i>EMS Supplied Nitroglycerin</i>		X	X	X
<i>IV administration</i>				X
Norepinephrine			X	X
Normal Saline (0.9%)			X	X
Ondansetron				
<i>ODT</i>		X	X	X
<i>Intravenous</i>			X	X
Oxytocin				X
Phenylephrine				X
Racemic Epinephrine			X	X
Rocuronium				X
Sodium Bicarbonate			X	X
Suboxone				X
Tranexamic Acid (TXA)			X	X
Vasopressin				X
Immunizations		X	X	X
Mobile Integrated Healthcare Paramedic				
Credential Level			MH-EMT	MHP
Approved medications prescribed for MIH programs				X
Consultation for Medical Director Refusal				X
Foley Insertion/Removal				X
Furosemide				X
In-Home Diuresis				X
Peak Flow				X
Point of Care Laboratory Analysis				X
Potassium Chloride ER Tablets				X
Suture/Staple Removal				X

Glossary (Abbreviations and Terms)

Abbreviations	
DSI	Delayed Sequence Intubation - a goal-directed and stepwise procedure to facilitate intubation using procedural sedation with ketamine to maximize physiologic preparation prior to administration of a paralytic
ELM	External Laryngeal Manipulation, also known as “Bimanual laryngoscopy”, similar to BURP
ETSN	Ear-to-sternal notch (airway position, previously known as “sniffing position”), performed by elevating the patient’s head, and confirmed from the patient’s side by visualizing that the auditory canal is level with sternum and parallel to the ground.
FWOMD	Fort Worth Office of the Medical Director
MAP	Mean Arterial Pressure
MIH	Mobile Integrated Healthcare services that are designed to enhance, coordinate, effectively manage, and integrate out-of-hospital care
OLMC	On Line Medical Control
PCMH	Patient Centered Medical Home refers to the function and/or group of providers through which individuals receive comprehensive, patient-centered, and coordinated care
POCUS	Point of Care UltraSound
PRN	“as needed”
RSA	Rapid Sequence Airway - the placement of a supraglottic airway facilitated by the use of sedation +/- use of a paralytic
SBP/DBP	Systolic Blood Pressure/Diastolic Blood pressure - all units of measurement are in mmHg, e.g. SBP $\geq$ 90 means Systolic Blood Pressure $\geq$ 90 mmHg
Terms	
Atropinization	Drying of mucus membranes and airway secretions resulting from appropriate dosing of atropine in organophosphate poisoning
Hemodynamic Instability	Abnormal or unstable low blood pressure. Signs and symptoms include diminished organ function (e.g. AMS, pallor/diaphoresis) due to a low perfusion (blood flow) state; may be manifested as absolute hypotension (e.g. SBP $\leq$ 90 in adults) or relative hypotension in patients with signs of poor perfusion.

Inframammary Line	The anatomic location used to guide needle thoracostomy insertion site selection, especially in patient's with difficult to visualize anatomic landmarks. Defined as the line where the breast meets the torso.
Kit Dump	Organized approach to advanced airway management for the purpose of minimizing error and, therefore, adverse patient outcomes (e.g. oxygen desaturation, bradycardia, hypotension, aspiration, cardiac arrest). All equipment necessary for appropriate airway management is placed out of the packing, in 2 sizes, within the airway manager's field of view.
Max BVM	BVM with 2 NPA (Nasopharyngeal Airway) + OPA (Oropharyngeal Airway)+ HFNC (High flow Nasal Cannula)+ HFBVMO2 (High flow bag valve mask oxygen)
Needle Thoracostomy	Insertion of a large-bore catheter into the chest for the purpose of relieving a tension pneumothorax
Patient	A person who requests EMS or, A person whom EMS has been requested and who has any medical or psychological complaint, obvious injury/distress, or has a significant mechanism of injury
Shock Index (SI)	A hemodynamic parameter used to assess shock severity. SI is calculated by dividing heart rate (HR) by systolic blood pressure (SBP). An SI >0.9–1.0 is associated with hemodynamic instability and an increased risk of adverse outcomes in traumatic/non-traumatic hemorrhagic shock, sepsis, and peri-intubation patients.
Spinal Motion Restriction	Means to mitigate potential or further trauma in patients with suspected spinal injury
Serial ECGs	Repeat ECGs, at minimum 2-tracings prior to arrival at the destination
Termination of Resuscitation	The process of stopping resuscitation once begun by professionals
Violent Agitation with Delirium	A combination of delirium (confusion) with agitation and violence. It is often associated with stimulant use and may be linked to sudden cardiac arrest.
Waveform Capnography	The visual representation of the measured exhaled carbon dioxide in graphic form as opposed to a numeric value. Visualized as a 4-phase generally square shaped waveform with each breath. Monitoring is required for all patient's receiving advanced airway intervention, including endotracheal intubation or blind insertion supraglottic airway
Withholding of Resuscitative Efforts	The process of not beginning professional resuscitation or not continuing bystander CPR, as differentiated from 'Termination of Resuscitation'

Protocol Updates

Effective Date	Protocol Update
07/01/2025	Original protocol set for the Fort Worth Regional EMS System
10/24/2025	New Protocol: General_Psychiatric Emergency Center - Direct Transport Checklist: Added Ketamine and Rocuronium dosing to DSI checklist
05/01/2026	Cardiac Arrest - Adult: single Epi 1:10 for all arrest types (no additional push or gtt) Post ROSC: no Epi gtt, no additional Epi for rearrest Pharmacopeia - Epi: removed CA infusion
10/01/2026	Jurisdiction: Added Fort Worth Zoo Scope of Work: Updated to reflect new procedures Procedure - IO Access: Add femoral head option New Procedure: US Guided Peripheral IV Policy: Added Blood Product Management and Administration Policy: Added EMT 12-Lead Acquisition and Interpretation

General

Acute Pain Management

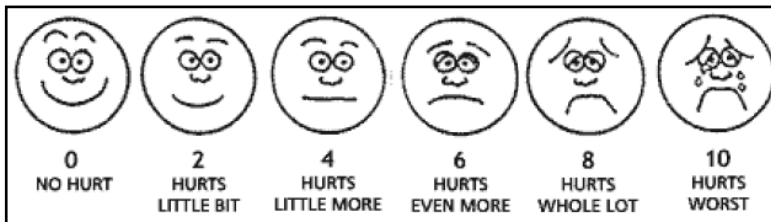
- Place in position of comfort, splint extremity injuries, and ice packs, as appropriate
- Document body weight
- Assess and document initial and final pain scale (see below)
- Monitor and document vital signs and pain scales pre and post every intervention
- **Acetaminophen**
Adult - 1 g PO
Pedi - 15 mg/kg PO (max dose 1 g)
- **Ibuprofen**
Adult - 600 mg PO
Pedi > 6 months - 10 mg/kg PO (max dose 600 mg)

BASIC

- EtCO₂ monitoring required for fentanyl or ketamine
- **Acetaminophen**
Adult - 15 mg/kg IV (max dose 1 g)
Pedi > 2 years of age, same as Adult
- **Ketorolac**
Adult - 15 mg IV or 30 mg IM once
Pedi - 0.5 mg/kg IM or IV once (max dose 15 mg)
- **Fentanyl** - titrate to pain relief and respiratory/hemodynamic status
Adult - 1 mcg/kg IV/IN/IM (max single dose 100 mcg), repeat q 5-min PRN
Pedi - same as Adult
- **Ketamine** - Do not re-dose if **RASS** < 0
Adult - IV/IO - 0.3 mg/kg in 100 mL NS over 10 min (max single dose 30 mg), repeat PRN x 1;
IM - 0.6 mg/kg (max single dose 50 mg), repeat q 10-min PRN x 1
Pedi - > 3 years old, same as Adult

Paramedic

- **Ketorolac** is contraindicated in trauma, bleeding, or kidney injury (acute and chronic)
- Benzodiazepines should not be co-administered with opiates
- In general, ketamine should not be the initial option, however, there may be circumstances where it is an appropriate initial agent. Clinical judgement based on the specifics of the situation should drive management.
- Use 1 mL syringe for accuracy in drawing up Ketamine as concentration carried is 50 mg/mL and thus all dosing will be less than 1 mL.



- Wong-Baker pain scoring for non-communicative patients

Subdissociative Ketamine (SDK) Dosing Chart
500 mg/ 10 mL vials (50 mg/mL concentration)

POUNDS (lbs)	mL (mg) of Ketamine	KILOS (kg)
37- 69 lbs	0.1 mL (5 mg)	17-33 kg
70-109 lbs	0.2 mL (10 mg)	34-49 kg
110-149 lbs	0.3 mL (15 mg)	50-66 kg
150-179 lbs	0.4 mL (20 mg)	67-82 kg
180- 219 lbs	0.5 mL (25 mg)	83-99 kg
220 lbs or more	0.6 mL (30 mg)	100 kg or more

Blood Administration (911)

Contraindications:

- Known religious objection to receiving blood or blood products

Criteria:

- Hemorrhagic Shock in medical or trauma patients
 - SBP < 70 mm Hg or,
 - SBP < 90 mm Hg and HR $\geq$ 120 bpm or,
 - Age $\geq$ 65 and SBP $\leq$ 100 and HR $\geq$ 110 or,
 - EMS witnessed traumatic arrest secondary to suspected hemorrhagic only if blood can be flowing in under 5 mins
- Age < 15 contact [OLMC](#)

If patient in hemorrhagic shock,

- Obtain baseline patient temperature
- Transfuse 1 unit Low Titer O⁺ Whole Blood (LTO⁺WB)
OR
If Whole Blood is unavailable, transfuse,
 - 1 unit Packed Red Blood Cells (PRBC) and/or
 - 2 units Liquid Plasma

- [Calcium Chloride](#) 2 g IV/IO
- [Tranexamic Acid](#), do not give if injury occurred $\geq$ 3 hours before
Adult - 2 g IV/IO, slow push over 1-minute
Pedi - N/A
- Repeat transfusion above PRN if additional blood and/or blood product is immediately available

If suspected febrile non-hemolytic transfusion reaction (FNHTR), including temperature rise $\geq$ 1° F above baseline and/or rigors, during blood product administration:

- Immediately stop infusion and disconnect IV tubing
- [Acetaminophen](#)
Adult - 1 g PO
Pedi - 15 mg/kg (max dose 1 g) PO
- [Diphenhydramine](#)
Adult - 50 mg IV/IM/IO
Pedi - 1 mg/kg IV/IM/IO (max dose 50 mg)

→ Beta Blockers and Calcium Channel Blockers may not allow HR to increase appropriately

BLS Transport Criteria

Clinical judgment should be used when deciding whether to wait on scene for ALS or rapidly transport to the ED. In general, ALS should transport the following types of patients:

- Altered mental status (from baseline)
- Respiratory distress or failure
- Unstable vital signs
- Any interventions performed beyond scope of transporting clinician
 - Exceptions:
 - IV locks not used for medications
 - Ketorolac, dextrose, glucagon, naloxone, or ondansetron
- Note: BLS can transport profoundly unstable hospice patients **IF** ALS interventions are not desired.

Any credentialed ALS clinician may transport a patient meeting above criteria with a BLS ambulance.

If ALS resources are not available in a reasonable time period,

- BLS may transport patients meeting the above criteria.
 - In general, this is appropriate for time critical conditions and short transport times.
- ALS intercept enroute to hospital is an option.

→ If a patient meets BLS transport criteria and an ALS/Advanced credentialed clinician has interpreted an ECG (no ischemia or dysrhythmia), they should sign the appropriate field in the ePCR before transferring care back to the BLS unit.

Circulatory Support

- Position patient in supine position with legs elevated, as appropriate and tolerated (no Trendelenburg)

If suspected traumatic etiology

- [Hemorrhage Control](#) as appropriate

If gravid uterus

- Manually displace fundus to the patient's left (may be accomplished by left lateral decubitus positioning, if tolerated)

Basic

If suspected tension pneumothorax with hypotension, see [Thoracostomy Procedure](#)

- Cardiac monitoring; obtain [12-lead ECG](#) and treat dysrhythmias as appropriate
- [IV/IO access](#)

Fluid Resuscitation

- Fluid Bolus
 - Adult: 500 mL, repeat PRN to meet target BP goals
 - Pedi: 20 mL / kg, repeat PRN to meet target BP goals
- Titrate to target BP goals:
 - TBI/Stroke: ≥ 110 mm Hg
 - Blunt Trauma: $= 100$ mm Hg (max 500 mL)
 - Hemorrhagic Shock or Penetrating Trauma: SBP $= 90$ mm Hg (max 500 mL)
 - Other patients:
 - Adult - MAP ≥ 65 (or SBP ≥ 90 mm Hg if manual measurement)
 - Pedi - SBP ≥ 70 mm Hg + (age in years x 2) or ≥ 90 mm Hg for age 10 or greater

If persistent hypotension despite adequate fluid administration, to temporarily stabilize blood pressure until vasopressor infusion can be initiated

- [Epinephrine push dose](#) (0.1 mg in 10ml NS)
 - Adult - 10 mcg (1 mL) IV/IO, repeat q 5-minutes PRN, max total dose 50 mcg (5 mL)
 - Pedi - 1 mcg/kg (max single dose 10 mcg), repeat q 5-minutes PRN, max total dose 50 mcg (5 mL)

If significant traumatic or OB related hemorrhage and SBP ≤ 90 or HR ≥ 110 with poor perfusion, see [Hemorrhage Control](#)

If suspected anaphylaxis/anaphylactic shock or symptomatic bradycardia

- [Epinephrine infusion](#) (1 mg 1:10,000 / 250 mL NS or 1 mg 1:1,000 / 250 mL NS; 4 mcg / mL)
 - Adult - start at 5 mcg/min, titrate to goals above
 - Pedi - start at 0.1 mcg/kg/min, titrate to goals above

If any other suspected etiology of shock unresponsive to initial fluid resuscitation

- [Norepinephrine infusion](#) (4 mg / 250 mL NS; 16 mcg / mL)
 - Adult - 5 mcg/min, titrate to goals above
 - Pedi - 0.1 mcg/kg/min, titrate to goals above

If septic shock with vasopressor infusion or documented history of Addison disease/adrenal insufficiency

- [Dexamethasone](#)
 - Adult - 10 mg IV/IO/IM
 - Pedi - 0.6 mg/kg PO/IM/IV (max 10 mg)

Paramedic

If response refractory to norepinephrine infusion, contact [OLMC](#) for

- [Vasopressin](#) (20 units / 100 mL NS; 0.2 units / mL)
 - Adult - 0.04 units /min infusion (12 mL / hr)
 - Pedi - N/A
- [Phenylephrine push dose](#) (10 mg / 100 mL NS; 100 mcg/mL)
 - Adult - 50 mcg (0.5 mL) q 3 min, titrate to target BP goals
 - Pedi - N/A

CCP

- The goal of vasopressor use in trauma is to meet, but not exceed the target goal
- Notify receiving facility of vasopressor use in patient report

Consent for Treatment and Transport

Before treating an individual, you must first obtain consent either from the individual or from a legal surrogate.

Consent to treatment may be implied when an individual is:

- **unable to effectively communicate** because of an injury, accident, or illness; or
- **unconscious** and suffering from a life-threatening injury or illness; or
- a minor who is suffering from an immediate life-threatening injury or illness and whose parents, healthcare surrogate, or legal guardian is not present.

Otherwise, you cannot treat a person without their consent.

The right to refuse treatment includes the right to refuse assessment and the right to refuse all or specific treatments or assessments.

A person in law enforcement custody has the right to refuse treatment but not to refuse transport.

If a patient refuses all contact or assessment

- Record disposition of call as “refused all contact”

If a patient effectively communicates a refusal of assessment, treatment, or transport

- Follow [Against Medical Advice](#) (AMA) protocol

If a patient communicates a refusal of assessment, treatment, or transport but appears to lack decision making capacity

- Follow [Refusal Without Demonstration of Capacity](#) protocol

Crashing Patient: Medical

If acutely ill with oxygenation / ventilation or hemodynamic instability:

Address Clinical Instability Prior to Movement*

- Consider requesting additional resources
- Obtain full set of vital signs (BP, HR, SpO₂, ECG, Temp, BGL)
- Initiate waveform capnography
- Obtain 360° access

Assess & Address Oxygenation & Ventilation

- See [Respiratory Support](#), [Delayed Sequence Intubation](#), [Rapid Sequence Airway](#)

GOAL: SpO₂ ≥ 94%; or persistent hypoxia despite appropriate interventions

Assess & Address Hemodynamic Stability

- See [Circulatory Support](#)

GOAL: Resolution of hypotension or initiation of treatment

*Only initiate movement before goals are met/addressed for safety or to obtain 360 access

→ Do not delay transport to meet SBP goals once initial therapy is initiated or attempted

Crashing Patient: Trauma

If acutely injured with oxygenation / ventilation or hemodynamic instability:

Assess & Address Catastrophic Hemorrhage

- See [Hemorrhage Control](#)

GOAL: Bleeding controlled or minimized

Address Clinical Instability Prior to Movement*

- Consider requesting additional resources
- Obtain vital signs (BP, HR, SpO₂)
- Initiate waveform capnography
- Obtain 360° access

Assess & Address Oxygenation & Ventilation

- See [Respiratory Support](#), [Delayed Sequence Intubation](#), [Rapid Sequence Airway](#)

GOAL: SpO₂ ≥ 94%; or persistent hypoxia despite appropriate interventions

Initiate Transport

Assess & Address Hemodynamic Stability Enroute

- See [Circulatory Support](#)

*Only initiate movement before goals are met/addressed for safety or to obtain 360 access

→ Most interventions for critical trauma patients, other than bleeding control and airway management, should be performed enroute if possible

Delayed Sequence Intubation (DSI) - Adult

- Begin [Invasive Airway Preparation](#)
- Ensure appropriate monitoring including: BP q 2 min cycle, ECG, EtCO₂, SpO₂ opposite arm from BP cuff
- Begin preoxygenation via Max BVM, NRB + HFNC, or NIPPV, as appropriate

Basic

Preparation

- Evaluate airway and identify/palpate surgical cricothyrotomy anatomic landmarks
- Confirm Push Dose Epinephrine (PDE) is readily available

If hypotensive, see [Circulatory Support](#)

Sedation & Preoxygenation

- [Ketamine](#) - 2 mg/kg IV/IO (max 200 mg); repeat PRN x 1
- Verify all appropriate monitoring/positioning (ETSN, HOB @ 30° elevation)
- Increase NC to flush rate
- Preoxygenate/Denitrogenate
 - If adequate respirations*
 - Set BVM @ flush rate, form tight mask seal, and allow spontaneous respirations to continue. Ensure PEEP ≥ 5 mmHg.
 - If inadequate respirations*
 - Perform Max BVM with assisted ventilations
- Titrate PEEP to reach maximal SpO₂
- Upon reaching SpO₂ ≥ 94%, begin 3-minute timed countdown
 - If SpO₂ drops below 94% - reset 3-min timed countdown once SpO₂ ≥ 94% obtained
- Complete [Intubation Checklist](#) in entirety (MANDATORY)

Paramedic

Abort DSI if SpO₂ remains < 94% and/or SBP < 100 mmHg, maintain BVM or RSA

Paralysis

- [Rocuronium](#) - 1.5 mg/kg IV/IO once (max 150 mg)
- Begin 90-second timed countdown after administration to allow complete paralysis
- Initiate or continue assisted ventilations PRN
- Must have affirmative confirmation of SBP ≥ 100 & at least 3 minutes continuous SpO₂ ≥ 94% at time of intubation attempt

CCP

Intubation (ONLY after all above steps have been successfully achieved)

- Perform [Intubation Procedure](#)
 - Immediately abort attempt if SpO₂ < 94% and begin BVM ventilations
 - Ensure SpO₂ ≥ 94% for at least 3 min before final intubation attempt
 - Max 2 intubation attempts per patient (NOT per clinician)
 - Place [Supraglottic Airway](#) at any time PRN
 - If Can't Oxygenate, Can't Ventilate (COCV) by any other means - [Surgical Airway Procedure \(Cricothyrotomy\)](#)
- Confirm ETT placement with:
 - EtCO₂ (4-phase waveform ≥ 5 mmHg with every breath within 5-breaths)
 - Visualization on VL of ETT through cords by two clinicians
- [Post-Invasive Airway Management](#)

Paramedic

- DSI is intended to be a deliberately controlled process with meticulous attention to preoxygenation/denitrogenation and hemodynamic optimization to ensure safe intubating conditions and optimize the chance for first pass success without hypoxia and/or hypotension.
- DSI uses ketamine for procedural sedation, where the procedure is preoxygenation/preparation.

Decision
to DSI

SBP > 100
SpO₂ ≥ 94%

Paralysis

Intubate



Setup/Kit Dump
Hemodynamic Optimization
Ketamine & Preoxygenation

3-min countdown
(Reset if SpO₂ drops < 94%)

90-sec countdown

Fever

If temperature $\geq 100.4^{\circ} F$

- Acetaminophen

Adult - 1 g PO

Pedi - 15 mg/kg (max dose 1 g) PO

- Ibuprofen

Adult - 600 mg PO

Pedi > 6 months - 10 mg/kg (max dose 600 mg) PO

Basic

- Acetaminophen

Adult - 15 mg/kg IV (max dose 1 g)

Pedi > 2 years of age - same as Adult

Param

→ Fever in newborns under 90 days is sepsis until proven otherwise and should be transported or [OLMC](#) contacted prior to release

Consider other protocols as appropriate

→ Circulatory Support

→ Seizure

Hemorrhage Control

<i>If ongoing bleeding:</i> • Apply firm, persistent direct pressure <i>If ongoing bleeding after persistent direct pressure:</i> • Apply Tourniquet <i>If ongoing bleeding despite direct pressure and tourniquet to junctional/extremity bleeding:</i> • Pack wound with hemostatic gauze <i>If bleeding dialysis fistulas or varicose veins:</i> • Elevate extremity straight up for gravity assist • Firm, direct pressure with hemostatic gauze. (consider plastic bottle cap to enhance direct pressure) • Tourniquet above and below for ongoing massive bleeding despite these measures for 10 minutes. (Very rarely needed for varicose veins) <i>If hemorrhagic shock with suspected pelvic fracture:</i> • Pelvic binder	Basic
<i>If significant traumatic, OB, or tracheostomy related hemorrhage and SBP ≤ 90 or HR ≥ 110 with poor perfusion:</i> • Tranexamic Acid - (do not give if injury occurred ≥ 3 hours before administration OR if isolated TBI) Adult: 2 g IV/IO slow push over 1 minute Pedi: N/A <i>If ongoing epistaxis despite direct pressure:</i> • Blow nose, then immediately: • Oxymetazoline Adult: 2 squirts to affected nare Pedi: Same as Adult • Tranexamic Acid - Topical to affected nare(s) Adult: 2 g saturated on cotton ball or gauze Pedi: Same as Adult • Mechanical nose clamp persistently until ED arrival	Paramedic
<i>If significant OB related hemorrhage following complete placental delivery:</i> • Oxytocin Adult: 10 units IM followed by 20 units / 1 L NS IV run wide open Pedi: N/A • Prehospital Blood Administration	CCP
→ Don't loosen pressure dressing or tourniquet to check for ongoing bleeding. → Don't wait for hemodynamic instability to apply tourniquet. → Use commercial windlass-type tourniquet. → Document time of tourniquet application and be sure to notify ED staff of location.	

IFT-Blood & Blood Products

1. Verify consent for administration of blood product. A copy should be included in the patient's chart.
2. Patients receiving blood or blood products are to have a recipient band in place.
3. If product is infusing at time of initial patient contact, verify facility transfusion checklist.
 - a. Patient's name and hospital number matched with transfusion record form (attached to product bag).
 - b. Type and number on transfusion record form matched with product bag.
 - c. Pre-transfusion vital signs are documented on transfusion record form.
 - d. Nurse administering product has signed, dated and timed the transfusion record form.
 - e. All original copies of the transfusion slip should remain with the patient.
4. If the transfusion of blood or blood products is initiated during transport, verify the order and facility transfusion checklist with patient's primary RN prior to transport.
5. Obtain necessary equipment, i.e. tubing, filters, etc. from sending facility to administer transfusion.
6. Prior to administering blood or blood products enroute, complete the facility's pre-transfusion checklist and document accordingly on the product slip and in the run report.
7. Blood or blood products may NOT be piggybacked into an existing IV line.
8. Vital signs including temperature should be obtained and recorded 15 min, 45 min and then 1 hour, at a minimum, after initiating the transfusion until completed. If patient spikes a temperature 2°F greater than baseline, discontinue the blood infusion.
9. If the transfusion is completed enroute, document on the transfusion slip the date and time completed, amount given, whether or not the blood is warmed, if a reaction occurred and post-transfusion vital signs. All completed bags and tubing should be turned over to the receiving facility with the patient.
10. It is the receiving facility's responsibility to return the transfusion slip to the sending facility's blood bank.

Whole Blood, Packed RBCs, Frozen RBCs, FFP, Platelets & Cryoprecipitate

1. Verify transfusion checklist.
2. Prime Y-type blood tubing with Normal Saline and begin infusion slowly.
3. Attach blood bag to Y-type blood tubing. Clamp tubing to saline. Open clamp to blood and adjust flow to run slowly for the first 15 minutes. If no adverse reaction, increase flow based on patient condition and transfusion times.
 - a. Whole Blood: 1-1/2 – 3 hours
 - b. Packed RBC's: 1-1/2 – 3 hours
 - c. Washed Packed Cells: 2 hours maximum
 - d. Fresh Frozen Plasma: 30 min (all units must be infused within 4 hours from thaw time)
 - e. Platelets: 30 min max
 - f. Cryoprecipitate: rapid infusion
4. Monitor vital signs as previously outlined.
5. Monitor for signs/symptoms of adverse reaction. If adverse reaction noted, stop infusion and see [Allergic Reaction](#) protocol.
6. Blood tubing should be changed after each unit. EXCEPTION: If emergent situation and several units of blood are being administered rapidly, tubing should be changed every 4 hours or every other unit.
7. If suspected febrile non-hemolytic transfusion reaction (FNHTR), including temperature rise $\geq 1^\circ\text{F}$ above baseline and/or rigors, either during or within 3-hours following blood product administration:
 - [Acetaminophen](#) - per [Fever](#) protocol, and
 - [Diphenhydramine](#) - 50 mg IV

Lift Assist

If request of "lift assist"

- Make scene and evaluate patient
 - Assess for signs of trauma, infection or altered mental status (AMS)
- Assess vital signs
- Evaluate cause of patient fall or need for assistance

If a patient meets any below criteria

- Medical cause of fall
- Signs of new trauma (e.g. pain or injury)
- Altered mental status
- Any loss of consciousness
- Currently on blood thinners (not including ASA)
- HR > 100
- SBP < 100 or > 200
- DBP > 140
- RR > 20
- SpO₂ < 90%
- Blood Glucose < 70 or > 300 (check if diabetic or otherwise indicated)
- New inability to ambulate
- Recommend further evaluation and transport to hospital

For a patient refusing transport

- Follow [AMA Protocol](#)

If an individual meets none of the above criteria

- Assist individual with request
- Disposition call per agency policy regarding lift assistance

→ Agencies may have alternative dispositions for "lift assist", e.g. assist citizen, assist invalid, etc.

Mechanical Ventilation (Hamilton-T1)

Indications for ventilator:

- Cardiac Arrest
- Presence of invasive airway (intubation or SGA)
- Pre-oxygenation prior to DSI
- Need for both non-invasive ventilation (CPAP/BiPAP) and CCP care during transport
 - Otherwise stable patients who are not hypoxic and are comfortable on CPAP may be transported without ventilator or CCP.
- See [Mechanical Ventilator \(Hamilton-T1\)](#) procedure
 - CCP must accompany any patient on our ventilator

Nausea and Vomiting

- Position patient to avoid aspiration
Consider recovery position
- Suction, as appropriate
- Isopropyl Alcohol - Instruct patient to hold pads 1-2 cm from nose and inhale deeply as frequently as required to achieve nausea relief.
- Ondansetron
Adult - 4 mg ODT, may repeat q 10-min PRN x 1
Pedi - 8-15 kg: 2 mg ODT, repeat q 10-min PRN x 1
16-30 kg: Same as Adult

Basic

- Ondansetron
Adult - 4 - 8 mg IM/IV, may repeat q 10-min PRN x1
Pedi - 0.15 mg/kg (max dose 4 mg) IM/IV

If vomiting despite ondansetron, or for patients with suspected gastroparesis, cyclic vomiting, or cannabinoid hyperemesis syndrome

- Droperidol
Adult - 1.25 mg IM/IV, may repeat at 0.625 mg q 10-min PRN x1
Pedi - N/A

Paramedic

- IV opioids do not require co-administration of antiemetics
- Consider other conditions/protocols which may present with nausea/vomiting (e.g. myocardial ischemia)

Patient Assessment

A patient is defined as a person:

- who requests EMS, or for whom EMS has been requested, AND
- who has any medical or psychological complaint, obvious injury/distress, or has a significant mechanism of injury.
 - A pediatric patient is defined as:
 - Patients 14-years of age or younger, AND
 - Lack secondary sex characteristics, AND
 - Fit on a length-based-resuscitation tape (e.g. Broselow) OR estimated or known weight <36 kg (~80 lbs)
- Assure scene safety
- Perform initial assessment, including evaluation for life threats to airway, breathing, and circulation.
- Assess mental status (e.g., AVPU) and disability (e.g., GCS).

If provider impression of extremis, including new-onset altered mental status, airway issues, severe respiratory distress/failure, signs and symptoms of shock/poor perfusion, or imminent cardiac or respiratory arrest:

- See **Crashing Patient Medical** or **Crashing Patient Trauma**

- Form a differential diagnosis based on patient complaint
- Perform a focused history and physical exam to narrow differential diagnosis and guide treatment
- Utilize reference guide (Broselow/pre-calculated dosing reference) for medication dosing and equipment sizing
- Document findings and interventions in the chart

If valid DNR, regardless if pulse present or absent see, [DNR Policy](#)

Initial Assessment



General Vital Signs and Guidelines

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

Pediatric GCS

Eye Opening (4)	
Spontaneous	4
To Speech	3
To Pressure	2
None	1
Verbal Response (5)	
Coos, Babbles (infant)/Talks normally	5
Irritable cry (infant)/Words	4
Cries to pressure (infant)/Sounds	3
Moans to pressure	2
None	1
Best Motor Response (6)	
Spontaneous Movement	6
Withdraws to touch	5
Withdraws from pressure	4
Abnormal flexion	3
Abnormal extension	2
None	1

- CCP may use point of care ultrasound to aid in assessment as needed, provided it does not otherwise interfere with treatment or unreasonably delay transport.

Post-Invasive Airway Management

- Maintain $SpO_2 \geq 94\%$ and $EtCO_2$ 35-45 mmHg
- Avoid providing excessive tidal volume with BVM ventilations
- Re-confirm $EtCO_2$ with all transfers/movements of the patient
- Maintain HOB at $\geq 30^\circ$, if no suspected spinal injury
- Consider wrist restraints for airway device protection
- Monitor and document serial [RASS scores](#)

Basic

- Monitor closely for post-airway hypotension and treat per [Circulatory Support](#)
- [Ketamine](#)
Adult – 2 mg/kg IV/IO immediately after invasive airway secured then q 15 min or more frequently PRN
Pedi - same as Adult (max dose 70 mg)
- Maintain RASS goal of -5

If sudden or unexpected clinical deterioration (e.g., profound hypotension, falling SpO_2 , difficulty ventilating)

DOPEs

Dislodgement

- Confirm $EtCO_2$ waveform and evaluate for airway dislodgement/migration
- Remove airway if $EtCO_2$ unable to be confirmed

Obstruction

- [Suction](#) airway, as indicated; Ensure airway not kinked

Pneumothorax (tension)/Patient

- [Thoracostomy Procedure](#), as indicated
- Check pulses/cardiac rhythm

Equipment

- Verify O_2 source and tubing appropriate
- Check airway cuffs for leaks
- Verify $EtCO_2$ button pressed on monitor and trace detector line from monitor to airway

Stacking

- Consider breath stacking in bronchospasm; Evaluate BVM compliance and $EtCO_2$ waveform

If suspected

- Briefly disconnect BVM, allow full exhalation (apply chest wall pressure to assist PRN), and reconnect BVM
- Monitor and ensure $EtCO_2$ waveform returns to baseline, repeat above PRN

If RASS not at goal or signs of awakening, movement, or discomfort

- [Ketamine](#) bolus as per above

OR

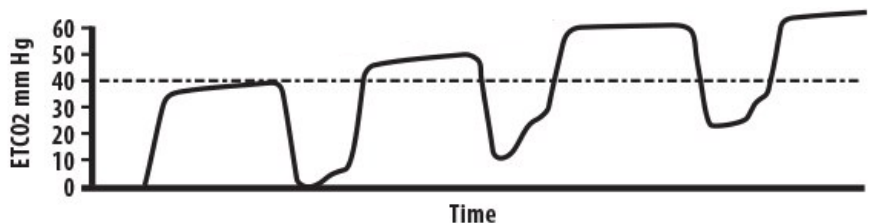
- [Ketamine infusion](#)

Adult – 200 mg in 100 mL NS, start at 1 mg/min, titrate by 1 mg/min to goal RASS

Pedi - 50 mg in 100 mL NS, start at 10 mcg/kg/min, titrate by 5 mcg/kg/min to maintain goal RASS

Paramedic

- Any patient receiving paralytics during DSI/RSA must receive adequate sedation to prevent awareness during paralysis.
- Patients with invasive airways commonly experience pain and anxiety, paralytics may obscure this and make recognition difficult for EMS clinicians.
- Signs of inadequate pain control/sedation may include eye opening, coughing or gagging, sweating, tearing, tachypnea, or new/worsening hypertension and/or tachycardia.
- Breath stacking capnography tracing:



Direct Transport to JPS Psychiatric Emergency Center Criteria

Patients may be transported directly to the JPS Psychiatric Emergency Center (PEC) if they meet ALL inclusion criteria and NONE of the exclusion criteria below. When in doubt, contact [OLMC](#).

Inclusion Criteria:

- Age 13 to 65
- Primary behavioral health or psychiatric complaint/concern, including but not limited to:
 - Depression
 - Suicidal thoughts, ideas, attempts
 - Anxiety
 - Hallucinations
 - Pressured Speech/Mania
 - Disorganized Thoughts
- Alert & Oriented x4 (person, place, time, event)
- Ambulatory and able to transfer independently
- No sustained abnormal vital signs outside of the following ranges:
 - HR: 50–120 bpm
 - SBP: 90–160 mmHg
 - DBP: ≤110 mmHg
 - RR: 12–22 breaths per minute
 - SpO2: ≥ 94% on room air
 - Temperature: 96.0–100.4°F
 - Blood Glucose (if indicated): 70–250 mg/dL
- Patient may be voluntary or involuntary

Exclusion Criteria:

- Agitation requiring sedation or physical restraint
- Need for medical evaluation or treatment, including:
 - Active medical complaints (e.g., chest pain, dyspnea, abdominal pain)
 - Altered mental status or confusion without prior psychiatric history
 - Ingestion/overdose
 - Trauma beyond minor abrasions/contusions, including suspected need for laceration repair/sutures
 - Imaging (possible fracture, foreign body, pneumonia, etc.)
 - Ongoing cardiac or pulse oximetry monitoring
- Chronic oxygen or CPAP requirement
- Non-ambulatory/unable to transfer independently
- Seizure within last 24 hours
- Dementia or other chronic cognitive disorder
- Naloxone administration in the field (Opiate Use Disorder is best managed in JPS medical ED)

Rapid Sequence Airway (RSA)

- Begin [Invasive Airway Preparation](#)
- Ensure appropriate monitoring including: BP q 2 min cycle, ECG, EtCO₂, SpO₂ on opposite arm from BP cuff
- Begin preoxygenation via Max BVM, NRB + HFNC, or NIPPV, as appropriate

Basic

Preparation

- Confirm appropriate equipment prepared
- Evaluate airway and identify/palpate surgical cricothyrotomy anatomic landmarks

If hypotensive, see [Circulatory Support](#) (optimize hemodynamics as possible)

Preoxygenation & Induction/Paralysis

- Verify all appropriate monitoring/positioning (ETSN, HOB @ 30° elevation)
- Preoxygenate/Denitrogenate
 - If adequate respirations
 - Set BVM @ flush rate, form tight mask seal, and allow spontaneous respirations to continue. Ensure PEEP ≥ 5 mmHg.
 - If inadequate respirations
 - Perform Max BVM with assisted ventilations
- Titrate PEEP to reach maximal SpO₂

[Ketamine](#)

Adult - 2 mg/kg IV/IO (max 200 mg); repeat PRN x 1
Pedi - same as Adult

- Increase NC to flush rate

Placement

- Place [Supraglottic Airway](#) (only after all above steps completed)
 - If placement unsuccessful - maintain [Assisted Ventilation](#), or consider 2nd SGA attempt with a change of size or insertion technique
- Confirm airway with EtCO₂ (4-phase waveform ≥ 5 mmHg with every breath within 5-breaths)

If Can't Oxygenate, Can't Ventilate (COCV) by any other means

- [Surgical Airway Procedure \(Cricothyrotomy\)](#)

Paramedic

If paralysis required, and only after ketamine given

- [Rocuronium](#)
 - Adult - 1.5 mg/kg IV/IO once (max 150 mg)
 - Pedi - same as Adult
 - Allow sufficient time after administration for complete paralysis
 - Initiate or continue assisted ventilations PRN

- [Post-Invasive Airway Management](#)

CCP

- RSA is used ONLY to facilitate SGA placement and SHALL NOT be used for intubation.
- Best attempts at preoxygenation/hemodynamic optimization should be made prior to performing RSA in routine situations
- RSA may be used in conditions where adequate pre-oxygenation/hemodynamic optimization isn't possible BUT, best efforts should still be used to increase SpO₂ and BP even with RSA.
- RSA may be a better option than DSI in patients for whom the need for rapid transport outweighs the need for intubation
- Anticipated airway compromise (e.g., burns, angioedema, expanding neck hematoma) MAY benefit from endotracheal intubation if appropriate for DSI.

		Premie		Newborn to 2 mo			3 - 5 mo	6 - 11 mo	12 - 24 mo	2 yr	3 - 4 yr	5 - 6 yr	7 - 8 yr	10 - 11 yr
		<2 KG	2 KG	3 KG	4 KG	5 KG	6 - 7 KG	8 - 9 KG	10 - 11 KG	12 - 14 KG	15 - 18 KG	19- 23 KG	24 - 29 KG	30 - 36 kg
Ketamine (2 mg/kg, 50 mg/mL)	mg	N/A		5	10	10	15	17	20	25	33	40	55	65
	mL	N/A		0.1 mL	0.2 mL	0.2 mL	0.3 mL	0.3 mL	0.4 mL	0.5 mL	0.7 mL	0.8 mL	1.1 mL	1.3 mL
Rocuronium (1.5 mg/kg, 10 mg/mL)	mg	N/A		5	6	8	10	13	16	20	25	32	40	50
	mL	N/A		0.5 mL	0.6 mL	0.8 mL	1 mL	1.3 mL	1.6 mL	2 mL	2.5 mL	3.2 mL	4 mL	5 mL
Air-Q Size & Connector Color		Size 0	Size 0.5 (pink)			Size 1 (Blue)		Size 1.5 (Green)			Size 1.5 or 2	Size 2 (Orange)		Size 3 (Yellow)

Refusal Against Medical Advice (AMA)

All AMAs must be initiated by patient or guardian. DO NOT SUGGEST THIS

Anytime a patient or their parent/guardian communicates a refusal of treatment, or transport to the extent allowed:

- Perform a thorough history & physical
- Develop a differential diagnosis specific to the patient presentation
- Offer appropriate treatment and transport to the patient, parent, and guardian
- Explain the risks and consequences of refusing treatment and/or transport at the patient or parent/guardian's level of understanding, based on the differential diagnosis
- Explain they should call 911 again for new/worsening symptoms or if they change their mind

If a patient or their parent/guardian that refuses an assessment or continues to refuse treatment or transport after the risks of refusal have been explained

- Attempt to speak with whomever called 911, as well as any family, friends, bystanders, patient surrogates, or guardians and/or medical personnel on scene.
- Assess the patient or parent/guardian's understanding of the risks and consequences of refusing treatment and/or transport, and document this in their own words
- Perform capacity assessment (evaluation of patient's understanding of risk of refusal)
- Document all of the above in the PCR

For the patient suffering from a life-threatening injury or illness

- Enlist the help of an [EMS Supervisor](#)

For the patient that appears to lack decisional capacity, and refuses treatment or transport

- Refer to [Refusal Without Demonstration of Capacity](#)

A patient's decisional capacity may be impaired as a result of, but not limited to, the following:

- ⇒ Use and/or abuse of alcohol, illegal or prescription drugs, or toxic substances
- ⇒ Head trauma, dementia, encephalopathy, and/or mental retardation
- ⇒ Acute or chronic psychiatric illness
- ⇒ Medical illness including, but not limited to, the following: hypoxia, hypotension, hyperglycemia, hypoglycemia, dehydration, and sepsis

Decisional capacity and mental status are distinct:

- ⇒ Mental status is their level of alertness and orientation
- ⇒ Decisional capacity is the patient's ability to understand the risks / benefits of treatment / transport, potential consequences of their decisions, and voice their desires. They should be able to voice a rationale for their choice. We do not have to agree with it or think it's accurate, but it should be consistent for them.

Refusal Without Demonstration of Capacity

If a patient without apparent decision making capacity, effectively communicates their desire to refuse assessment, treatment, or transport

- Ensure provider safety first and foremost
- If concern of acute mental illness or behavioral emergencies, including self-harm or harm to others, request Police
- Contact [EMS Supervisor](#)

Basic

- Reassess patient's medical decision making capacity in person

If patient lacks decisional capacity and is

- Acute (< 1 day), and
- Felt to be caused by acute medical emergency and lack of treatment and transport is felt to be life threatening
- Transport using minimum level of coercion, sedation, and restraint needed to safely facilitate transport

If patient lacks decisional capacity and does not meet above criteria and is refusing care

- No transport without LEO detention app
- Document:
 - Capacity assessment as it was performed
 - All personnel on scene – including any law enforcement name and badge number
 - If any family members present/spoken to, including content of discussions
- Record disposition of call as “refusal without demonstration of capacity”
- Contact [OLMC](#) PRN

CCP

- Making a decision against medical advice does not alone demonstrate a lack of capacity.
- Lack of capacity does not imply consent if the patient is able to communicate.
- The components of medical decision-making capacity include the following four key abilities:
 - Understanding: The ability to comprehend the information relevant to the medical decision, including the nature of the condition, the proposed treatment, and the potential risks and benefits.
 - Appreciation: The ability to recognize how the information applies to one's own situation, including acknowledging the potential consequences of the decision.
 - Reasoning: The ability to compare options logically and to weigh the risks and benefits to make an informed choice.
 - Expressing a Choice: The ability to communicate a clear and consistent decision regarding the treatment.

Release at Scene (RAS)

A Release at Scene (RAS) may **only** be performed if “no” is answered to all of the following questions:

- Did the individual activate 911 for EMS?
- Did law enforcement activate EMS for evaluation?
- Is the individual disoriented, confused, or otherwise impaired (e.g. alcohol or drugs, language barrier, MHMR)?
- Was there any loss of consciousness?
- Is there any complaint of illness, pain, or injury?
- Is there a psychological complaint/concern?
- Was there a significant mechanism of injury (e.g. MCC, ejection, auto vs. pedestrian)?
- Were any patients on-scene dead?
- Does anyone object to the individual being released (e.g. family member, first-responder)?

Respiratory Support - Adult

- Titrate O₂ to SpO₂ ≥ 94% or improved work of breathing
- Respiratory monitoring required (EtCO₂ and SpO₂), if equipped
- [Suction](#) airway as appropriate

If signs of upper airway obstruction or severe respiratory insufficiency / impending respiratory failure

- [Assisted Vent/BVM](#) (Max BVM), confirm EtCO₂ waveform with each breath if equipped
- Consider [Supraglottic Airway](#) if equipped with EtCO₂ waveform monitoring

- Remove foreign body airway obstruction (FBAO), as appropriate (Heimlich maneuver, chest compressions)

If moderate to severe respiratory distress

- [NIPPV](#) as indicated (EtCO₂ required if equipped), caution/consider discontinuation if SBP < 90

If contraindication for NIPPV

- NRB ± HFNC or nasal cannula

If suspected bronchospasm regardless of etiology

- [Albuterol](#) 2.5 mg/[Ipratropium](#) 0.5 mg in 3 ml NS nebulized, repeat PRN x 2

If persistent wheezing/respiratory distress after 3 albuterol/ipratropium doses

- [Albuterol](#) - 7.5 mg in 9 ml NS (continuously nebulized)

If pulmonary edema, see [Sympathetic Crashing Acute Pulmonary Edema \(SCAPE\)](#)

Basic

- Cardiac monitoring, acquire and transmit 12-lead ECG

If progression to severe respiratory insufficiency/respiratory failure, or unable to manage the airway

- [Intubation Procedure](#) (as part of DSI with CCP)
- Consider [Supraglottic Airway](#) if ETT unsuccessful or if unable to meet goals for intubation

If COCV - Can't Oxygenate AND Can't Ventilate (unable to obtain EtCO₂ waveform and persistent hypoxia) via any other means, see [Surgical Airway Procedure \(Cricothyrotomy\)](#)

If suspected tension pneumothorax with hypotension, see [Needle Thoracostomy Procedure](#)

If Asthma/COPD/Wheezing

Consider, especially if subacute presentation (≥ 1-2 days)

- [Dexamethasone](#) - 10 mg IV/IM x 1

If severe (e.g. accessory muscle use)

- [Magnesium Sulfate](#) - 2 g in 250 ml NS over 15 min

For asthma only, and if impending respiratory failure or unable to tolerate nebulizer

- [Epinephrine](#) 1:1,000 - 0.5 mg IM, repeat PRN q 5 min x 1

Paramedic

If invasive airway placement is needed

- [Delayed Sequence Intubation](#)
- [Rapid Sequence Airway](#)

For further management and analgesia/sedation after invasive airway obtained, see [Post-Airway Management](#)

CCP

- If SGA in place and ventilations are adequate, do not replace with endotracheal tube
- Patients with COPD may have chronic low baseline SpO₂ (88-92%), so do not indiscriminately place on high flow O₂
Start 2-3 lpm O₂ via NC, or double baseline flow rate; titrate to patient's baseline SpO₂ and work of breathing

Respiratory Support - Pediatric

- Titrate O₂ to SpO₂ ≥ 94% or improved work of breathing
- Respiratory monitoring required (EtCO₂ and SpO₂), if equipped
- [Suction](#) airway as appropriate

If signs of upper airway obstruction

- Attempt to open the airway by:
 - Jaw thrust/head-tilt-chin-lift
 - Nasopharyngeal and/or oropharyngeal airway placement (NPA/OPA)
 - Position in ETSN; Place padding under infant's shoulders, up to 5 y/o lay flat, and head elevation for ≥ 5 y/o
 - Remove foreign body airway obstruction (FBAO), as appropriate (Heimlich maneuver, chest compressions)

If severe respiratory insufficiency/impending respiratory failure

- Assist ventilation with bag-valve-mask (BVM); confirm EtCO₂ waveform with each breath if equipped (goal 35-45 mmHg)
- Consider [Supraglottic Airway](#) (if EtCO₂ equipped)

If moderate to severe respiratory distress

- Seat patient (semi-) upright if not hypotensive
- Nasal cannula or NRB ± HFNC

If asthma/reactive airway disease

- [Albuterol](#) 2.5 mg/[Ipratropium](#) 0.5 mg in 3 ml NS nebulized, repeat PRN x 2

If persistent wheezing/respiratory distress after 3 albuterol/ipratropium doses

- [Albuterol](#) - 7.5 mg in 9 ml NS (continuously nebulized)
- [NIPPV](#) as indicated, if mask size equipped (EtCO₂ required if equipped); caution/consider discontinuation if hypotensive

If suspected bronchiolitis (< 2 years of age with rhonchi, or undifferentiated illness with rhinorrhea, tachypnea, and/or fever)

- Suction the nose and/or mouth (via bulb or suction catheter), particularly if excessive secretions are present

If suspected croup (stridor & barking cough) or epiglottitis (toxic appearance, drooling, difficulty swallowing, distress)

- Keep patient calm and avoid stimulating

- Cardiac monitoring

If suspected croup AND stridor at rest or exertion

- [Racemic Epinephrine](#)
 - ≤ 10 kg - 0.25 ml (1/2-ampule) mixed with 3 ml NS nebulized, repeat PRN x 1
 - > 10 kg - 0.5 ml (1-ampule) mixed with 3 ml NS nebulized, repeat PRN x 1

If COCV - Can't Oxygenate AND Can't Ventilate (unable to obtain EtCO₂ waveform and persistent hypoxia) via any other means, see

[Transtacheal Ventilation Procedure](#)

If suspected tension pneumothorax with hypotension, see [Needle Thoracostomy Procedure](#)

If suspected croup OR asthma/wheezing (especially if subacute presentation (≥ 1-2 days)

- [Dexamethasone](#) - 0.6 mg/kg PO/IM/IV once (max 10 mg)

If asthma/reactive airway disease

If severe (e.g. accessory muscle use)

- [Magnesium Sulfate](#) - 40 mg/kg IV/IO over 15 min (max dose 2 g)

If impending respiratory failure or unable to tolerate nebulizer

- [Epinephrine](#) 1:1,000 - 0.01 mg/kg IM. repeat PRN q 5 min x 1 (max dose 0.5 mg)

If invasive airway placement is needed, see [Rapid Sequence Airway](#)

For further management and analgesia/sedation after invasive airway obtained, see [Post-Invasive Airway Management](#)

- **Intubation and DSI are prohibited for pediatric patients (per Pediatric Patient Assessment definition)**
- Ensure notification to ED staff of any dexamethasone administration
- Bronchiolitis does not traditionally respond to albuterol/ipratropium or steroids, and asthma is unlikely in the < 2 yo age group

Basic

Paramedic

CCP

Telemedicine Navigation

If suspected low-acuity medical or trauma complaint and meets inclusion criteria and has no exclusion criteria as listed below,

- Contact Telemedicine Provider

Inclusion:

- Alert, oriented, and have decisional capacity
 - Children should have parent or guardian present and available
 - Adults without decisional capacity because of baseline conditions (ex: dementia), must have POA available
- Adults ≥ 65 refusing transport or don't appear to need transport and have decisional capacity
- Stable vital signs:
 - Systolic blood pressure ≥ 110 mmHg (or age appropriate)
 - Heart rate 50-120 beats per minute
 - Respiratory rate 8-28 breaths per minute
 - Pulse oximetry $\geq 92\%$ on room air

Exclusion:

- Patients with isolated depression or suicidal ideation without immediate plan (these patients are eligible for iCare).
- Patients in a healthcare facility under the direct care of a physician
- Age ≤ 3 months with a fever
- Combative or agitated patients
- Pregnancy related complaint (pregnancy, by itself, is not an exclusion)
- Clinician suspicion of moderate or high acuity illness/injury
 - STEMI, Stroke, Trauma alert criteria
- No demonstrated decisional capacity (refusals without capacity)
- Complete patient assessment, including:
 - Vital signs, including BP, HR, RR, and SpO2
 - Any diagnostics as indicated (blood glucose, 4 lead ECG, or 12 lead ECG)
- Contact telehealth provider
- Provide a brief patient report to the telehealth physician
- The disposition determined by the telehealth provider in consultation with the patient is final
- Follow telehealth physician orders including use of EMS intervention/medication for indications not included within protocol. Contact [OLMC](#) for conflicts with telehealth physician orders.
- Complete the documentation on the ePCR
- All patient contacts, excluding IFTs, will have a validated question: "Was the patient offered a telehealth consult?" with the following options:
 - "Yes, and patient accepted", use one of the following dispositions as appropriate:
 - If treated by telehealth*, "Treated, transferred care to telehealth provider"
 - If transported after consult*, "Transported – by this unit"
 - If patient refuses telehealth recommendations and transport*, "AMA – Assessed and/or Treated and Released"
 - "Yes, but patient refused telehealth consult", use appropriate disposition as though there was no consult.
 - "Yes, but unable to contact telehealth provider", use appropriate disposition as though there was no consult.

- Stable vital signs are ranges used as guidelines. Clinical judgement can and should apply when determining eligibility.

Termination of Resuscitation

Paramed-

If CPR in progress by non-professional rescuer/bystander

- Consider [Withholding Resuscitative Efforts](#)

Termination of Resuscitation requires [OLMC](#)

Keep family informed of prognosis and begin setting realistic expectations early.

If after in-person CCP assessment and prior to ALS interventions, withholding criteria is present and patient is in asystole

- Resuscitation efforts can stop under [Withholding Resuscitative Efforts](#)

Prior to calling [OLMC](#) for termination:

- [POCUS](#) - Obtain video clip assessing for cardiac wall motion or other significant findings

If traumatic etiology,

- Consider potential for underlying medical causes and manage appropriately
- Contact [OLMC](#) for TOR once the following have been assured/performed:
 - Oxygenation & ventilation confirmed by waveform EtCO₂
 - Hemorrhage control
 - All appropriate procedures
- There is no minimum resuscitation time

If medical etiology:

- Contact [OLMC](#) for TOR once the following have been assured/performed:
 - Monitored* professional rescuer CPR
 - Oxygenation & ventilation confirmed by waveform EtCO₂
 - IV/IO access
 - Appropriate medications given
 - Defibrillation as needed
 - EtCO₂ values as follows:
 - EtCO₂ < 10 @ 10 minutes
 - EtCO₂ ≥ 10 but < 20 @ 20 minutes
 - EtCO₂ ≥ 20 @ 30 minutes

When calling [OLMC](#) for termination, present information in the following format:

- Medic name
- Location type
- Age, Sex
- Pertinent medical history (cancer, dementia, etc.)
- Estimated down time, witnessed or not
- Presence of bystander CPR
- Initial presenting rhythm
- Duration of professional rescuer resuscitation efforts
- Method of ventilation
- Initial EtCO₂ following advanced airway placement
- Current EtCO₂
- Type of vascular access
- Medications given
- Any periods of ROSC or CPR-induced consciousness

CCP

- Arrest in a public place, by itself, is not a contraindication for termination. Consider full dynamics of scene.
- With the exception of ECPR, transport without ROSC has less than 1% survival.
- Family/friends should be supported and kept informed of the progression and prognosis of the resuscitation effort.
- Document time of death and physician's name.
- Notification of law enforcement is required. Remain with the deceased until relieved by law enforcement unless unsafe to do so.
- * Monitored professional CPR is the duration of resuscitation on the cardiac monitor.

Withholding Resuscitative Efforts

If patient has Out-of-Hospital Do Not Resuscitate order or there is expression of their desires regarding resuscitation

→ See [DNR](#) policy

Consider withholding resuscitative efforts if any of the following clinical signs of irreversible death/futility and criteria are present:

- Rigor mortis/dependent lividity
- Fetal death after preterm delivery (≤ 20 weeks gestation by best determination)
- Decapitation, decomposition, or incineration
- Exposed brain matter
- Head-under submersion (excluding vehicular submersions) for greater than:
 - 90-minutes if water temperature $\leq 6^{\circ}\text{C}$ (43°F)
 - 30-minutes if water temperature $> 6^{\circ}\text{C}$ (43°F)

AND if all of the following

- Pulseless
- Apneic
- Without pupillary response

- *If patient does not meet above criteria, begin appropriate resuscitation efforts*

Basic

For blunt and/or penetrating trauma, consider withholding if NO clinical signs of irreversible death AND if all of the following:

- Pulseless
- Apneic
- No pupillary response
- Asystole or PEA < 40 bpm on cardiac monitor

- *If patient does not meet above criteria, begin appropriate resuscitation efforts*

Paramedic

- For the purpose withholding of resuscitation, electrical/lightning strikes are not considered trauma
- Remain with the deceased until relieved by law enforcement (Unless unsafe to do so)
- Document objective findings including (each responding agency):
 - Position/location found
 - Any movement of the patient/surroundings
 - Access limitations
 - Assessment findings as appropriate
 - Suspicious/inconsistent scene or physical findings

Cardiac

Acute Coronary Syndrome/STEMI

- **Aspirin** - 324 mg PO chewed
- **Nitroglycerin** - 0.4 mg SL q 5-minutes PRN for pain
Titrate to SBP $\geq$ 100 mmHg and signs/symptoms (recheck BP before each dose)
Do not administer if patient has recently taken medication for erectile dysfunction
- Acquire **12-lead ECG** within 10 minutes of patient contact
 - Transmit 12-lead as soon as possible
 - Assure time of initial ECG is documented in the PCR

- Cardiac monitoring
Treat dysrhythmias as identified

If ST-Elevation MI (STEMI)

- Place defibrillation pads
- Do not delay transport or other treatment to obtain V₄R lead if inferior STEMI
- Be cautious with nitroglycerin in RV infarcts; however, it is not contraindicated
- Notify facility of STEMI alert within 10 minutes of first diagnostic 12-lead for STEMI

- See **Hospital Capabilities List** for most appropriate transport destination
- Consider Occlusive Myocardial Infarction (OMI) if appropriate clinical presentation and one of the following ECG patterns:

Posterior STEMI

- Horizontal ST-segment depression in leads V1-V3, a dominant R wave (R/S ratio > 1) in lead V2
- Upright T waves in anterior leads
- A prominent and broad R-wave (> 30 ms)

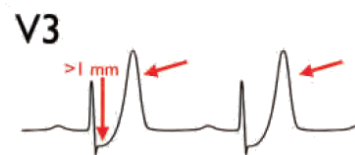


Confirmed by posterior ECG with ST-segment elevation in leads V7-V9

Note: Voltage on posterior ECG may be very small and difficult to see. The posterior ECG has poor sensitivity

De Winter Pattern/T-waves

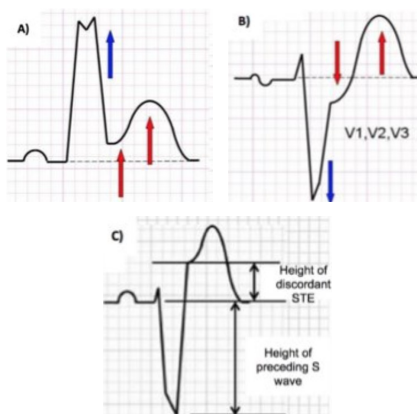
- Tall, prominent, symmetrical T waves arising from upsloping ST-segment depression > 1 mm at the J-point in the precordial (V1-V6) leads
- Slight (0.5-1 mm) ST-segment elevation may be seen in lead aVR



Left Bundle Branch Block or Ventricular Paced Rhythm with Smith-modified Sgarbossa Criteria

Positive if any criteria below are present:

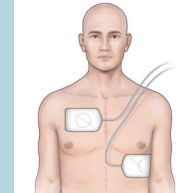
- Concordant ST elevation ≥ 1 mm in leads with a positive QRS complex
- Concordant ST depression ≥ 1 mm in V1-V3
- ST Elevation at the J-point, relative to QRS onset, is at least 1 mm AND has an amplitude at least 25% of the preceding S-wave



Cardiac Arrest - Adult

High quality BLS interventions are the key to successful resuscitation. Nothing should interfere with them.

- Begin 2-minute cycles of **Pit Crew CPR** with 30:2 compression/ventilation @ 100-120 compressions per minute, limit compression pauses to < 10 seconds
- Rapidly place SGA with waveform EtCO₂ (no PEEP). If delayed or no EtCO₂ begin Max BVM
 - Ventilate during 30:2 pause, 1 second breath “squeeze - release - release”. No breaths with compression.
 - Goal EtCO₂ > 20 mm Hg, if < 20 mm Hg, evaluate quality of rate, depth, and recoil of compressions
- Apply compression feedback device as soon as possible
- Place AED (or monitor in AED mode) with multi-function pads in anterior-lateral (A-L) configuration
 - If arrest witnessed by EMS/FRO* - apply AED and analyze immediately
 - If arrest unwitnessed by EMS/FRO* - apply during initial CPR cycle and analyze at end of cycle
- Mechanical compression device may be considered only when:
 - At least 15 minutes of monitored professional rescuer CPR has occurred or,
 - Transport is necessary or,
 - ROSC has been achieved and the device is being pre-positioned for transport or,
 - Critical shortage of man power prevents adequate Pit Crew CPR



If patient has gravid uterus

- Manually displace fundus to the patient's left
- Patient to remain on initial cardiac monitor throughout entirety of resuscitation

Basic

Initial Shockable Rhythm	Initial Non-Shockable Rhythm
• Defibrillate at highest energy setting q 2-minutes • Epi 1:10,000 - 1 mg IV/IO x 1 • Amiodarone - 300 mg IV/IO x 1 after 2nd defib; • 2nd dose PRN after 3rd defib, 150 mg IV/IO x 1 <i>If persistent or recurrent VF/VT</i> • DSED (as soon as 2nd monitor available), do not delay single shocks while setting up for DSED • If 2nd monitor unavailable, continue with single shock with pad placement change to Anterior-Posterior (A-P)	• Epi 1:10,000 - 1 mg IV/IO x 1 <i>If arrest not witnessed by bystander or EMS</i> • Sodium Bicarbonate - 1 mEq/kg IV/IO (max dose 100 mEq) • Flush line before and after administration <i>If PEA,</i> • Fluid bolus 20 ml / kg IV/IO • Consider reversible causes

If signs/symptoms of CPR-Induced Consciousness,

- **Ketamine** - 1 mg/kg IV/IO (max single dose 200 mg)

For any of the following give early in the course of cardiac arrest management.	
Metabolic acidosis etiology (e.g. DKA)	• Sodium Bicarbonate - 1 mEq/kg IV/IO (max dose 100 mEq)
Hyperkalemia:	• Calcium Chloride - 1 g IV/IO, slow push • Sodium Bicarbonate - 1 mEq/kg IV/IO (max dose 100 mEq)
Torsades de Pointes:	• Magnesium Sulfate - 2 g IV/IO, slow push
Tension Pneumothorax:	• Needle Thoracostomy Procedure
Tricyclic Antidepressant Overdose:	• Sodium Bicarbonate - 1 mEq/kg IV/IO (max dose 100 mEq)
Calcium Channel Blockers:	• Calcium Chloride - 1 g IV/IO, slow push
Beta Blocker Overdose:	• Glucagon - 1 mg IV/IO slow push over 1-minute, Repeat PRN x 1

- Contact **OLMC** for ECPR after 2nd dose of Amiodarone or when appropriate for TOR considerations

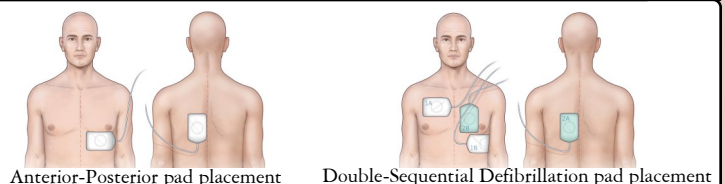
If after second dose of Amiodarone, as long as the patient remains in a shockable rhythm,

- **Esmolol** - 0.5 mg/kg (max 50 mg) bolus x 1 then infusion at 0.05 mg/kg/min (max 5 mg/min)

Paramedic

CCP

- Resuscitate in the location found unless scene is unmanageable
- Consider tension pneumo in patients with severe asthma/COPD who have poor ventilation compliance not resolved with “burp” technique
- If ROSC, see **Post-ROSC**
- If no pump available, hang epi infusion to gravity using a 10 gtt/mL set at 9 gtt / 6 sec



Cardiac Arrest - Pediatric

- Begin 2-minute cycles of [Pit Crew CPR](#); 15:2 compressions-ventilation, 100-120 bpm, no pauses > 10 seconds
- Rapidly place SGA with waveform EtCO₂ (no PEEP). If delayed or no EtCO₂ begin Max BVM
 - Ventilate during 15:2 pause, 1 second breath “squeeze - release - release”. No breaths with compression.
 - Goal EtCO₂ > 20 mm Hg, if < 20 mm Hg, evaluate quality of rate, depth, and recoil of compressions
- Apply AED
 - If arrest witnessed by EMS/FIRE* - apply AED immediately
 - If arrest unwitnessed* - perform 2-minutes of CPR before applying AED
- Utilize Broselow tape

Basic

- Apply cardiac monitor only after completion of last 2-minute cycle of CPR
- IV/IO access

VF/VT

- [Defibrillate](#) at 2 J/kg, Repeat PRN q 2 min, increase by 2 J/kg (max 10 J/kg or max energy setting)
- [Epinephrine 1:10,000](#) - 0.01 mg/kg (max single dose 1 mg) IV/IO q 5-min. 3-dose-max
- [Amiodarone](#) - 5 mg/kg IV/IO (max 300 mg) after second defibrillation, Repeat PRN x 2 every other cycle or 4 min, if persistent or recurrent VF/VT

Asystole/PEA

- [Epinephrine 1:10,000](#) - 0.01 mg/kg (max single dose 1 mg) IV/IO immediately, then q 5 min, 3-dose-max

For any of the following give early in the course of cardiac arrest management.

Metabolic acidosis etiology (e.g. DKA)	• Sodium Bicarbonate - 1 mEq/kg IV/IO (max dose 100 mEq)
Hyperkalemia:	• Calcium Chloride - 20 mg/kg (0.2 ml/kg) IV/IO, slow push (max dose 1 g) • Sodium Bicarbonate - 1 mEq/kg IV/IO (max dose 100 mEq)
Torsades de Pointes:	• Magnesium Sulfate - 25-50 mg/kg (max 2 g) IV/IO, slow push
Tension Pneumothorax:	• Needle Thoracostomy
If any of the below causes are suspected, contact OLMC following initial dosing	
Tricyclic Antidepressant Overdose:	• Sodium Bicarbonate - 1 mEq/kg IV/IO (max dose 100 mEq)
Calcium Channel Blockers:	• Calcium Chloride - 20 mg/kg (0.2 ml/kg) IV/IO, slow push (max dose 1 g)
Beta Blocker Overdose:	• Glucagon - 0.1 mg/kg IV/IO slow push over 1-minute (max single dose 1 mg), Repeat PRN 0.2 mg/kg IV/IO × 1 (max single dose 1 mg)

Paramedic

- *If signs of obvious death, see [Withholding Resuscitative Efforts](#)*
- Resuscitate in the location found unless scene is unmanageable
- Limit chest compression pauses and individual pause length to < 10-seconds
- Do not interrupt CPR for airway management
- Open airway; If choking suspected, remove FBAO as early as possible
- Waveform EtCO₂ required for all advanced airways
 - Confirm waveform EtCO₂ ≥ 5 mmHg for every breath
 - Remove airway if EtCO₂ ≤ 5 mmHg
- Switch AED to monitor/defibrillator only after completion of the current CPR cycle
- Do not interrupt CPR or defibrillation for ACLS drug administration
- If ROSC, optimize patient hemodynamics, oxygenation, and ventilation prior to initiating transport
- Sodium bicarbonate is not indicated for prolonged down time

Cardiac Post ROSC

If ROSC occurs in-place,

- **Remain in-place for a minimum of 10 minutes**, accomplishing the following:
 - Assess ventilation effectiveness and vital signs
 - BP q 2 minutes
 - Obtain **12-lead ECG** ASAP following ROSC
 - Assess blood glucose
 - Notify receiving PCI center, activate STEMI alert as appropriate
 - Place MCD in ready mode for transport
 - Secure patient

Basic

- Reassess rhythm
- Assure ≥ 2 routes of IV/IO access

If ROSC or rearrest occurs in transport,

- Continue transport and update PCI center of change in patient condition, while accomplishing the above
- MCD should already be in place for transport
- Do not give additional epinephrine for rearrest
- Maintain MAP ≥ 65 or age appropriate goals

If hypotensive,

- D/C Esmolol if infusing
- **Norepinephrine** per treatment table

If sedation required,

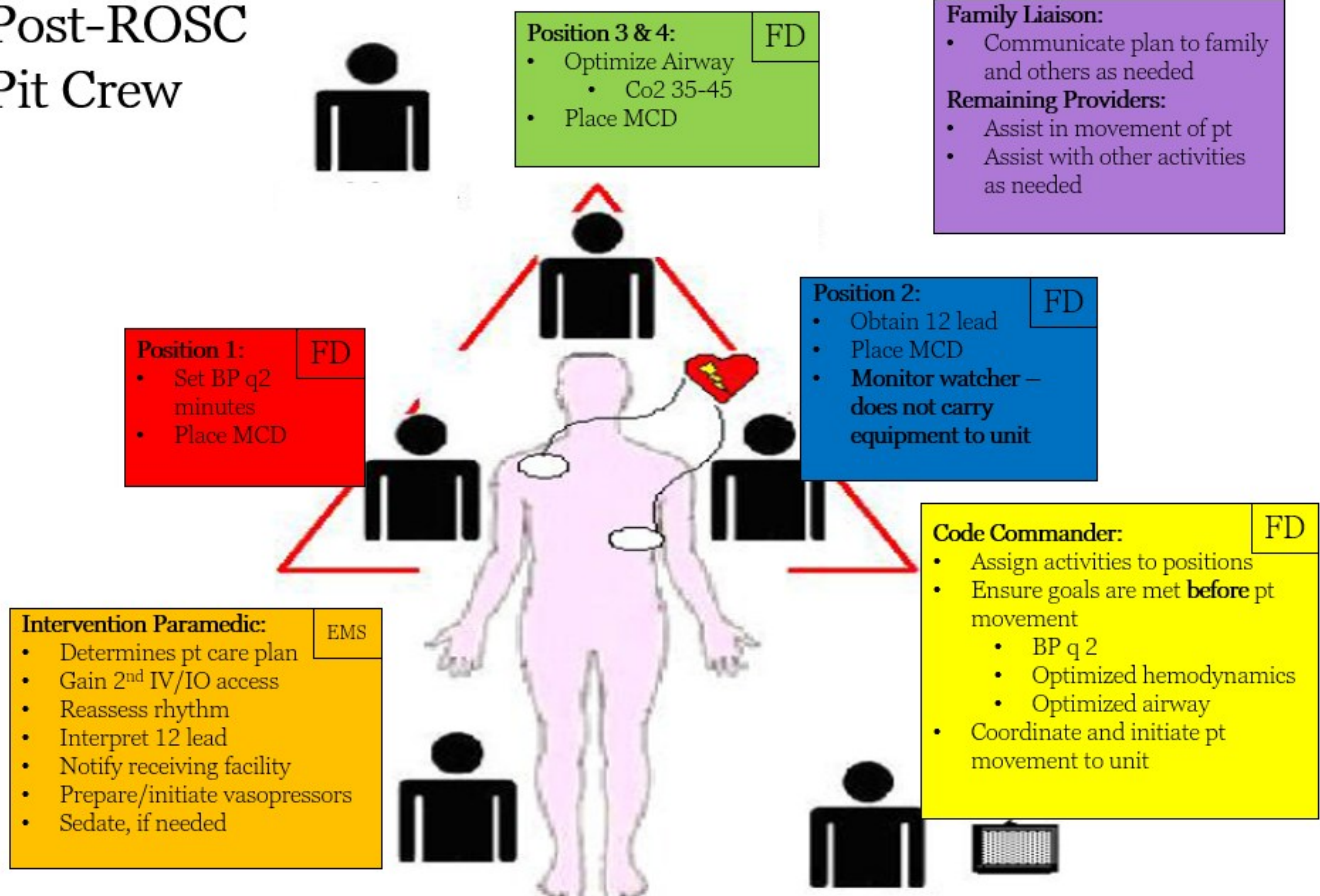
- **Ketamine**
 - Adult - 1 mg/kg IV/IO (max single dose 200 mg)
 - Pedi - 1 mg/kg IV/IO (max single dose 100 mg)

Norepinephrine Treatment Table		
SBP	Push Dose	Infusion
< 90	50 mcg q 2 mins	50 mcg / min
90-120	30 mcg q 2 mins	30 mcg / min
> 120	-	Prepare but do not start

Paramedic

- Pediatric SBP goals: ≥ 70 mm Hg + (age in years x 2) or ≥ 90 mm Hg for age 10 or greater
- Re-arrest is common immediately after ROSC. Carefully monitor to detect re-arrest.
- 12-lead ECG early after ROSC can be difficult to interpret. If unclear, obtain serial ECGs as able.

Post-ROSC Pit Crew



SCAPE

If respiratory insufficiency / failure, with prior medical history of CHF, and SBP > 180

- Request [EMS Supervisor](#)
- [NIPPV](#) with ETCO₂ monitoring
- [Nitroglycerin](#) - 0.4 mg SL q 5 min until SBP < 180
- [12 Lead ECG](#)

Basic

If SBP > 200 and, (RR > 30 or SpO₂ < 90%)

- BP q 2 mins
- [Nitroglycerin IV](#) - 1 mg Slow IV push
If after IV push, SBP and RR meet above criteria
 - [Nitroglycerin Infusion](#) - 100 mcg/min infusion, titrate rapidly down as SBP drops, goal SBP < 180

Consider as appropriate:

- [DSI](#)
- [RSA](#)

CCP

- Sympathetic Crashing Acute Pulmonary Edema (SCAPE) is acute onset severe respiratory distress / failure as a result of a weakened heart's ability to overcome severely elevated after load. Treatment is aimed primarily at rapidly lowering SBP while supporting ventilation.
- Nitroglycerin push and infusion can rapidly lower blood pressure. While this is the desired effect, be prepared to rapidly titrate infusion down as blood pressure drops to avoid hypotension. It isn't uncommon to be able to turn infusion off all together.

Symptomatic Bradycardia

- Cardiac monitoring and 12-lead ECG

If Infant < 1, see [Newly Born](#)

If Pediatric with heart rate < 60 with signs of hypoperfusion or end-organ dysfunction,

- CPR; 15:2 compressions-ventilation, 100-120 bpm, no pauses > 10 seconds

If chest pain or anginal equivalent symptoms, see [Acute Coronary Syndromes/STEMI](#)

Basic

ADULT

- [External Cardiac Pacing](#) procedure
 - Do not delay pacing for IV placement or medications in the presence of hemodynamic instability
 - Ensure adequate oxygenation/ventilation
 - Begin at 30 mA, increasing energy in 10 mA increments until capture achieved
 - Begin at 70 ppm, increasing rate in 10 ppm increments until hemodynamic response/improved perfusion
- [Atropine](#) - 1 mg IV/IO, repeat PRN to max dose of 3 mg

PEDI

- [Epinephrine 1:10,000](#) - 0.01 mg/kg IV/IO (max dose 0.1 mg)
- [Atropine](#) - 0.02 mg/kg IV/IO (minimum single dose 0.1 mg with max dose 1 mg), repeat PRN x 1
- [External Cardiac Pacing](#) procedure if bradycardia resistant to medications
 - Ensure adequate oxygenation/ventilation
 - Begin at 30 mA, increasing energy in 10 mA increments until capture achieved
 - Begin pacing rate at:
 - Age 0-36 months - 120 ppm
 - Age 36 months to 12 years - 100 ppm
 - Age > 12 years - see Adult
 - Increase rate in 10 ppm increments until hemodynamic response/improved perfusion

If hypotensive, consider [Circulatory Support](#) protocol

If time permits, consider sedation prior to/during pacing

- [Ketamine](#) - 0.3 mg/kg IV/IO Slow Push or 0.6 mg/kg IM (max dose 30 mg)

Paramedic

Refractory Shock/hypotension

- See [Circulatory Support](#)

Hyperkalemia

- Wide complex rhythm, 12-lead ECG findings, or dialysis hx
- [Calcium Chloride](#)
 - Adult - 1 g IV slow push
 - Pedi - 20 mg/kg (0.2 ml/kg) IV/IO, slow push (max dose 1 g)
 - [Sodium Bicarbonate](#)
 - Adult - 1 mEq/kg IV/IO (if suspected acidosis)
 - Pedi - Same as Adult

Beta Blocker Overdose

- [Glucagon](#)
 - Adult - 1 mg IV/IO slow push over 1-minute
 - Repeat PRN q 5 min x 1
 - Pedi - 0.1 mg/kg IV/IO, slow push over 1-minute (max single dose 1 mg)
 - Repeat 0.2 mg/kg IV/IO x1 PRN (max single dose 1 mg)
- [Epinephrine Infusion](#)
 - Adult - Start at 5 mcg/min titrate to MAP $\geq$ 65
 - Pedi - Start at 0.1 mcg/kg/min, titrate by 0.1 mcg/kg/min q 2 min

Calcium Channel Blocker Overdose

- [Calcium Chloride](#)
 - Adult - 1 g IV slow push
 - Pedi - 20 mg/kg (0.2 ml/kg) IV/IO, slow push (max dose 1 g)

- Pacing is only indicated for hypotension caused by bradycardia
- Symptomatic Bradycardia (symptoms/signs do not generally occur unless rate < 50 bpm)
- Monitor pads for burns, pediatrics have more sensitive skin

Tachycardias

• Cardiac monitoring and 12-lead ECG			Basic
<i>If patient < 65 yo, stable with regular pulse rate ≥ 150 bpm and prior history of SVT and no suspicion for sepsis, trauma, or volume depletion</i>			
• Modified Valsalva: forcefully blow into a 10 cc syringe up to 3 times			Paramedic
• Assess rhythm for rate, width and regularity Do not delay cardioversion for IV placement or medications in the presence of severe hemodynamic instability			
• IV access; consider 500 mL NS IV/IO rapid bolus for hypotension			
<i>If suspected sinus tachycardia or MAT</i>			
• Treat the underlying condition			
Unstable	Stable (HR ≥ 150 with SBP ≥ 120)*		
• <u>Synchronized Cardioversion</u> Adult - At highest energy setting Pedi - 0.5-1.0 J/kg, then 2 J/kg <i>If time permits, consider sedation prior to/ during Cardioversion</i> • <u>Ketamine</u> Adult - 0.3 mg/kg IV/IO slow push (max dose 30 mg) or 0.6 mg/kg IM (max dose 50 mg) Pedi - same as Adult	Regular	• Vagal maneuver	
		• <u>Diltiazem</u> Adult - 0.25 mg/kg slow IV/IO push Repeat PRN x 1 (max single dose 20 mg) Pedi - N/A	
	Irregular	• <u>Adenosine</u> Adult - 12 mg IV/IO, Repeat PRN 18 mg x 1 Pedi - 0.1 mg/kg IV/IO, Repeat PRN 0.2 mg/kg (max dose 12 mg) <i>If sympathomimetic associated, see <u>Toxicology</u></i>	
		• <u>Diltiazem</u> Adult - 0.25 mg/kg slow IV/IO push Repeat PRN x 1 (max single dose 20 mg) Pedi - N/A	
		• Treat underlying causes (no adenosine or diltiazem)	
		• <u>Amiodarone</u> (150 mg / 100 mL NS) Adult - 150 mg IV/IO over 10 mins (600 mL / hr) Pedi - 5 mg/kg IV/IO (max dose 150 mg)	
		Torsades de Pointes	
		• <u>Magnesium Sulfate</u> (slow push) Adult - 2 g IV Pedi - 25-50 mg/kg IV/IO (max dose 2 g)	

Unstable Tachycardia (symptoms/signs do not generally occur unless rate ≥ 150)

- Hypotension (or relative hypotension with signs of poor perfusion or end-organ dysfunction)
- Diltiazem is better tolerated by patients than adenosine and should be first line therapy.
- If Afib with RVR associated with trauma, fever, hyper/hypothermia, possible sepsis or CHF, do not treat with rate control medications.
- Do not give diltiazem with nitroglycerin
- Do not give adenosine if wide QRS complex

Common etiology of narrow complex regular tachycardias

- SVT, PAT, A-flutter, or sinus tachycardia

Common etiology of narrow complex irregular tachycardias

- A-fib or A-flutter

Assume a wide complex regular tachycardia is V-tach until proven otherwise

- Other causes could be SVT with aberrant conduction

Assume wide complex irregular tachycardias are A-fib with aberrant conduction pathway

→ Upper limit of sinus tachycardia is approximately 220 - patient age

→ Carotid sinus massages are dangerous and not authorized

* Consult OLMC for non-sinus tachycardias that do not meet these parameters, but are felt to need treatment.

Medical

Abdominal Pain

- NPO
- Position patient for comfort
- Assess for hemodynamic instability and monitor for impending shock

If complaint of upper abdominal pain consider, [Acute Coronary Syndrome, STEMI](#)

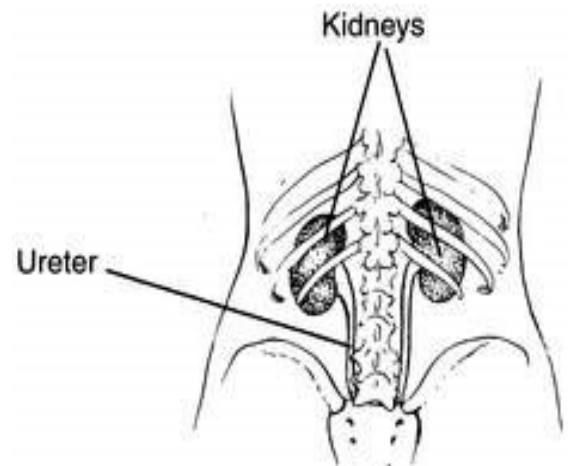
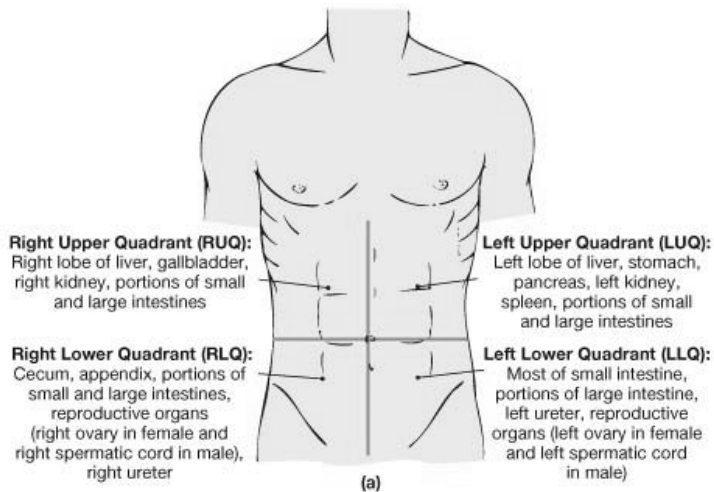
If nausea/vomiting, see [Nausea and Vomiting](#)

If acute pain, see [Acute Pain Management](#)

- Treat other potential causes (e.g., ACS, Overdose/Poisoning, Diabetic Emergencies, Emergency Childbirth, gastroparesis, cyclic vomiting, or Cannabinoid Hyperemesis,)

Basic

Paraned-



Allergic Reaction/Anaphylaxis

If suspected respiratory failure, see [Respiratory Support](#)

- Remove inciting agent (e.g. stinger), if possible

If local reaction / rash / hives

- Observe for respiratory distress and hypotension

- [Diphenhydramine](#)

Adult - 25 to 50 mg PO

Pedi - N/A

If wheezing / bronchospasm

- [Albuterol](#)

Adult - 2.5 mg/ipratropium - 0.5 mg in 3 ml NS nebulized, repeat PRN x 2

Pedi - Same as Adult

If anaphylactic reaction or severe signs

- Stridor
- Oropharyngeal swelling/difficulty swallowing/throat tightening
- Severe dyspnea
- Wheezing with accessory muscle use
- Poor air-movement to auscultation
- Difficulty speaking in full sentences
- Hypotension $\pm$ signs of shock

- [Epinephrine](#) 1:1,000

Adult - 0.5 mg IM, repeat PRN q 5 min

Pedi - 0.01 mg/kg (max dose 0.5mg) IM, repeat PRN q 5 minutes x 2

- [Diphenhydramine](#)

Adult - 50 mg IV/IM/IO

Pedi - 1 mg/kg IV/IM/IO (max dose 50 mg)

If hypotension, see [Circulatory Support](#)

In presence of signs of anaphylaxis/anaphylactic shock (stridor and or hypotension/end-organ dysfunction)

- [Epinephrine push dose](#) (0.1 mg in 10ml NS)

Adult - 10 mcg (1 ml) IV/IO, repeat PRN q 5-minutes, max total dose 50 mcg (5 ml)

Pedi - 1 mcg/kg (max single dose 10 mcg), repeat PRN q 5-minutes, max total dose 50 mcg (5 ml)

- [Epinephrine infusion](#)

Adult - start at 5 mcg/min titrate to MAP > 65

Pedi - start at 0.1 mcg/kg/min, titrate by 0.1 mcg/kg/min q 2-minutes

Consider

- [Dexamethasone](#)

Adult - 10 mg IV/IM

Pedi - 0.6 mg/kg PO/IM/IV (max 10 mg)

→ Anaphylactic reaction is defined by:

1. Exposure to suspected allergen WITH hypotension
2. Exposure to suspected allergen with symptoms from two or more of the below body systems.
 - A. Respiratory
 - B. Cardiovascular
 - C. Gastrointestinal
 - D. Integumentary

→ If history of ACE inhibitor use, or if personal/family history of non-allergic angioedema, above interventions may provide no benefit

→ Use extreme caution if patient wishes to refuse transport following treatment (several hours of monitoring may be necessary)

Basic

Paramedic

Altered Mental Status

- Assess blood glucose concentration
 - If $\leq 60 \text{ mg/dl}$, see [Diabetic Emergencies](#)

If known or suspected opiate intoxication, see [Opiate Use Disorder](#)

Consider other causes of AMS and treat as per indicated protocol

→ Look for signs of toxicologic or environmental exposure

Atraumatic Headache - Adult

- Obtain focused history and neurologic exam to evaluate for red flags
- Decrease noxious stimuli as able (e.g., move to quiet, dark environment)
- [Acetaminophen](#) - 1 g PO
- Cool compress to forehead

If clinical suspicion of cluster headache

- High-flow oxygen via NRB (regardless of SpO2)

Basic

- [Acetaminophen](#) - 15 mg/kg IV (max dose 1 g)
- [Ketorolac](#) - 15 mg IV, 30 mg IM
- [Droperidol](#) - 1.25 mg IM/IV, may repeat at 0.625 mg IM/IV, q 10-min PRN x1

If nausea/vomiting, see [Nausea and Vomiting](#)

Paramedic

- **IV opioids are contraindicated for atraumatic headache. They increase rate of rebound headaches.**
- Do not administer ketorolac if suspicion of SAH/intracerebral hemorrhage
- Benign headaches have no historical red flags and no neuro deficits
- Consider cluster headache particularly in males with severe headaches that occur in clusters over weeks, is unilateral in the orbital, supraorbital or temporal region, and is associated nasal congestion, conjunctival injection, and tearing
- Historical and physical exam red flags:
 - *Subarachnoid hemorrhage/ICH* - sudden onset, instantly peaks in intensity ("thunder-clap"), onset during exertion, associated with syncope/LOC, neck stiffness/pain, anticoagulation
 - *Meningitis* - AMS, fever, neck stiffness, +/- rash
 - *Giant Cell/Temporal Arteritis* - Age ≥ 50 , temporal artery tenderness, jaw claudication, monocular vision changes
 - *Acute Angle-Closure Glaucoma* - abrupt onset of severe monocular pain, fixed/non-reactive mid-dilated pupil, conjunctival injection, nausea/vomiting, blurred vision or halos around lights
 - *Pre-eclampsia* - pregnancy ≥ 20 weeks through 6 weeks post-partum, edema, hypertension
 - *Carbon monoxide* - AMS, dizziness, N/V, dyspnea, multiple individuals with similar complaints, situational factors
- Presence of red flags does not preclude symptomatic treatment, however response to treatment does not exclude emergent conditions.

Behavioral Emergencies/Agitation

• Use Physical Restraint Procedure, only after verbal de-escalation has failed • Passive/active cooling, see Hyperthermia Protocol as appropriate • Blood glucose assessment and treatment, see Diabetic Emergencies Protocol • Determine and document initial and ongoing reassessments of RASS score				Basic
• Target goal for all interventions is RASS 0 • Frequent BP and continuous SpO2, ECG and EtCO2 monitoring required for any restrained or sedated patient				
(RASS +1) <i>Anxiety and/or Mild Agitation</i>	(RASS +2 to +3) <i>Moderate Agitation</i>	(RASS +3 to +4) <i>Severe Agitation</i>	(RASS +4) <i>Violent Agitation with Delirium</i>	AGITATION SPECTRUM
→ These patients are anxious/ apprehensive with no aggres- sion. They typically do NOT require medications and should not require restraint.	→ These patients are not aggres- sive but are impeding essential patient care, monitoring, or diagnostics.	→ These patients display similar characteristics as those with a RASS 2+ to +3, however are aggressive and a <u>potential</u> danger to self or clinicians.	→ These patients are altered, overtly combative or violent, and are ac- tively a danger to self or others. They continue to struggle despite physical restraint.	
<i>If non-pharmacological interventions are unsuccessful</i> • Midazolam Adult - 2.5 mg IV/IO/IM/IN, repeat PRN q 10- min x1 Pedi - 0.05 mg/kg (max dose 2.5 mg) IV/IO/ IM/IN, repeat PRN q 10-min x 1	<i>If non-pharmacological interventions are unsuccessful</i> • Midazolam Adult - 5 mg IV/IO/IM, repeat PRN q 10-min Pedi - 0.1 mg/kg IV/IO/IM, repeat PRN q 10-min			Paramedic
	• Droperidol Adult - 5 mg IV/IO/IM, repeat PRN 2.5 mg q 10-min x1 Pedi - Contact OLMC first 0.05 mg/kg IV/IO IM, repeat PRN q 10-min x 1	• Droperidol Adult - 10 mg IM, repeat PRN 5 mg q 10- min x1 Pedi - Contact OLMC first 0.1 mg/kg IV/IO/IM, repeat PRN 0.05 mg/kg (max 5 mg) q 10-min x 1	• Request EMS Supervisor • Droperidol Adult - 10 mg IM, repeat PRN 5 mg q 10-min x1 Pedi - Contact OLMC first 0.1 mg/kg IM, repeat PRN 0.05 mg/kg (max 5 mg) q 10-min x 1 • Ketamine Adult - 4 mg/kg IM x 1 (max single dose 400 mg), repeat PRN 2 mg/kg IM q 10-min x 1 Pedi - Same as Adult	
→ For patients ≥ 65 years of age, decrease Droperidol to half the original dose.				
→ Sedation and/or EMS restraints shall NOT be used to assist law enforcement in the detainment of a person without an underlying medical etiology. The decision about sedation that must be made only by the EMS clinician.				
→ Request EMS Supervisor to the scene for any agitated patient needing physical restraint or in PD custody.				
→ Evaluate for underlying metabolic/endocrinologic, neurological, infectious, traumatic and toxicological causes.				
→ For RASS +4: Physical restraint alone is often inadequate to mitigate the potential for continued self-harm and danger to clinicians.				
→ Frail/elderly patients or young children rarely have violent agitated delirium posing a threat to themselves or others. Thus, they will rarely require ketamine.				
→ All patients receiving pharmacological intervention shall be transported or OLMC contacted prior to release.				

Diabetic Emergencies

- Assess blood glucose concentration

If ≤ 60 mg/dl and if conscious/able to tolerate

- High carbohydrate meal
- Glucose (Oral)
 - Adult - 15 g buccal
 - Pedi - 7.5 g buccal

Basic

Hypoglycemia: If blood glucose ≤ 60 mg/dl

- Dextrose 10% (25 g/250 mL)
 - Adult - 100 mL IV/IO bolus, repeat PRN to 50 g (500 mL)
 - Pedi - 5 mL/kg repeat PRN up to 25 g (250 mL)

Hyperglycemia: If blood glucose ≥ 300 mg/dl

- Normal Saline
 - Adult - 250-500 mL IV bolus, repeat PRN to 2 L
 - Pedi - 20 mL/kg IV/IO up to 2 L total

If blood glucose concentration ≤ 60 mg/dl and If IV access cannot be obtained

- Glucagon
 - Adult - 1 mg IM
 - Pedi - 0.1 mg/kg IM (max dose 1 mg)

Paramedic

Consider differential diagnosis for hyperglycemia

- Diabetic Ketoacidosis (DKA)
- Hyperosmolar hyperglycemic state (non-ketotic hyperosmolar coma)
- Infection/sepsis
- ACS/MI

Opiate Use Disorder

If approached for Narcan and no clinical complaints

- Provide intranasal leave behind Narcan Rescue kit(s)
- Review instructions for use with patient and/or family
- Document required demographics of those furnished leave behind Narcan

*If known or suspected **opiate intoxication** with respiratory and CNS depression.*

- **Naloxone**
Adult - 2 mg IN (1 mg in each nostril), repeat PRN q 5-min x 1
Pedi - 0.5 mg IN, repeat PRN q 5-min (max total dose 4 mg)

If clinical assessment reveals no life threats and suspected opiate withdrawal

- Perform Clinical Opiate Withdrawal Score (COWS)
*If COWS score is < 8 or **no** patient interest in Buprenorphine treatment*
 - Send referral MIH group
 - Provide Narcan Rescue kit with education
- *If COWS score is ≥ 8 and patient is interested in Buprenorphine treatment, request [EMS Supervisor](#)*
- If patient chooses AMA, provide Narcan Rescue kit

Basic

*If known or suspected **opiate intoxication** with respiratory and CNS depression.*

- **Naloxone**
Adult - 0.5 mg IV/IO, repeat PRN in 0.5 mg increments q 5-min to 4 mg max total dose
Pedi - Same as Adult (max dose 2 mg)

Para-

If COWS score is ≥ 8 and patient is interested in Buprenorphine

- Contact [OLMC](#) for consultation for administration
 - Premedicate as indicated for nausea/vomiting and pain
 - N/V - [Ondansetron](#) 8 mg ODT
 - Pain - [Acetaminophen](#) 1 g PO
 - [Buprenorphine / Suboxone*](#)
Adult - 8-24 mg buccal (SL strips or tabs) per physician order
Repeat 8-16 mg (max 32mg) PRN COWS score >8 or symptoms not resolved q 15 minutes x 1
Second and subsequent day doses covering weekend and holiday periods will be based on previous effectiveness

CCP

If precipitated withdrawal

- Contact [OLMC](#) immediately
- [Normal Saline](#) 500 mL IV fluids bolus
- [Ondansetron](#) 8 mg IV or ODT PRN nausea (max total dose 16 mg)
- [Diphenhydramine](#) 25-50 mg IV PRN anxiety/abdominal cramps (Max total dose 75 mg)
- As directed by [OLMC](#) - [Buprenorphine](#) 8-16 mg (Max total dose 32 mg)

- No limit to the number of boxes of Narcan that can be left behind
- Advise patients/family during reviewing of use that 911 must still be called as the opiate effects can return when Narcan wears off
- If patient meets Criteria for enrollment into the MAT Program, the medication will be provided at No Cost for the first 60 days
- Exclusion for Suboxone administration does not mean patient cannot be referred to Rehab or Treatment

* Suboxone is buprenorphine + naloxone and the naloxone is chemically inactive when taken SL/oral. Either is acceptable and supply may vary based on availability. Dosing is the same between the two agents."

Seizure/Status Epilepticus

- Position patient to avoid injury and aspiration, consider recovery position

If not returned to baseline, evaluate blood glucose and consider [Diabetic Emergencies](#)

Basic

If actively seizing, or in status epilepticus (≥ 2 -seizures and without intervening lucid period),

- [Midazolam](#) IM midazolam is the first line route of administration if an IV not already established
Adult - 10 mg IM/IN; or 5 mg slow IV/IO, repeat PRN q 5 min x 2
Pedi - 0.15 mg/kg slow IV/IO/IM (max dose 2.5 mg), repeat q 5-min PRN x 1

*If post-ictal and not actively seizing or not in status epilepticus, pharmacologic therapy with midazolam is **not indicated***

If refractory despite maximum midazolam,

- [Ketamine](#)
Adult - 1 mg/kg IV/IO
Pedi - Same as Adult

If suspected eclampsia/peripartum seizure, see [Pre-Eclampsia / Eclampsia](#)

Paramedic

- Consider toxicologic causes of seizure
Organophosphate/nerve gas (see chemical warfare policy)
Sympathomimetic toxidrome (stuffers/packers, methamphetamine)
- Anticipate that dispatch or initial clinical picture of seizure may be initial presentation cardiac arrest
- Most confused patients following a seizure do not need treatment. Monitor for up to 15-minutes before considering intervention or determining a disposition.
- Always consider eclampsia in 3rd trimester pregnancy or up to 6 weeks post-partum.

Stroke/CVA/TIA

- Assess blood glucose
 - If ≤ 60 mg/dl, see [Diabetic Emergencies](#)
- Complete **Initial** Stroke Screen (Modified Cincinnati Prehospital Stroke Scale)
 - Facial Droop
 - Arm-Pronator Drift
 - Speech/language (dysarthria or aphasia)
 - Time patient was last seen prior to onset of symptoms required

If initial stroke screen is positive (any of 3-criteria):

- Complete **LAMS** evaluation

If symptom onset within 24-hours, and

LAMS 4+

- Transport to closest Comprehensive Stroke Center (CSC)

LAMS 0-3

- Transport to closest Stroke Center (Primary or CSC)

If symptom onset greater than 24-hours

- Transport to closest Stroke Center (Primary or CSC)

- Bedside Stroke Alert to receiving facility, as appropriate

Los Angeles Motor Score (LAMS)		
Facial Droop	Arm Drift	Grip Strength
Absent 0	Absent 0	Normal 0
Present 1	Drifts down 1	Weak grip 1
	Falls rapidly 2	No grip 2

Basic

→ Consider posterior stroke in patients with acute imbalance with inability to walk straight without other cause. This is not a Stroke Alert; however, these findings need to be included in your bedside report at the ER.

Syncope

Syncope is a brief loss of consciousness and postural tone that resolves spontaneously with return to baseline neurological function quickly.

- [12-lead ECG](#)
- Assess orthostatic pulse and blood pressure, as tolerated

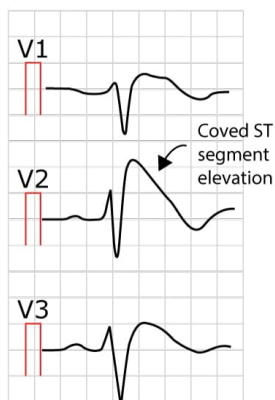
- Cardiac monitoring; treat dysrhythmias

If hypotensive / hypovolemia, see [Circulatory Support](#)

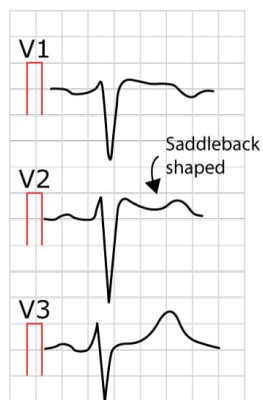
Consider causes of presyncope/syncope:

1. Subarachnoid hemorrhage / ICH
2. Aortic stenosis: *loud murmur with exertional syncope*
3. Ectopic pregnancy
4. Vasovagal
5. Orthostasis
6. Tachydysrhythmias
7. Bradydysrhythmias and Heart Blocks
8. Wolff-Parkinson-White (WPW): *short PR, prolonged QRS, and a delta wave*
9. Brugada Syndrome: *RSR' similar to a right bundle block and ST elevation in the anterior leads*
10. Hypertrophic Cardiomyopathy (HCM): *high voltage and narrow ("needle-like", <20 milliseconds/one small box) q waves in the lateral (V5-aVL) and possibly inferior leads; may also have left atrial enlargement, ischemic-appearing ECG, tall R wave in V1*
11. Long or Short QT interval: *QTc <300 (autosomal dominant inheritance) or >500*
12. Arrhythmogenic Right Ventricular Dysplasia (ARVD): *epsilon waves ± T-wave inversions in leads V1-V3*
13. Miscellaneous: (PE, right-sided heart strain; electrolytes, ICH, etc.)

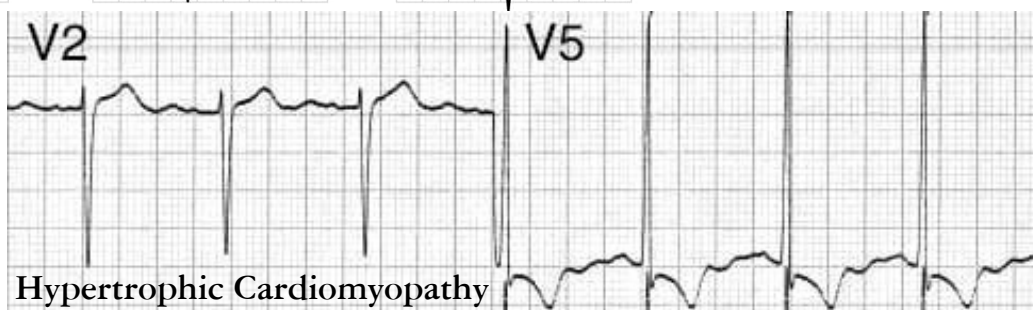
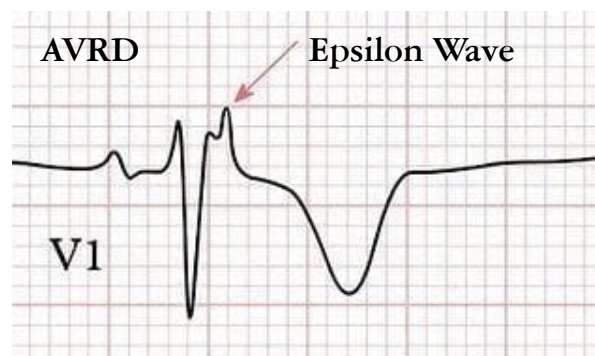
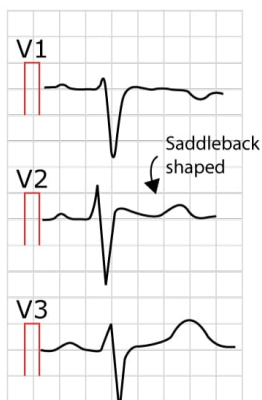
A Type 1 Brugada



B Type 2 Brugada



C Type 3 Brugada



Medical Toxicology

Basic

If suspected exposure to toxic agent.

- Remove patient from environment if safe/trained/equipped (PPE) to do so
- Ensure appropriate decontamination

If known or suspected **opiate intoxication**, see [Opiate Use Disorder](#)

If **carbon monoxide (CO) exposure**.

- Consider with CO levels above 5% in non-smoker or 10% in a smoker if available
 - High flow O₂ by NRB+ HFNC (as available) 15 LPM each

If **caustic ingestion**

- Do not induce vomiting or allow the patient to eat or drink

Paramedic

If **tachycardia associated with sympathomimetic intoxication** (e.g., cocaine, amphetamine, MDMA),

- [Midazolam](#)
Adult - 2.5-5.0 mg slow IV/IO or 5 mg IM/IN, repeat PRN q 5 min (max total dose 10 mg)
Pedi - 0.05 mg/kg (max dose 2.5 mg) IV, repeat PRN q 5 min x 1

If **dystonic reaction**.

- [Diphenhydramine](#)
Adult - 50 mg IV/IM/IO
Pedi - 1 mg/kg (max dose 50 mg)

In suspected **cyanide poisoning** (smoke inhalation, dermal or ingestion exposure) **AND** if altered mental status, hemodynamic instability, or cardiac arrest,

- If available, [Hydroxocobalamin](#) (5 g / 200 mL NS) over 15-minutes through a dedicated IV/IO; contact [OLMC](#) following initial dose
Adult - 5 g IV/IO, repeat PRN x 1
Pedi - 70 mg/kg IV/IO, repeat PRN x 1

Consider the following toxidromes/treatments:

Tricyclic Antidepressant (TCA)

- [Sodium Bicarbonate](#)
Adult - 1 mEq/kg IV/IO, (max dose 100 mEq)
Pedi - Same as Adult

Beta-blocker

- [Glucagon](#)
Adult - 1 mg IV/IO slow push over 1-minute, repeat PRN q 5 min x 1
Pedi - 0.1 mg/kg IV/IO, slow push over 1-minute (max single dose 1 mg), repeat PRN 0.2 mg/kg IV/IO x1

Calcium Channel Blocker

- [Calcium Chloride](#)
Adult - 1 g IV slow push
Pedi - 20 mg/kg (0.2 ml/kg) IV/IO, slow push (max dose 1 g)

Organophosphate

- [Atropine](#) *
Adult - 2 mg IV/IO, repeat PRN q 3 min until secretions dry up
Pedi - 0.02 mg/kg IV/IO/IM, repeat until secretions dry up

- SpO₂ may be a poor indicator of severity in CO poisoning; therefore, regardless of SpO₂, always treat the patient
- Toxidromes secondary to toxic substances or to toxic doses of common medications may result from exposure in the form of ingestion, inhalation, injection, skin absorption
- Dystonias may result from a number of psychiatric and GI medications, including droperidol, haloperidol, fluphenazine, fluoxetine, duloxetine, sertraline, metoclopramide
- * A true organophosphate poisoning is almost certainly going to require more atropine than can reasonably be stocked on any given response unit. These cases will also have many additional units responding. Use all atropine needed from additional units.

Tracheostomy Emergencies

- Look, listen, and feel at the mouth and tracheostomy for air movement
- Place non-rebreather mask to tracheostomy, and to mouth (unless history of laryngectomy)
 - Titrate O₂ to SpO₂ ≥ 94% or work of breathing
- Reposition airway in slight extension (unconscious), or upright (conscious)
- Respiratory monitoring required (in-line EtCO₂ and SpO₂) if equipped
- Obtain tracheostomy history (e.g., age of tracheostomy, laryngectomy)
 - If unable to determine if laryngectomy, assume upper airway patent

Tracheostomy Respiratory Distress/Failure

- Assume all acute distress or respiratory failure to be dislodgement or obstruction until proven otherwise
- Remove all accessory items (valves/caps) and stoma padding (if present)
- Perform 3 C's, reassess patient condition and SpO₂/EtCO₂ after each step

Cannula

- Remove inner cannula and inspect for obstruction (do not discard)

If obstructed with secretions

- Consider rinsing with saline or tap water, may use 3 ml syringe/suction catheter to "pressure wash"

Catheter

- Attempt to pass suction catheter down tracheostomy

If suction passes and tracheostomy patent

- Perform suctioning and consider partial obstruction

Cuff

If unable to pass suction

- Deflate tracheostomy cuff (if present)

If no improvement after 3 C's

- Remove tracheostomy tube and reassess

If respiratory distress, see [Respiratory Support](#)

If Acute Respiratory Insufficiency/Failure or chronic mechanical ventilation, and patent airway

- Assist ventilation with bag-valve-mask (BVM) to face; cover stoma with gloved hand or gauze

If laryngectomy or unable to ventilate via face

- Assist ventilation with pediatric BVM mask to stoma; if no laryngectomy, may need to close mouth/nose

Tracheostomy Hemorrhage

- Obtain history to determine likely source of bleeding (skin, pulmonary, GI, potential trachea)
- Strongly advocate for transport for even small volume tracheostomy bleeding

If rapid and massive hemorrhage from tracheostomy (suspected tracheo-innominate artery fistula)

- Apply oxygen or BVM to face
 - Apply external digital compression with index finger at sternal notch (do not delay cuff inflation below)
 - Immediately inflate trach cuff to 50 ml

Tracheostomy Respiratory Distress/Failure

If no distress/failure and tracheostomy exchange or replacement required, see [Tracheostomy Replacement/Exchange Procedure](#)

If no improvement

If tracheostomy less than 7-days since initial placement

- Do not attempt tracheostomy replacement or stoma intubation, manage with BVM

If tracheostomy ≥ 7-days since initial placement, see [Tracheostomy Replacement/Exchange Procedure](#)

- If unable or replacement/backup unavailable, consider intubation of stoma with 6.0 ETT

If unable ventilate or exchange trach or place stoma

- Consider orotracheal intubation (unless laryngectomy)

Tracheostomy Hemorrhage

If uncuffed tracheostomy

- Consider exchange for 6.0 ETT using bougie

If continued severe bleeding

- Consider orotracheal intubation OR remove tracheostomy and intubate stoma
- Once ETT in place (oral or stoma), consider insertion of finger in stoma to apply direct compression of vessel into sternum

If significant hemorrhage and SBP ≤ 90 or HR ≥ 110 with poor perfusion, see [Hemorrhage Control](#)

Environmental



Environmental

Bites/Envenomation

- On patient, document time and mark leading edge of skin changes, pain, and/or tenderness

If bite involves extremity

- Remove all jewelry
- Immobilize affected limb at or above the level of the heart
- Do not tightly wrap the affected limb

If stinger is present

- Attempt to brush away with edge of card
Do not disturb the wound site

Consider other protocols as appropriate:

[Allergic Reaction/Anaphylaxis](#)

[Circulatory Support](#)

Basic

Hyperthermia/Heat Stroke

- Remove patient from high temperature environment

If **Mild** symptoms: heat cramps or heat exhaustion; no signs of altered mental status (AMS); temperature $\leq 104^{\circ} \text{F}$

- Passive cooling (loosen clothing, fanning)

If available

- PO fluids (use caution if nausea/vomiting)

If **Severe** symptoms: heat stroke (AMS and temperature $\geq 104^{\circ} \text{F}$)

- Begin active cooling

Use sheets/towels dipped in ice water directly on skin

Ice packs to core (trunk/abdomen)

Request [EMS Supervisor](#) for [Cold Water Immersion](#)

If shivering begins, mental status improves, or temperature $\leq 102^{\circ} \text{F}$

- Cease active cooling measures

If ice water immersion is in progress, do not remove patient until temperature $\leq 102^{\circ} \text{F}$

Basic

Mild

Muscle cramps, sweating

Moderate

Headache, nausea/vomiting, malaise, dizziness, orthostatic hypotension, tachycardia

Severe

AMS and temperature $\geq 104^{\circ} \text{F}$

If hypotensive, see [Circulatory Support](#)

If uncontrolled shivering occurs during cooling

- [Midazolam](#)

Adult - 2.5 mg IV/IO/IN

Pedi - 0.05 mg/kg IV/IO or 0.1 mg/kg IM/IN

Repeat PRN q 5-min (max total dose 2.5 mg) x 1

Paramedic

→ Sweating may or may not be present with heat stroke

Maintain high index of suspicion for heat-related illness if the any of following risk factors are present:

- Elderly
- Psychiatric medication
- Cardiovascular medications (e.g., diuretics, antihypertensives)

Consider other protocols, as appropriate:

[Seizures/Status Epilepticus](#)

[Toxicology](#)

[Circulatory Support](#)

[Altered Mental Status](#)

[Diabetic Emergencies](#)

Environmental Hypothermia

- Remove patient from cold environment, dry and insulate
Handle the patient gently, consider scoop stretcher (excessive movement may induce ventricular fibrillation)
Remove wet clothing
Assist passive warming with blankets and/or heat packs for comfort

- 12-lead ECG

If severe symptoms/signs: AMS, unstable, dysrhythmia, and/or temperature $\leq 90^{\circ}$ F

- Actively warm patient with heat packs to neck, groin, and axillae
- Carefully assess vital signs, as they may be diminished but adequate

If patient is in cardiac arrest, and AED advises shockable rhythm

- Administer one defibrillation (no further defibrillation until temperature $\geq 90^{\circ}$ F)

- IV access, as appropriate; warm IV fluids if possible, consider 500 ml NS IV/IO rapid bolus for hypotension, Repeat PRN up to 2 L total

If patient is in pulseless ventricular tachycardia/ventricular fibrillation and not previously defibrillated

- Administer one defibrillation (no further defibrillation until temperature $\geq 90^{\circ}$ F)
- Do not terminate resuscitation

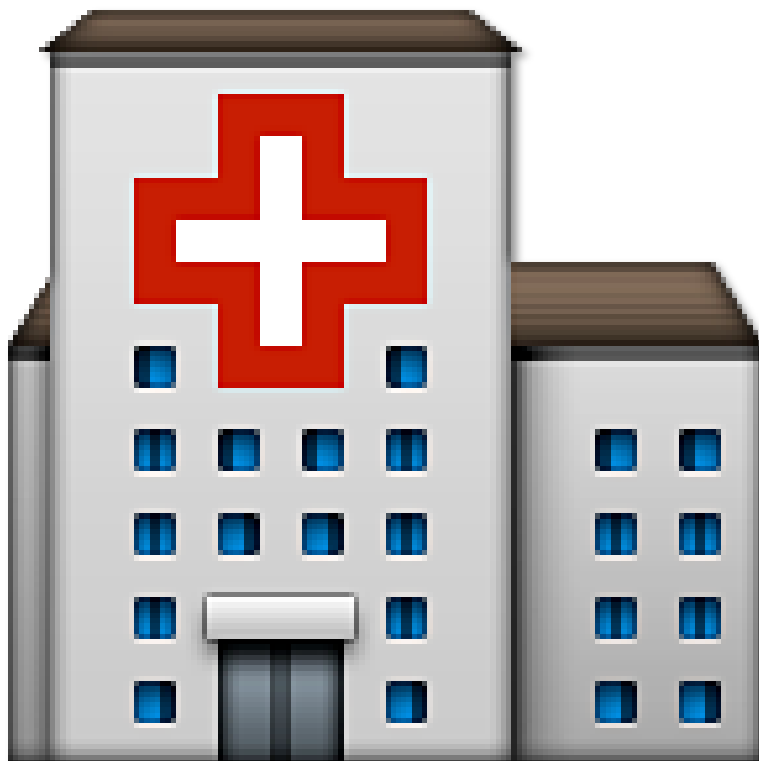
If symptomatic bradycardia (carefully assess vital signs, as they may be diminished but adequate)

- Initiate pacing only for temperature $\geq 90^{\circ}$ F

Basic

Paramedic

Trauma



Amputated Body Part

- Hemorrhage Control
- Cover the stump with saline-soaked sterile dressing and wrap with dry dressing
- Wrap severed part in saline-moistened sterile dressing
 - Place in watertight plastic bag
 - Place bag in cooler with ice, if possible
 - Do not freeze
 - Do not macerate/soak in water
 - Transport amputated body part with patient or to the same Emergency Department as the patient as soon as feasible

Acute Pain Management, as appropriate

If hypotension, see Circulatory Support

Basic

Para-

Burns

Assist airway, as appropriate

- Titrate O₂ to SpO₂ ≥ 94% or work of breathing

If suspected carbon monoxide (CO)

- Ensure scene safety, and remove patient from toxic environment
- High flow O₂ by NRB + NC (15 lpm)

If potential for ongoing burning

- Brush dry chemicals then flush with water
Initiate decontamination, as appropriate
- Remove clothing/jewelry (affected area and distal to burn)
- Flush eyes with copious amounts of water, as appropriate
- Apply dressings to burns
 - ⇒ If ≤ 10% BSA, use moist dressings
 - ⇒ If ≥ 10% BSA, use dry burn sheet or dry sterile dressing and insulate to prevent hypothermia

- Advanced airway management, as appropriate

Maintain high index of suspicion for inhalation injury

Stridor, muffled voice, singed facial/nasal hair, carbonaceous sputum

- Cardiac monitoring and 12-lead ECG for electrical burns

- IV access, as appropriate; consider 500 ml NS IV/IO rapid bolus for hypotension, repeat PRN up to 2 L total

If ≥ Partial thickness burn (≥10% BSA), fluid resuscitation as follows:

Adult - 500 ml/hr NS IV/IO

3-14 years - 250 mL/hr NS IV/IO

0-3 years - 125 mL/hr NS IV/IO

- Acute Pain Management, as appropriate

If severe symptoms/signs (≥ 10% BSA partial thickness, full-thickness, circumferential, involvement of face/hands/feet/genitals, significant-chemical or electrical burns, or airway involvement)

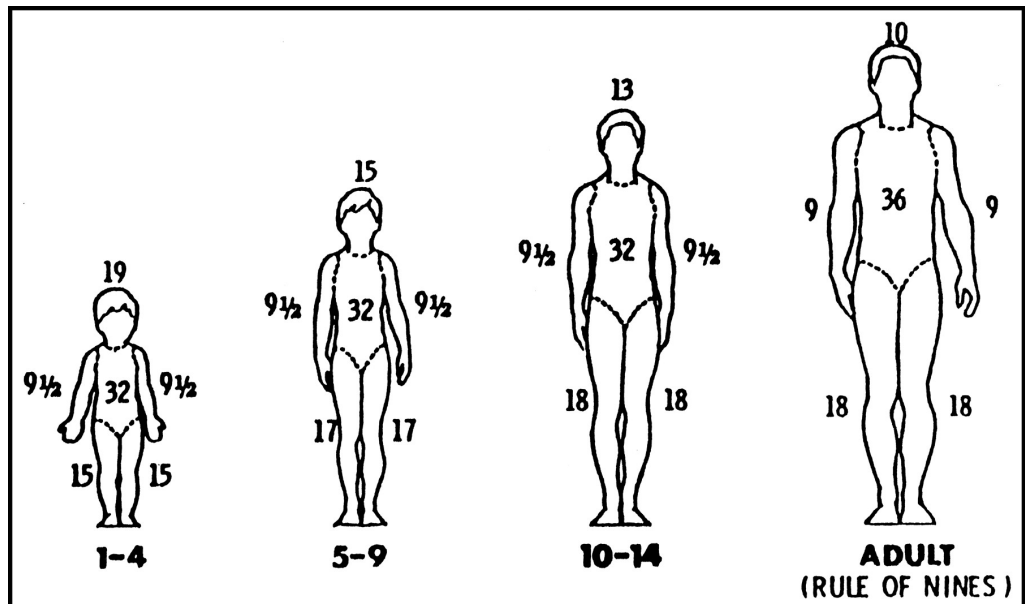
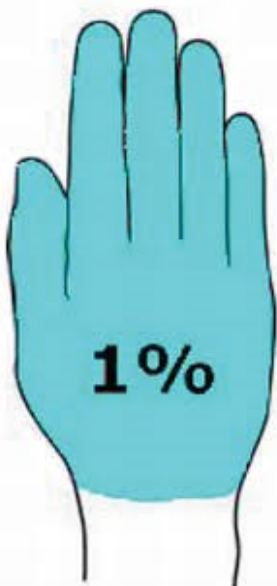
- Provide notification and transport to nearest burn center

If unsecured airway

- Transport to the closest full-service hospital

Basic

Paramedic



Entrapment/Crush/Traumatic Rhabdomyolysis

- Bleeding control (direct pressure, tourniquet)
- Remove constricting clothing, jewelry

Field Amputation

If anticipated prolonged entrapment/extrication, and if potential for worsening of patient condition in the absence of extrication,

- Contact [OLMC](#) to activate field amputation process

Basic

- Cardiac monitoring, [12-lead ECG](#)
- IV access,
Adult - NS 20 ml/kg bolus
Pedi - Same as Adult
- [Acute Pain Management](#), as appropriate

If ECG findings of hyperkalemia (peaked T-waves, wide QRS), contact [OLMC](#) following initial dose

- [Calcium Chloride](#)
Adult - 1 g IV/IO, slow push
Pedi - 20 mg/kg (0.2 mL/kg) IV/IO, slow push (max dose 1 g)
- [Sodium Bicarbonate](#)
Adult - 1 mEq/kg IV/IO (max dose 100 mEq)
Pedi - same as Adult

Paramedic

General Trauma

- As appropriate:
 - Hemorrhage Control
 - Airway management
 - Circulatory Support
 - Prehospital Blood Administration
 - Acute Pain Management
 - Amputated Body Part
 - Spinal Motion Restriction
- Keep patient warm
- See Trauma Transport Guidelines

If cardiac arrest, see Traumatic Circulatory Arrest

If suspected tension pneumothorax with hypotension, see Needle Thoracostomy Procedure

If hypotensive, see Circulatory Support

Basic

Paramedic

Basic

Basic

Eye Injury

If isolated eye injury

- Irrigate with NS if result of chemical burn (if appropriate to agent)
- Cover unaffected eye/stabilize impaled object

If suspected ocular injury

- Do not delay transport

If outside socket

- Cover with NS soaked gauze

Head/Neck Injuries

- Spinal Motion Restriction
- Maintain $\geq 94\%$ SpO₂ at all times

If respiratory failure

- Ventilate at a rate of 10 bpm, or to maintain EtCO₂ 35-45 mmHg

Chest Injuries

- Hemorrhage Control
- Stabilize impaled objects
- Stabilize flail segments

If suspected open pneumothorax

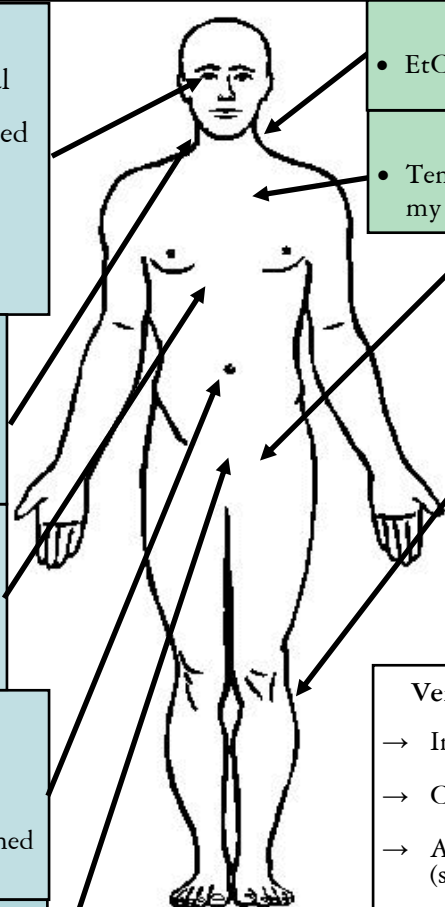
- Partial occlusive dressing

Abdominal/Pelvic Injuries

- Control bleeding
- Pelvic binder
- Stabilize impaled objects
- Evisceration— cover with saline moistened gauze

Pregnancy Considerations

- Left lateral recumbent (LLR) position
- If signs of poor cardiac output*
- Manual fundus displacement (to left)



Head/Neck Injuries

- EtCO₂ between 35-45 mmHg

Chest Injuries

- Tension Pneumothorax— Needle thoracostomy

Junctional/Extremity Injuries

- Hemorrhage Control (direct pressure, tourniquet)

If bleeding uncontrolled by tourniquet

- Pack wound tightly with hemostatic gauze and kerlix gauze
- Splinting, as appropriate
- Sterile dressing— open fractures
- Care for Amputated Body Part

Ventilation Rates for Pediatric Head Injuries

- Infants (0-24 months) 25 breaths per minute
- Children (2-14 years) 20 breaths per minute
- Adolescents (15-17 years) 10 breaths per minute (same as adult)

Blood Pressure Goals for Pediatric Head Injuries

- 0-2 years of age
SBP of 70
- 2-10-years of age
SBP = 70 + (age in years x 2)
- 10 years of age or greater SBP of 90

Spinal Motion Restriction

If penetrating trauma (including to the neck and/or spine with or without neurological deficit)

- Do not initiate **Spinal Motion Restriction** procedure

If any of the following findings are present: History criteria, midline tenderness, pain or paresthesias on external rotation

- Initiate **Spinal Motion Restriction** procedure

Spinal motion restriction may be deferred ONLY IF ALL OF THESE FINDINGS ARE ABSENT

History

- Age ≤ 12 or ≥ 65
- Limited ability to sense or communicate pain
AMS, LOC, intoxicated, head trauma, language barrier, mental retardation
- Distracting injury
Long bone fracture, visceral trauma (abdomen, pelvis), large laceration, crush injury, large burn
- Neurologic deficit
Motor/sensory loss or paresthesia
- Dangerous mechanism of injury
Fall ≥ 3 -feet or 5-stairs
Axial loading injury to the head (diving accident/sports injury)
Vehicular accident
High speed motor vehicle accident ≥ 60 mph
Motorized recreational vehicle accident
Ejection
Bicycle collision with immobile object (tree, parked car)
Struck by large vehicle
Roll-over

Palpation

- Midline cervical tenderness

Active Range of Motion Test

- Patient is able to actively rotate neck 45° both to left and right with no pain, paresthesia or motor deficit

If any pain or paresthesia upon rotation, IMMEDIATELY TERMINATE RANGE OF MOTION TEST

If patient unable to tolerate spinal motion restriction

- Attempt less restrictive means (c-collar only) or use position of comfort and/or allow patient to self-splint

Trauma Transport Guidelines

Major trauma patients may need to be transported to a designated trauma center in a timely manner. It is in the best interest of the patient to be transported to a designated trauma center if the patient meets certain criteria.

If any of the following criteria are present,

- Transport to the closest age appropriate Trauma Center (Level 1 or 2):

Injury Pattern	Mental Status & Vital Signs
→ Penetrating injury (e.g. GSW, stabbing) to head, neck, torso, upper arm, thigh → Skull deformity, suspected skull fracture → Suspected spinal injury with new motor or sensory loss → Chest wall instability, deformity, or suspected flail chest → Suspected pelvic fracture → Suspected two or more proximal long-bone fractures → Crushed, degloved, mangled, or pulseless extremity → Amputation proximal to wrist or ankle → Active bleeding requiring a tourniquet or wound packing	→ Unable to follow commands (motor GCS <6) → Age 0-9: SBP < 70 + (2 x age years) → SBP < 90 (or relative hypotension) → Age ≥ 65 AND SBP ≤ 110 → HR > SBP (shock index of ≥ 1) → RR < 10 or > 29 → Respiratory distress or need for assisted ventilation (e.g. BVM, SGA, ETT) → Room air pulse oximetry ≤ 90%

If any of the following criteria are present,

- Transport to the closest age appropriate Trauma Center (Level 1, 2, 3, or 4):

Mechanism of Injury	Risk Factors
→ Fall from height > 10 feet → MVC with: - Partial or complete ejection - Significant intrusion (including roof), with any: > 12 inches occupant side > 18 inches any site - Need for extrication of an entrapped patient - Child (0-9) unrestrained or in an unrestrained child safety seat - Death in same passenger compartment - Vehicle telemetry data consistent with severe injury → Rider separated from transport vehicle with significant impact (e.g. motorcycle, ATV, horse, etc.) → Pedestrian or bicycle rider thrown, run over, or with significant impact	→ Low-level falls in children (age ≤ 5) or older adults (age ≥ 65) with significant head impact → Anticoagulant use → Special, high-resource healthcare needs (chronic ventilator dependency, ventricular assist device) → Suspicion for child abuse → Pregnancy > 20 weeks → Burns in conjunction with trauma

Pearls & Pitfalls:

- Amputations distal to wrist/ankle may be evaluated at closest Trauma Center

Traumatic Circulatory Arrest

• DO NOT INITIATE MOVEMENT OF THE PATIENT

If suspicion of non-traumatic cause

- Proceed with [Cardiac Arrest](#) protocol

If traumatic cause

- Consider [Withholding Resuscitative Efforts](#)
- Initiate CPR and place pads
- Rapidly and simultaneously address reversible pathology (H.O.T.T.)

Basic

Hemorrhage

Oxygenation

Tension / Tamponade

- Promptly expose patient

If catastrophic hemorrhage or hemorrhagic shock with suspected pelvic fracture, see [Hemorrhage Control](#)

- BVM or,
- Immediate SGA

If clinical suspicion

- [Needle Thoracostomy](#)
- [Simple Thoracostomy](#)
- [Pericardiocentesis](#)
- [POCUS](#)

Paramedic

GOAL: Catastrophic hemorrhage intervention, oxygenation and confirmed ventilation via EtCO₂, and evaluation +/- treatment for tension pneumothorax

ROSC?

Yes

No

- Prioritize rapid transport while optimizing patient hemodynamics, oxygenation, and ventilation
- Hospital pre-notification ASAP

If significant traumatic or OB related hemorrhage, see [Hemorrhage Control](#)

- After the following resuscitative efforts*:
 - Hemorrhage control interventions
 - Oxygenation
 - Ventilation with confirmed EtCO₂ waveform
 - +/- Thoracostomy / Pericardiocentesis
- Contact [OLMC](#) for termination

CCP

Pearls:

- After in-person assessment by the [EMS Supervisor](#) and prior to ALS interventions, if withholding criteria is present and patient is in asystole, resuscitation efforts can stop.
- Patient may be moved for scene conditions or safety.
- Chest compressions offer very low probability of benefit in traumatic arrest, but public expectation exists for its performance. As a result, perform CPR, however do not allow compressions to interrupt attempts to address treatment goals.
- Interventions must be completed prior to MCD placement if transport is indicated.
- Epinephrine or other medications offer very limited benefit in traumatic arrest: therefore, they are not indicated.
- * There is no minimum resuscitation time required before considering termination, only achievement of treatment goals.
- There is almost no benefit to transport of traumatic cardiac arrest. Transport in absence of ROSC should be rare.
- Despite traumatic event, consider potential for medical cause of arrest, including AMI or commotio cordis.

OB/GYN

Emergency Childbirth

- Administer O₂ and titrate to SpO₂ ≥ 94%
- Check for presentation (crowning, limb, breach, cord) and follow procedures, as below

If crowning

- Emergency Childbirth Procedure

If nuchal cord,

- If cord is loose around the neck: Attempt to gently slip cord over infant's head
- If cord is tight around the neck: Clamp cord × 2 (2-inches apart), cut between clamps

If cord presentation

- Position mother in Trendelenburg or in the knee-to-chest position
- Instruct the mother to pant with each contraction
- Gently push presenting fetal part upward off and into the birth canal
- Maintain hand position so as to maintain cord pulse
- Do not attempt to reposition if the cord retracts
- Apply moist sterile dressing to cord

If breech presentation, see [Emergency Childbirth Procedure](#): breech presentation

If single limb, rapid transport

If premature birth

- [Emergency Childbirth Procedure](#)
- Dry and cover newborn (start with head, then body)
Cover head and wrap body use dry liner and foil
- Administer blow-by oxygen (humidified, if available) avoid direct O₂ flow into neonate's face
- Minimize family member contact with neonate
- Once delivery complete, see [Newly Born](#)

If uterine inversion

- DO NOT ATTEMPT TO REMOVE PLACENTA
- Apply pressure to fundus upward through cervix, use fingertips and palm of gloved hand
- Cover with sterile moist dressing if unsuccessful

If suspected pre-eclampsia or eclampsia, see [Pre-eclampsia/Eclampsia](#)

If postpartum hemorrhage

- Aggressive fundal massage
- See [Hemorrhage Control](#)

Basic

Para-

Newly Born

- Assess and document APGAR score at 1-minute and 5-minutes after birth
 - Warm, dry, and stimulate infant.
 - Clear secretions as needed
 - Assess breathing pattern and palpate pulse rate
 - If apneic, gasping, or HR < 100 bpm*
 - Begin assisted ventilation with a BVM without supplemental oxygen at rate 40-60 breaths per minute
 - If HR < 60 despite 30-seconds of confirmed BVM ventilation*
 - Begin CPR, 3:1 compressions-ventilation, 120 bpm
 - If labored breathing or persistent cyanosis*
 - Position and clear airway
 - Supplemental oxygen as needed
 - Begin SpO₂ monitoring (place on right hand)
- Goal timeframe ~1 minute

Basic

- If HR < 100 despite BVM*
- Ensure effective ventilation with BVM (chest rise and fall, waveform capnography)
 - Invasive airway management, if necessary
- If HR < 60 despite 60-seconds of CPR*
- IV/IO access
 - Epinephrine 1:10,000** - 0.01 mg/kg IV q 5-min
- If failure to respond to epinephrine and suspected hypovolemia*
- NS** - 10 ml/kg slow IV/IO push (max dose 50 ml), push over 10 minutes
- If blood glucose < 50*
- Dextrose 10%** (25 g/250 ml) - 2 ml/kg IV/IO bolus
 - Initiate transport

Paramedic

- SpO₂ slowly increases within the first 10 minute post-birth (see chart)
- Routine suctioning for meconium is generally not indicated.
- Intraosseous access is only suitable for term infants > 3kg, and requires a slightly more distal approach than in older children
- Prevent hypothermia

Targeted Procedural SpO ₂	
1 min	60-65%
2 min	65-70%
3 min	70-75%
4 min	75-80%
5 min	80-85%
10 min	85-95%

APGAR	0	1	2
Appearance	Blue/pale	Blue extremities	Good color
Pulse	Absent	≤ 100	≥ 100
Grimace	No response	Weak cry	Strong cry
Activity	None	Some	Flexed arms/legs
Respiratory Effort	Absent	Weak/gasps	Strong (with strong cry)

Pre-Eclampsia / Eclampsia

- Pre-Eclampsia is present in patients between 20 weeks gestation and 6 weeks postpartum with:
- SBP ≥ 140 or DBP ≥ 90 with severe features*
 - or
 - SBP ≥ 160 or DBP ≥ 110 regardless of symptoms
- Eclampsia should be considered present for all tonic-clonic seizures in pregnancy or post-partum patients

Basic

If SBP ≥ 140 or DBP ≥ 90 with Severe Features confirmed by correctly fitted cuff on 2 readings 5 minutes apart

- Magnesium Sulfate (10g / 250mL NS) bolus 6 g IV/IO over 15 min; followed by 2 g/hr infusion
 - Bolus: rate = 648 mL/hr; total volume = 150
 - Infusion: rate = 50 mL/hr

If SBP ≥ 160 or DBP ≥ 110 confirmed by correctly fitted cuff on 2 readings 5 minutes apart

- Nifedipine 10 mg SL
- Magnesium Sulfate (10g / 250mL NS) bolus 6 g IV/IO over 15 min; followed by 2 g/hr infusion
 - Bolus: rate = 648 mL/hr; total volume = 150
 - Infusion: rate = 50 mL/hr

If suspected eclamptic seizure

- Midazolam as per Seizure protocol (only for ongoing seizure)
- Magnesium Sulfate (10g / 250mL NS) bolus 6 g IV/IO over 15 min; followed by 2 g/hr infusion
 - Bolus: rate = 648 mL/hr; total volume = 150
 - Infusion: rate = 50 mL/hr
(administered even if seizure stops)

Paramedic

If maternal HR is > 60 and SBP ≥ 160 or DBP ≥ 110 confirmed by correctly fitted cuff on 2 readings 5 minutes apart and severe symptoms described above are present

- Labetalol 20mg IV over 2 minutes, repeat 40 mg IV PRN q 10 minutes

CCP

*Severe Features: new onset headache, visual changes, or RUQ pain

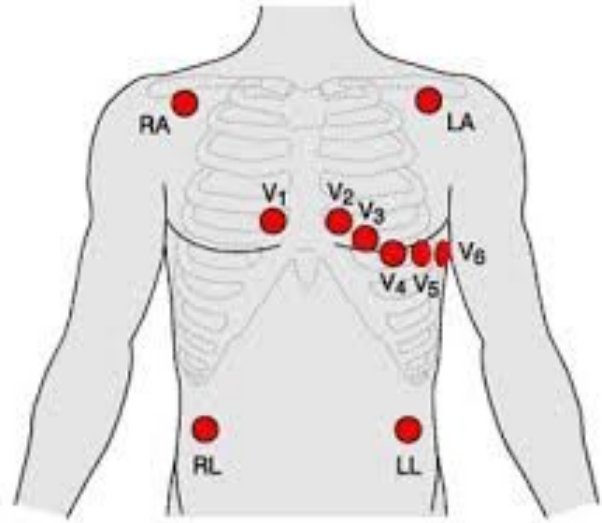
Procedures

12-Lead ECG

Indications:

- Complaints of chest pain or atypical symptoms suggestive of ACS (nausea, palpitations, SOB, dizziness, syncope, weakness)
- Electrical Injuries
- Suspected cardiotoxic overdose
- Suspected severe electrolyte derangement
- Cardiac arrhythmia

- Attach patient to monitor
 - Shave chest (as necessary)
 - Apply electrodes
- Enter demographic information (age, first/last name, DOB)
- Transmit ECG to the receiving ED
- Download/Attach ECG to the PCR



Basic

Lead Placement Reference

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 mid-clavicular line
V4R – Right 5th intercostal space at mid-clavicular line
V5 – Level with V4 at left anterior axillary line
V6 – Level with V5 at left mid-axillary line

- Obtain serial 12-lead ECGs
- Continuously monitor ECG

If meets ST segment elevation MI (STEMI) criteria

- Transmit to STEMI facility
- STEMI Alert (*patient is believed to need emergent PCI*)
 - 2 or more continuous leads with:
 - STE ≥ 1 mm limb leads with reciprocal depression and/or
 - STE ≥ 2 mm precordial leads with reciprocal depression and/or
 - Relative STE ≤ 1 mm with reciprocal changes with QRS voltage ≤ 5 mm

If STEMI criteria met

- Transport to STEMI facility or call for advanced intercept

If any other interpretation

- Transport per Patient Destination Policy

Paramedic

Assisted Ventilation/Bag Mask Ventilation

Indications:

- Hypoxia uncorrected by passive high FiO_2
- Ineffective minute ventilation
- Respiratory insufficiency/failure
- BVM ventilation

Contraindications:

- Mask— inability to obtain a mask seal
- Oral/Facial/mandibular disfigurement
 - Edentulousness with/without emaciation

Pearls & Pitfalls:

If mask ventilating

- Ensure EtCO_2 waveform for every breath
- Reposition patient head if no waveform
- Do not utilize BURP/Sellick's maneuver to prevent gastric filling
- Position ETSN with 2-hand mask seal to prevent gastric filling

If advanced airway

- Ensure EtCO_2 waveform for every breath
- After initial placement confirmation, avoid excessive ventilation rates/pressures
- Be vigilant for tube migration/dislodgment the duration of placement and for all patient moves
- Disconnect BVM for loading/unloading into the ambulance

Ventilation Rates:

Adult:

Cardiac Arrest:

- 30:2 compression to breath ratio
- ##### Perfusing:
- Titrate to $\text{SpO}_2 \geq 94\%$ and eucapnia (as appropriate)

Pediatric:

Cardiac Arrest:

- 15:2 compressions to breath ratio
- ##### Perfusing:
- 20 breaths per minute

Neonates:

Cardiac Arrest:

- 3:1 compressions to breath ratio
- ##### Perfusing:
- 30-60 breaths per minute

Procedure

- Position for patency
 - Ear-to-sternal notch (ETSN)
 - Up to 2 NPAs $\pm$ OPA (as appropriate)
 - Obtain **strong** face-Mask seal (preferred 2 rescuer technique)
 - Thenar grip or
 - E-C "Clamp"
 - Squeeze bag
- (confirm 4 phase EtCO_2 waveform every breath)

Thenar Grip



EC "Clamp"



If wheezes present

- Continue Albuterol/Ipratropium where applicable in protocol

Capnography

Indications:

- Respiratory distress (*diff. breathing, or requiring ≥ 2 lpm O₂*)
- Decreased LOC/somnolence
- Trending: Perfusion/respiration
- Advanced airway use (ETT and SGA)
- Narcotic/benzodiazepine/sedative administration

Contraindications:

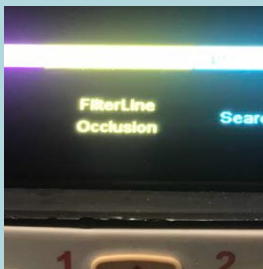
None

Pearls & Pitfalls:

- Clogging of the detector should prompt appropriately aggressive airway clearance by use of suction (strongly consider removing any inserted device)
- An advanced airway or BLS airway adjunct should be removed and reattempted if CO₂ waveform absent
- EtCO₂ alone cannot detect right main stem intubation, confirm lung sounds after 4-phase waveform every ETT placement
- Be vigilant for tube migration/dislodgment the duration of placement and for all patient moves

Airway in place *or* During mask ventilation:

Clogged Detector

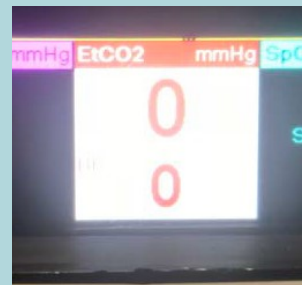


- Suction airway immediately
- Replace detector

If no noted 4-phase waveform after 1 detector swap

- Remove airway device
- Ventilate by different device/method

Malpositioned tube/no ventilation



If SGA LT, ETT, OPA, BVM

- Remove device
- Reposition airway
- Ventilate by different device/method

Causes: 0 mmHg EtCO₂

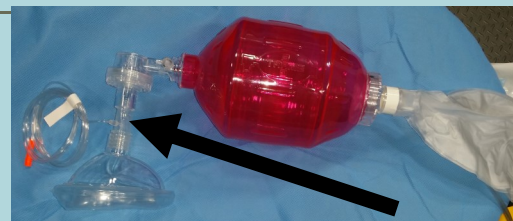
- 1 Loss of airway e.g. *apnea, failed tube, dislodged tube*
- 2 Loss of circulation e.g. *witnessed cardiac arrest, massive PE, exsanguination, RV rupture*

Side Stream Nasal Cannula

- Connect EtCO₂ detector line to machine
- Apply nasal cannula

Bag Mask Ventilation

- Connect EtCO₂ detector line to machine
- Insert "in-line" detector between the Bag-Valve and Mask
- Ventilate per Bag Mask Ventilation/Assisted Ventilation Procedure
- Appreciate 4-phase EtCO₂ waveform for every breath



"In-Line" EtCO₂ with Advanced Airway

- Connect EtCO₂ detector line to machine
- Insert "in-line" detector between the Bag-Valve and advanced airway
- Ventilate per Bag Mask Ventilation/Assisted Ventilation Procedure
- Appreciate 4-phase EtCO₂ waveform for every breath

Cold Water Immersion (CWI)

Indications: → Temp $\geq 104^{\circ}\text{F}$ <u>AND</u> AMS Contraindications: → Evidence of major trauma → Suspected infectious cause	Pearls & Pitfalls: → In cases of very short transport times, evaluate if the benefits of rapid transport outweigh delay of CWI initiation. There may still be a time-lag for setup in the ED. Provide ED early pre-notification of need CWI. → If ICE bag unavailable, may use patient transport tarp (MegaMover), stretcher cover or non-medical plastic tarp/sheet.	Basic
Procedure: • Remove from environment and initiate/continue active cooling measures if not already completed <i>If ice immediately available on scene</i> • Proceed with CWI <i>If ice available in timely manner</i> • Determine fastest method for obtaining ice: → Request EMS or FRO resource with ice → Send clinician to nearby establishment (e.g., gas station, restaurant, grocery) with ice access → Detour to nearby establishment with ice access • Place defibrillation pads and ensure full monitoring • Place patient in Immersion Cooling Emergency (ICE) bag on the stretcher • Protect airway and fill ICE bag with ice and cool/cold water or saline ($\sim 1\text{-}2\text{ L}$) to cover ≥ 2 inches of the patient's body. Zip bag (or wrap tarp) to mid-chest. Continue to circulate ice bath for maximal cooling. • Check temperature after 10 minutes • Criteria to discontinue CWI → Core (rectal) temp $\leq 102^{\circ}\text{F}$ or improved mental status		
<i>If uncontrolled shivering occurs during cooling, see Hyperthermia/Heat Stroke</i>		Par-

Basic

Par-

Contact Precautions/Personal Protective Equipment (PPE)

Procedure:

- Explain the reason for use of isolation equipment
- Wear gloves, gown, and eye protection
- Wash hands after leaving the care area
- Splash precautions (goggles/face shield) for suction, intubation, nebulizer updrafts etc.

If standard precautions

- Don the following PPE
 - Disposable exam gloves
 - Goggles/face shield for any airway procedures or patient with active cough
 - Impermeable gown for any situation likely to generate splash/liquid exposures
 - Place surgical mask on patients who are coughing

If contact precautions indicated

- Don the following PPE
 - Disposable exam gloves
 - Goggles/face shield for any airway procedures or patient with active cough
 - Impermeable gown

If droplet precautions indicated

- Don the following PPE
 - 2 Sets of Disposable Exam Gloves
 - Disposable surgical mask
 - Goggles/Face Shield
 - Impermeable gown

If airborne precautions indicated

- Don the following PPE
 - 2 Sets of Disposable Exam Gloves
 - N95 Respirator
 - Goggles/Face Shield
 - Impermeable gown
 - Utilize viral filter, if available, when performing basic or advanced airway management

If special respiratory precautions indicated

- Don the following PPE
 - 2 Sets of Disposable Exam Gloves
 - N95 Respirator
 - Goggles/Face Shield
 - Impermeable gown
 - Boot/Shoe covers

If ebola/viral hemorrhagic fever precautions indicated

- Don the following PPE
 - *Gloves*
 - *PAPR* (Powered Air-Purifying Respirator)
 - *Coverall*

PROCEDURES

Emergency Childbirth

Indications:

Childbirth/labor

Contraindications:

None

Pearls & Pitfalls:

- Inspect perineum for crowning on all pregnant females reporting symptoms of labor
- Prepare for splashing fluids; sterile gloves, gown, mask/glasses

Childbirth:

- Administer oxygen as appropriate
- Place patient in tilted Left Lateral Position if not crowning
- Visually inspect perineum for crowning
- If delivery imminent or in process, do not initiate or continue transport
- Prepare OB kit and area for delivery and position mother (lithotomy)

Lithotomy Position



As the head delivers:

- Use a gloved hand to control speed of head delivery
- Suction the mouth then nose with suction bulb if:
 - Amniotic fluid is not clear
 - Obvious obstruction to spontaneous breathing or if positive pressure ventilation required
- Address umbilical cord around newborn neck if present:
 - If cord loose around neck:* Attempt to pull cord over infant's neck
 - If cord tight around neck:* Clamp cord × 2 (2-inches apart), cut between clamps, and continue
- Apply gentle downward traction for the top shoulder to deliver with head *sandwiched* between both palms
- Apply gentle upward traction for the bottom shoulder to deliver with head sandwiched between both palms

If delivery fails to progress after head delivers (suspected shoulder dystocia)

- Hyperflex maternal hips via supine knee-chest position (McRobert's maneuver)
- Apply firm suprapubic (not fundal) pressure to attempt to dislodge shoulder
- After complete delivery place the newborn on maternal abdomen or level with the mother's uterus
- Address umbilical cord
 - If infant is vigorous and mother is stable:* delay cord cutting 30-60 seconds
 - Clamp and cut the umbilical cord (minimum 6-inches from the neonate 2-inches apart) *unless already done*
- Dry and cover newborn — start with head, then body
 - If term birth, strong cry, regular respiratory effort, and good tone:* Place infant on mother's chest skin-to-skin
- Assess for maternal bleeding, and, assess for signs of placental separation (*Lengthening cord, pelvic pain, etc.*)
 - If not already done,* encourage the mother to attempt breastfeeding to aid in bleeding control
 - If bleeding present or placenta delivers* perform fundal massage (*vigorous massage of fundus watching for uterine tone/decreased bleeding*)
 - Direct pressure for excessive bleeding from birth canal tears

Breech:

Delivering the legs, abdomen, and umbilical cord:

- Allow fetus to deliver to level of umbilicus
 - After umbilicus is visualized extract 4-6 inch loop of umbilical cord
- Gently extract legs downward after buttocks are delivered

Delivering the shoulders:

- Gently align the fetus' shoulders anterior-posterior to the mother with the infant's face pointing laterally
- Gently guide fetus upward to deliver the posterior shoulder
- Gently guide fetus downward to deliver the anterior shoulder

Delivering the head/neck:

- Rotate the fetal face or abdomen AWAY from the maternal pubis after the shoulders are delivered

Upon delivery of the neck:

- Place gloved finger up into infant's mouth to keep head flexed AND
- Apply gentle pressure to the occiput with the other hand to aid in neck flexion AND
- Apply gentle upward traction on the body to aide in delivery of the head

Endotracheal Intubation/Video Laryngoscopy (UEScope)

Indications:

- Respiratory failure
- Need for airway protection
- Adult cardiac arrest after failed SGA

Contraindications:

- Non-cardiac arrest patients if DSI parameters are not met
- Pediatric patients per definition

Definition of an Intubation Attempt:

- Insertion of a laryngoscope blade into the mouth with the intent of performing ETI (regardless of whether a ETT/bougie is placed in the mouth).
- Does not include laryngoscopy for foreign body removal

Pearls & Pitfalls:

- Intubation is prohibited if DSI parameters ($\geq 94\%$ x 3 min, SBP ≥ 100 mmHg) are not met in non-cardiac arrest patients, and will not be tolerated.
- DSI is required for all intubations not in cardiac arrest
- Upload of the VL (UEScope) file is required
- Do not interrupt CPR to intubate
- Avoid damage to teeth and soft tissue by using gentle, controlled laryngoscope movements
- Maintain manual in-line cervical spine precautions if suspected cervical spine injury, may open c-collar during intubation
- SALAD (Suction Assisted laryngoscopy & Airway Decontamination) technique should be used for all attempts with emesis or other airway contamination to ensure clear VL optics and visual field and reduce aspiration.

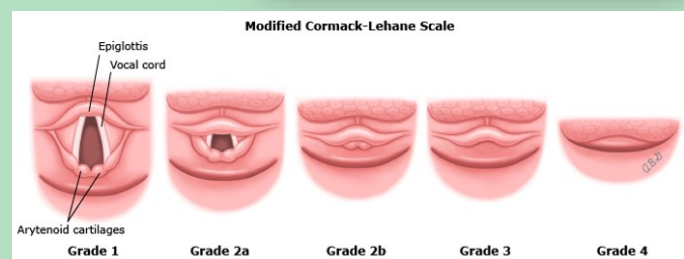
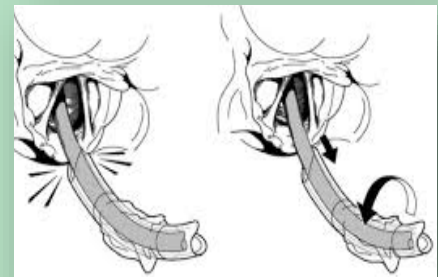
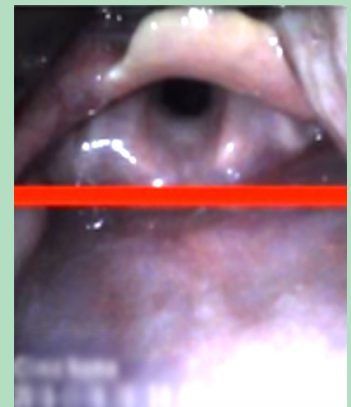
- [Invasive Airway Preparation](#)
- Utilize [Intubation Checklist](#)
- External Laryngeal Manipulation (ELM) under guidance from laryngoscopist

- Ensure proper positioning
- Select appropriate UEScope blade for patient size and attach to monitor
- Assure UEScope device is on and recording
- Open patient's mouth using scissor technique (index/thumb)
- Suction airway before blade insertion and PRN during intubation
- Insert blade midline along the tongue and identify the epiglottis (do not deliver tube if unable to visualize *epiglottis*)
- Insert blade into vallecula and lift to view vocal cords

Perform head-lift or ELM to maximize view PRN

If continuous emesis or other airway contamination build-up

- SALAD Park maneuver - Remove suction from right side, place catheter into left side of mouth behind intubator's left hand, place tip in proximal esophagus.
- Deliver bougie and thread ETT over bougie
- If resistance to ETT passage, rotate ETT clockwise or counterclockwise
- Check insertion depth and inflate ETT cuff
- Remove bougie first and then VL device
- Confirm placement:
 - Primary: 4-phase EtCO₂ ≥ 5 mmHg for ≥ 5 breaths
 - Secondary Confirmation:
 - Two-provider visual confirmation
 - Bougie "hold-up"
 - Bilateral lung sounds
 - Absent/diminished epigastric sounds
 - "Misting" in tube
- Secure ETT and continue to monitor placement with EtCO₂ waveform



External Cardiac Pacing

Indications:

Bradycardia associated with:

- Hemodynamic instability
- End organ dysfunction
- Hypotension

Adult: SBP ≤ 90 or relative $\downarrow$ BP

Pedi: SBP $\leq 70 + (\text{age in years} \times 2)$, or 90 if ≥ 10 years

Contraindications:

- Severe hypothermia (core temp $\leq 90^\circ$ F)

Pearls & Pitfalls:

- Consider underlying profound electrolyte disturbance if unable to achieve capture or if high energy settings required (seek [OLMC](#) for guidance)

As time allows:

- Administer sedative agent
(use caution until hypotension is corrected)

- Sedative agent, as appropriate per protocol
- Attach ECG monitoring electrodes (required for demand pacing)
Secure electrodes to wire connector/patient with sturdy tape/kling
- Adjust view to lead with most upright QRS
- Apply pads to patient's chest
+++Do not place pads over implanted devices+++
- Select "PACER" function as per device manufacturer recommendations
- Set pacer rate, as follows:

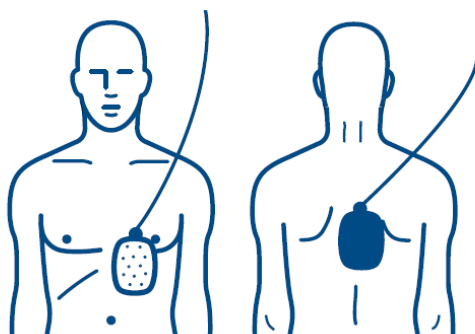
Age	0-36 Months	36 months - 12 years	> 12 years
Rate	120 ppm	100 ppm	70 ppm

- Press/select "START" or depress the "PACER" button
- Increase output in 10 mA increments till capture is noted or maximum output is reached
- Verify both markers of capture present:
 - Electrical capture – pacer spike immediately followed by wide QRS complex with tall broad T-wave
 - Mechanical capture – palpable carotid and/or femoral pulse; variable presence - pulsatile SpO2 matching pacing rate and increase in EtCO2
- Increase rate in 10 bpm increments if low cardiac output
- Observe for signs of improved hemodynamics
- Treat other causes for poor hemodynamics

If pacing ongoing at emergency department (ED) handoff

- Do not allow removal of pads/leads or discontinuation of EMS pacing until ED pacing established, or ED clinician determines pacing may be discontinued
- ED staff should apply ED pads, set ED pacer rate above the EMS pacer rate, and then gradually increase ED pacer output (mA) until electrical/mechanical capture at higher rate is confirmed, EMS pacing may then be removed.

Anterior/Posterior Pad Placement



Gastric Tube

Indications:

Gastric distention impeding effective ventilation

Contraindications:

History of esophageal tears

Ingestion of caustic substances

Pearls & Pitfalls:

- Do not let gastric tube insertion interrupt airway confirmation
- Do not hesitate to remove a SGA if EtCO₂ waveform is lost

Use with SGA designed to allow gastric tube placement

If suspected gastric inflation

- Remove the gastric tube from the packaging, then, using the tube, measure the distance from: nare-to-ear and ear-to– xiphoid process, noting the length at which to insert the tube to
- Prior to insertion, thoroughly lubricate gastric tube and partially insert through the gastric lumen
- Follow Supraglottic Airway procedure, ensuring waveform confirmation of placement
- Advance the gastric tube through the gastric lumen to the depth noted by the earlier measurement
- Using a 60 cc ‘cath-tip’ syringe, inject air thought the gastric tube while verifying the presence of “bubble” sounds over the epigastrium
- Following confirmation of sounds over epigastrium, aspirate with the syringe, looking for gastric contents

If insertion was successful

- Secure with tape to the SGA
- Attach gastric tube to suction intermittently at 30-40 mmHg

Use with Endotracheal Tube

If suspected gastric inflation

- Remove the gastric tube from the packaging, then, using the tube, measure the distance from: nare-to-ear and ear-to– xiphoid process, noting the length at which to insert the tube to
- Advance the gastric tube at a downward angle into the oropharynx to the depth noted by the earlier measurement
- Using a 60 cc cath-tip syringe, inject air thought the gastric tube while verifying the presence of “bubble” sounds over the epigastrium
- Following confirmation of sounds over epigastrium, aspirate with the syringe, looking for gastric contents

If insertion was successful

- Secure with tape
- Attach gastric tube to suction intermittently at 30-40 mmHg

Highly Contagious Infectious Disease

- Upon notification of a response to or awareness of a patient with HCID
- Don personal protective equipment before entering scene (do not remove until after patient contact ends)
- Minimize potential exposure
 - Only one EMS provider should approach the patient and perform the initial screening from at least 6 feet away from the patient.
 - Keep other emergency responders further away, while assuring they are still able to support the provider with primary assessment duties.
 - Confirm screening criteria:
 1. Does the patient have any of the following symptoms?
 - a. Fever or chills
 - b. Headache, joint pain, or muscle aches
 - c. Weakness or fatigue
 - d. Stomach pain, diarrhea, or vomiting
 - e. Abnormal bleeding
 - AND
 2. Recent exposure to an individual with a confirmed HCID and/or travel to a region with a known outbreak of an HCID, or if known public health emergency (e.g., COVID, Ebola, Monkeypox).

If patient remains a person under investigation

- Follow agency HCID notification process
- Remove and keep nonessential equipment away from the patient, so as to minimize contamination, on the scene and in the ambulance.
 - Medical equipment used on patients should be disposable whenever possible
Including manual BP cuff and manual suctioning (if necessary).
 - Transfer cardiac monitor and other equipment to supervisor before transporting.
- Follow disease specific Medical Directives regarding the performance of invasive procedures that may be required for patient stabilization.
 - Minimize aerosolizing procedures to what is necessary while wearing appropriate PPE for airborne precautions
 - If patient is in cardiac arrest contact OLPG immediately for guidance on possible WOR.
- Notify receiving hospital as soon as possible
- Outfit ambulance as per HCID procedure.
- Notify PD to secure scene and keep any exposed persons in same household sequestered until Public Health assesses
- Documentation of patient care should be done after EMS providers have completed their personal cleaning and decontamination of equipment and vehicle.
- EMS documentation should include a listing of public safety providers involved in the response and level of contact with the patient (for example, no contact with patient, provided direct patient care). This documentation may need to be shared with local public health authorities.
- Stay with the patient in the ambulance until the hospital staff is prepared to receive the patient.
- EMS Personnel will doff PPE at the hospital, using the hospital protocol and monitor.

Influenza Vaccination

Indications:

- Adults: One dose if vaccinated for the seasonal influenza in any previous year
- Children 6 mo - 9 yr: Two doses separated by at least 28 days if they have never received a seasonal influenza vaccination in the past, or if their first seasonal influenza vaccine was last year and they only received one dose

Contraindications:

- Age less than 6 months
- Any acute illness more severe than a common cold
- Oral (or equivalent) temperature elevation $\geq 101.5^{\circ}\text{F}$
- History of Guillian-Barre
- Serious allergic reaction to previous dose of influenza vaccine
- Serious allergic reaction to egg or egg products

Pearls:

- Prepare vaccines in a clean, designated medication area away from where the patient is being vaccinated and away from any potentially contaminated items. This is to prevent inadvertent contamination of the vial through direct or indirect contact with potentially contaminated surfaces or equipment.
- Different manufacturers have additional allergy contraindications which may include gentamicin, neomycin, polymyxin, thimersol, gelatin, and latex. It is ESSENTIAL that anyone utilizing this protocol understands the packaging insert(s) and contraindications for the specific manufacturers' product(s) being used

Procedure:

1. Provide vaccinee appropriate CDC Vaccination Information Statement (VIS)
2. Vaccinee to complete the top section of the Vaccine Administration Record (VAR)
3. Review completed VAR
 - a. VAR serves as written consent for the vaccination
 - b. If a potential vaccinee answers "yes" to any of the questions, the potential vaccinee should not receive the vaccination until cleared by a physician
4. Prepare and verify appropriate dose
 - a. For persons 3 years of age and older:
 - i. 0.5 mL for all inactivated influenza vaccine products
 - b. For children 6–35 months of age:
 - i. 0.25 mL for Fluzone Quadrivalent
 - ii. 0.5 mL for FluLaval Quadrivalent
5. The injection site (L or R deltoid or L or R anterolateral aspect of thigh) should be identified and cleansed with alcohol pad
6. A 21-25 gauge needle 1 inch long should be used for adults
 - a. In patients less than 60 kg, a 5/8 to 3/4 inch needle is preferred
7. Insert the needle at a 90-degree angle and stretch the skin flat between thumb and forefinger
8. The appropriate dose of vaccine should be delivered in the muscle in a quick, steady manner

Intramuscular (IM) Injection

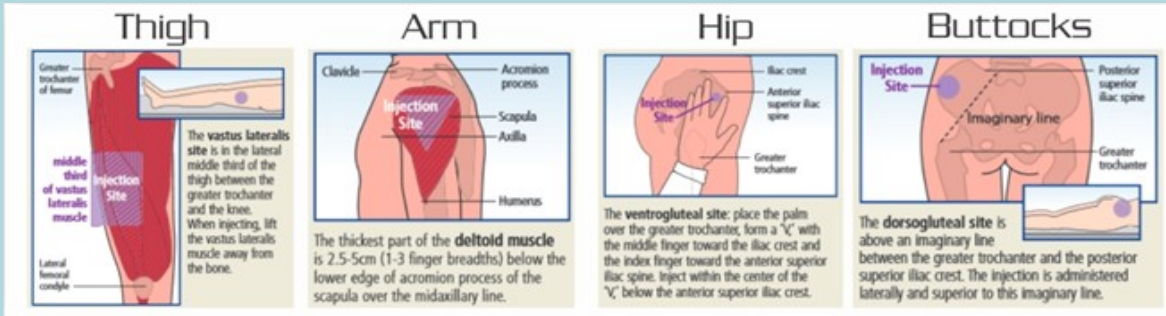
Indications (Basic providers):

Severe allergic reaction

Indications (Assist/Advanced):

Medication administration where applicable in protocol

- Select the appropriate administration site:



- Prepare appropriate equipment:

Deltoid Muscle	Dorsogluteal Muscle	Ventrogluteal Muscle	Vastus Lateralis Muscle
Type: IM	Type: IM	Type: IM	Type: IM
Size: 23 to 25 G, 5/8" to 1"	Size: 20 to 23 G, 1 1/2" to 3"	Size: 20 to 23 G, 1 1/2" to 3"	Size: 23 to 25 G, 5/8" to 1 1/2"
Range: 0.5 to 2 mL	Range: 1 to 5 mL	Range: 1 to 5 mL	Range: 1 to 5 mL

- Stretch skin and hold tight. Hold the syringe at a 90 degree angle to the skin and insert the needle into the muscle tissue with a steady sharp and controlled motion
- Releases the tension on the skin
- Administer correct dose of medication at the proper push rate

Intraosseous (IO) Access

Indications:

- Cardiac Arrest
- Severe illness/injury and at risk for cardiac arrest

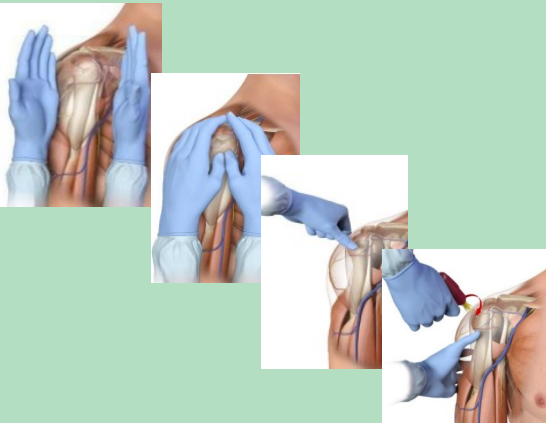
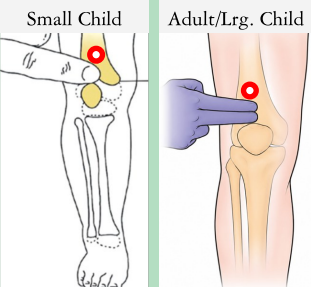
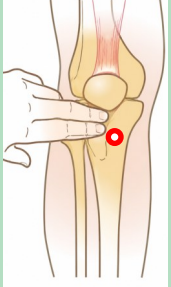
Contraindications:

- Available peripheral access
- Hemodynamic stability
- Artificial/prosthetic joint at insertion site
- Fracture proximal to site (consider alternate site)
- Excess tissue/swelling/edema at insertion site
- Infection at insertion site (consider alternate site)
- Known bleeding disorder

Pearls & Pitfalls:

- Tibial site should not be first-line attempt
- Distal tibia (medial malleolus) site is not approved.
- Syringe bolus as needed (Adult 20 ml/Pedi 10 ml)
- If conscious explain the need for the procedure

- Select site and appropriate needle size (per chart below); attach needle to driver.
- Stabilize extremity to prevent rotation.
- Insert by hand at proper angle until bone contacted.
- Confirm ≥ 5 mm (1 black line) visible above skin. If not, use larger needle or alternate site.
- Engage driver and drill until "pop/give" felt.
- Remove/dispose stylet.
- If pain-responsive and time allows, administer 2% lidocaine:
 - Adult: 40 mg slow IO, may repeat PRN x1 after saline flush at 20 mg
 - Pedi: 0.5 mg/kg slow IO (max dose 40 mg), repeat PRN x1 after saline flush at 0.5 mg/kg (max dose 20 mg)
- Flush with 10–20 mL syringe bolus; aspiration of marrow
 - Use pressure infuser/IV pump for flow.
- Dress site and maintain proper extremity position:
 - Distal femur: leg extended
 - Humeral: avoid abduction/external rotation; arm $\leq 45^\circ$
- Apply IO alert wristband.

Proximal Humerus (ADULT)	Distal Femur (ANY AGE)	Anterior Tibia (ANY AGE)
• Flex elbow 90°; palm down over abdomen. • Identify site as pictured below. • Insert at 45° toward feet. 	• Extend leg; identify MIDLINE site above patella: • Small child: 1 finger width • Adult/large child: 2 finger widths • Use caution to stay midline, ensure foot is pointed vertically. • Insert at 90° to skin. 	• Identify anteromedial proximal tibia. • 2 finger widths below patella on flat tibial surface. • Insert at 90° to surface. 

Needle Size Guide

Color	Pink	Blue	Yellow
Length	15 mm	25 mm	45 mm
Weight	7-90 lbs	≥ 90 lbs	≥ 90 lbs (with excess tissue)
Appropriate Sites	Pedi: Tibial/ Distal Femur	Adult & Pedi: Tibial/ Distal Femur	All Humeral Adult: Tibial / Distal Femur

Intravenous & Central Line Access

Indications:

Need or potential need for

- Fluids
- Medications

Invasive line Access

- Cardiac arrest
- Hemodynamic instability
- Currently accessed

Pearls & Pitfalls:

- Utilize other methods after 2 peripheral attempts if hemodynamically unstable
 - External Jugular Access
 - EZ-IO device
 - Invasive line access
- Contact [OLMC](#) for access of hemodialysis catheters

Peripheral access (extremity or truncal)

- Apply band tourniquet to extremity
- Identify suitable venipuncture site
 - Straight vein segment
 - Intact, healthy skin
- Select an appropriate size angiocatheter
 - Adult:
 - Hemodynamic instability, continuous infusions
 - 18 g or larger
 - Medication administration only
 - 20 g max preferred
 - Pediatric:
 - Hemodynamic instability, continuous infusions
 - 18 g max
 - Medication administration only
 - 22 g max preferred
- Use aseptic technique to clean site
- Apply traction to skin above intended puncture site
- Insert angiocatheter into the vessel
 - Decrease angle of insertion on noting “flash” of blood
 - Advance needle/angiocatheter slightly
- Retract/lock the needle
- Attach line/lock
 - Flush line/administer fluids

External Jugular Vein Access

- Lay patient with head dependent if possible
(*raise legs if unable to make head lower than torso*)
- Identify the external jugular vein
 - Examine both sides of the neck
 - Use flat, straight vein segment
- Select venipuncture site highest point above clavicle possible
- Select appropriate size angiocatheter
 - Adult:
 - 18 g or larger
 - Pediatric:
 - 20 max preferred
- Use aseptic technique to clean site
- Apply traction to skin above intended puncture site
- Insert angiocatheter into the vessel
 - Decrease angle of insertion on noting “flash” of blood
 - Advance needle/angiocatheter slightly
- Retract/lock the needle
- Attach line/lock
 - Flush line/administer fluids

Peripherally Inserted Central Catheter (PICC) Access :

- Select the largest lumen available
- Remove cap on the end of the catheter
- Prep the end of the lumen with an alcohol swab
- Aspirate 10 ml of blood with the syringe and discard
- Flush the lumen with 10 ml normal saline using a 10 ml syringe
- Attach IV administration set and observe for free flow of fluid
- If shock is not present, allow fluid to run at rate of 10 ml/hour to prevent the central line from clotting

Equipment:

10 ml syringe (empty), 10 ml syringe (normal saline) and sterile gloves (if available)

Multi-Lumen Catheters

(PICCs and Boviacs can have one, two, or three lumens)

If unable to aspirate blood

- re-clamp the lumen and attempt to use another lumen (if present)

If clots are present

- Do not utilize

If catheter does not flush easily

- If unable to flush, clamp line attempt different port (if available)

PICC line will generally flush more slowly and with greater resistance than a typical intravenous catheter



Invasive Airway Preparation

Indications:

- Insertion of any invasive airway device
- Respiratory failure
- Need for airway protection

Pearls and pitfalls:

- Failure to prepare for intubation puts patients at unnecessary risk for cardiac arrest.
- Ensure all needed equipment is out in the airway manager/assistants field of view to avoid unnecessary delays in retrieving critical equipment.

Position patient:

- HOB @ 30° elevation (non-cardiac arrest)
- Ear-to-Sternal-Notch (ETSN) OR Neutral position (if suspected trauma)
- Consider ramping shoulders for obese patients

Preoxygenate/denitrogenate (non-cardiac arrest):

- NC at flush rate AND

If adequate respirations

- Set BVM @ flush rate, form tight mask seal, and allow spontaneous respirations to continue. Ensure PEEP ≥ 5 mmHg.

If inadequate respirations

- Perform Max BVM with assisted ventilations



Assemble Kit Dump:

Place the following items, within the field of view

- UEScope tested and verified to be recording
- Suction device & catheter
 - Tested, catheter tucked under right side of HOB
- Bougie (curved)
- 2 sizes ET tubes (out of packaging, ready for use)
- 2 sizes of laryngoscope blades (estimated size and next largest)
- 10 mL syringe
- Backup airway device (SGA)
- Tube tamer
- Cricothyrotomy kit or TTV kit (unopened, in view)
- In-line EtCO₂ cannula (if not already in use)

- Evaluate airway and identify/palpate surgical cricothyrotomy anatomic landmarks
- Evaluate risk for hypotension during invasive airway management

If hypotensive see,

- [Circulatory Support](#)

If high-risk (borderline BP, tachycardia, Shock Index >1.0)

- Prepare Push Dose Epinephrine (PDE)

If hypotension not anticipated

- Ensure PDE components (i.e., epinephrine, syringe, flush, needle) are readily available

If DSI, see [Delayed Sequence Intubation](#)

If RSA, see [Rapid Sequence Airway](#)

Basic

CCP

All clinicians are responsible for ensuring the [Intubation Checklist](#) is completed prior to DSI

PROCEDURES

Manual Defibrillation

Indications:

- Ventricular Fibrillation
- Pulseless Ventricular Tachycardia

Contraindications:

- None

Pearls & Pitfalls:

- Withhold defibrillation until removed from standing water/conductive surfaces (metal)
- Hands on defibrillation not recommended
- Do not place defibrillator pads over implanted devices

- Begin chest compressions
- Apply defibrillator pads
- Continue chest compressions during defibrillator charging
- Count down 10 seconds from intended shock delivery (aloud)
- Inform entire resuscitation team prior to shock
- Allow no more than 3 seconds of interruption prior to, and post, defibrillation
- Immediately resume CPR 2 minutes

Basic

During uninterrupted CPR

- Charge defibrillator
- Count down 10 seconds from intended shock delivery (aloud)
- Inform entire resuscitation team prior to shock
- Choreograph team to keep peri-shock pause ≤ 3 sec total
- Attempt additional shock after 2 full minutes of CPR *as indicated*

Electrical Dose Reference

Adult	Pediatric/Infant
Highest energy setting available	Begin at 2 J/kg
<i>No change: CPR performance, or energy if shocks from ICD</i>	increase by 2 J/kg q 2 min (max 10 J/kg or max energy setting)

Paramedic

Double Sequential External Defibrillation (DSED) - Adult Patients Only

- Ensure one set of pads is in Anterior-Lateral (A-L) and another in Anterior-Posterior (A-P) position, and that both defibrillators are within reach of a single resuscitation team member.
 - Application of 2nd pads should be performed after a rhythm analysis and shock/no shock, and should not delay compressions >10 sec. Use the CPR puck only from the initial set (typically A-L position) of pads and monitor capturing EtCO₂. Ensure A-P pads do not cover the CPR puck.

If AED (Rapid Shock) Mode Used (Basic credential level may perform)

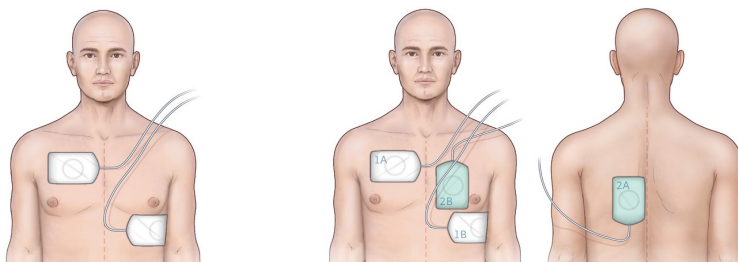
- Maintain the “main” defibrillator in AED mode, use the 2nd defibrillator in manual mode.
- Pre-charge manual mode defibrillator 10 seconds prior to AED rhythm analysis
- Using a single provider deliver defibrillations sequentially (A-L followed by A-P) with a 1 sec pause between shocks
- If “no shock advised”, dump the manual monitor’s charge

If Manual Mode Used

- Maintain both defibrillators in manual mode
- Pre-charge both defibrillators 10 seconds prior to rhythm analysis
- Using a single provider deliver defibrillations sequentially (A-L followed by A-P) with a 1 sec pause between shocks
- If rhythm analysis reveals a non-shockable rhythm a single provider should dump the charge on both defibrillators

Anterior-Lateral

DSED



Mechanical Compression Device (MCD)

Indications:

- Adult medical cardiac arrest and any of the following:
 - At least 15 min of monitored professional rescuer CPR has occurred
 - Transport is necessary
 - ROSC has been achieved and the device is being pre-positioned for transport
 - Critical shortage of manpower prevents adequate Pit Crew CPR

Contraindications:

- Traumatic cardiac arrest w/o ROSC or transport
- Application will delay CPR > 10 sec
- Patient size prevents proper application

Pearls & Pitfalls:

- Consider withholding MCD placement until transport or ROSC if able to maintain quality uninterrupted manual CPR
- Minimally-interrupted manual CPR is better than perfect CPR after an unacceptable pause (> 10 sec)

- Follow Pit Crew Procedure to ensure high quality chest compressions prior to placement
 - Ensure monitor/AED applied and rhythm check $\pm$ defibrillation occurs prior to MCD placement

- Perform Pre-application Timeout

S: Size - determine if device will fit on patient per manufacturer recommendations

T: Turn on - ensure the device powers on and battery charge is adequate

A: Abort - voice abort procedure; ensure all providers are comfortable with procedure

R: Roles - ensure all providers understand their role in application procedure

S: Strap - abort procedure if neck strap unavailable

- Power on device, prepare, and stage all equipment near patient's head
- Position providers at patient's right and left shoulders, and above patient's head

AT THE NEXT 2 MIN RHYTHM CHECK (DO NOT DELAY CPR > 10 SEC)

- Each provider lift patient by respective shoulder
- Third provider place the back piece below the patient's back, under the armpit
- Resume manual chest compressions immediately

AT THE NEXT 2 MIN RHYTHM CHECK (DO NOT DELAY CPR > 10 SEC)

- Apply device arms to back plate and lock in place
 - LUCAS - Swing arm over and clamp on both sides
 - DefibTech - Clamp on both sides and insert piston
- ADJUST the piston suction cup down to the midsternum, and lock in place (Manufacturer dependent)
- Activate device using correct compression protocol (30:2) and ensure appropriate rhythm/pulse check every 2 minutes
- Apply neck and wrist straps
- Utilize marker to indicate puck and piston placement on chest

If patient's size not appropriate for MCD application

- Perform high-quality manual chest compressions
- Continue Pit Crew Procedure and other treatment as appropriate

Mechanical Ventilator Procedure (Hamilton-T1)

For patients in cardiac arrest after invasive airway placement and confirmation:

- Use CPR mode after adding appropriate sex/height information
- Continue to use 30:2 CPR for adults, 15:2 CPR for pediatric patients with ventilations only occurring during pauses
- During pause in compressions, press and hold “lung” button for 1 second to trigger ventilation.
 - Use ratio of 1 second of ventilation, 2 seconds, then repeated 1 second ventilation before resuming compressions.
 - Confirm full breath is being given by monitoring volume graph:
- If volume graph appears to be a vertical line, like an ECG pacemaker spike, the ventilate button is not being held down.
- If ROSC occurs, switch patient to ASV mode.

For patients needing non-invasive ventilation:

- Use NIV-ST mode after adding appropriate sex/height information
- Use default settings with FiO₂ 100%, PEEP of 5 mmHg and Pressure Support of 15 mmHg.
 - For ongoing hypoxia:
 - Assure FiO₂ is 100%. If not, titrate up FiO₂
 - Increase PEEP in 5 mmHg increments
 - Target SpO₂ >94%
 - For increased work of breathing or patient discomfort with NIV:
 - Increase Pressure Support in 2mmHg increments, titrating to comfort and work of breathing

For patients with an invasive airway in place:

- Use ASV mode after adding appropriate sex/height information
- For hypoxia:
 - Assure FiO₂ is 100%. If not, titrate up FiO₂
 - Increase PEEP in 5 mmHg increments
 - Target SpO₂ >94%
- For increased work of breathing or patient discomfort with ventilations:
 - Assure adequate sedation
 - Increase Pressure Support in 2mmHg increments, titrating to comfort and work of breathing
- For EtCO₂ >60 with history/suspicion of obstructive airway disease:
 - Increase Minute Volume from 100% in increments of 20%
- Wait at least 5 minutes in between adjustments to allow patient to adapt to new settings

For patients undergoing pre-oxygenation during DSI process:

- Use Pre-Oxygenation mode (NIV-ST) after adding appropriate sex/height information
- Give Ketamine per DSI protocol
- Appropriately position patient in head up position and ear to sternal notch position
- Apply NPAs as patient tolerates
- Apply nasal cannula with flush-rate oxygen
- For ongoing hypoxia:
 - Assure FiO₂ is 100%. If not, titrate up FiO₂
 - Increase PEEP in 5 mmHg increments
 - Target maximum SpO₂
- After achieving physiologic goals and administering paralytic:
 - Monitor EtCO₂ and volume graph to assure ventilator takes over ventilations from spontaneous ventilations as paralytic takes effect and patient stops breathing
- Once ready to begin intubation attempt, place ventilator in standby mode, remove mask while continuing apneic oxygenation at flush rate, and begin intubation attempt.
- If attempt is successful:
 - Attach ventilator circuit (with EtCO₂ attached and connected) and place mode in ASV mode, using ‘last patient’ feature to carry over sex/height settings.
 - Titrate FiO₂ down with goal SpO₂ ≥94%
- If attempt is unsuccessful:
 - Place mask back on patient, return ventilator to “Pre-Oxygenation” mode and assure appropriate ventilations are administered.
 - If ventilations not delivered, default to manual ventilations

Non-invasive Positive Pressure Ventilation (NIPPV)

Indications:

- Respiratory distress with resistant hypoxia
- Awake, able to cooperate for device application
- Ability to wear adult size mask

Contraindications:

- Pending respiratory failure
- Penetrating chest trauma
- Suspected pneumothorax
- Uncontrolled/persistent vomiting
- Facial deformity (traumatic or anatomic) preventing mask seal

Pearls & Pitfalls:

- Utilize EtCO₂ monitoring, monitor for duration of placement
- Caution if patient unable to cooperate for procedure
 - Nausea/vomiting (retching/vomiting episodes)
 - Anatomic deformity (unable to create mask seal)
 - Risk of hemodynamic collapse
- Consider multiple causes for respiratory distress (pneumothorax/mediastinum, effusion, PE, etc.)
- Monitor trends in waveform capnography, CO₂ values, pulse oximetry, mental status, HR/BP
- q ≤ 5 min. reevaluation recommended for all monitoring/VS, document appropriately
- To increase FiO₂ when using NIPPV, consider additionally placing NC on patient as well

CPAP-only device (e.g. Flow-Safe II EZ)

- Maximize upright sitting position
- Connect oxygen tubing nipple to oxygen source
- Seal the mask to the patient's face using headpiece
- Turn on oxygen source
- Secure the face mask snugly to patient's face using head harness
- Slowly increase oxygen flow to roughly 15 lpm
- Check mask fit to patient and device connections for leaks
- Adjust the flowmeter until desired pressure is obtained

CPAP-Only Device Flow:-Pressure Reference

Approx. Flow Rate	Pressure
15 lpm	5 cmH ₂ O
20 lpm	7.5 cmH ₂ O
25 lpm	10 cmH ₂ O

BPAP (Bilevel positive airway pressure - e.g. Flow-Safe II+ BiLevel)

- Maximize upright sitting position
- Connect O₂ tubing nipple to oxygen source
- Turn on oxygen source
- Ensure device is in Bilevel mode by rotating the green switch to the Bilevel setting
- Secure the face mask snugly to patient's face using head harness
- Slowly increase oxygen flow to 15 LPM, to achieve goal IPAP of roughly 8-10 cm H₂O
- Check mask fit to patient and device connections for leaks
- Adjust EPAP knob until manometer reaches 5 cm H₂O during exhalation

→ Effective mask seal is required for device to shift into EPAP mode from IPAP mode

If simultaneous bronchodilators required

- Maximize upright sitting position
- Connect O₂ tubing nipple to oxygen source.
- Seal the mask to the patient's face using headpiece
- Turn on oxygen source
- Ensure device is set in CPAP mode-Green switch is set to CPAP
- Secure the face mask snugly to patient's face using head harness
- Slowly increase oxygen flow to 6 - 8 LPM
- Check mask fit to patient and device connections for leaks
- Adjust the flowmeter until desired pressure is obtained

→ Flow of 12 - 14 LPM is required to reach CPAP pressure of 8.5 - 10 cm H₂O

CPAP on CPAP/BPAP Device Flow:-Pressure Reference

Approx. Flow Rate	Pressure
10 lpm	6-7 cmH ₂ O
15 lpm	11-12 cmH ₂ O

BPAP on CPAP/BPAP Device Flow:-Pressure Reference

15 lpm	8-10 cmH ₂ O
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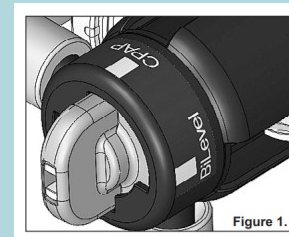


Figure 1.

Pelvic Binder

Indications:

- Mechanism suggestive of pelvic injury and obvious signs of pelvic injury/instability on physical exam
AND
- Signs of hemorrhagic shock (e.g. SBP < 90 and/or Shock Index ≥ 1)

Contraindications:

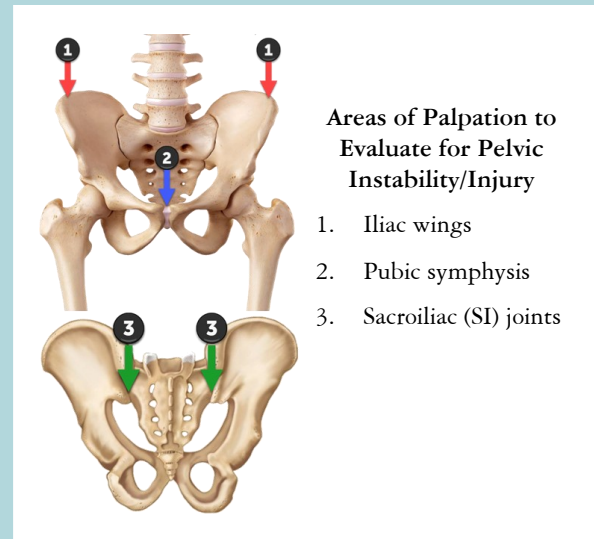
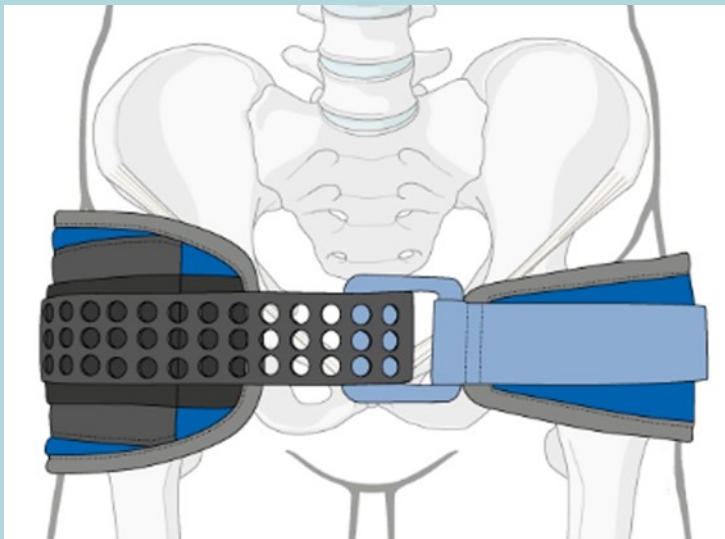
- Isolated proximal femur fracture (isolated “hip fracture”)

Pearls & Pitfalls:

- Low energy mechanisms (e.g. falls from standing) rarely cause unstable pelvic fractures
- Do not “rock” or “spring” the pelvis. Gently compress iliac wings to assess for instability. Palpate for tenderness at pubic symphysis, iliac wings, sacrum/sacro-iliac joints
- In reliable patients with no leg/spinal cord injury and no analgesia, a painless straight leg raise test may exclude a pelvic injury
- Avoid log-rolling, use scoop stretcher or slide techniques
- Consider in blunt traumatic arrest with MOI/findings of pelvic injury

Pelvic binder device

- Remove clothing from patient’s pelvic area
- Place the black side up beneath patient at the level of the greater trochanters
- Place black strap through buckle and pulls completely through
- Hold orange strap and pull black strap in opposite direction until buckle click is felt and heard (approx. 35 pounds of force)
- Maintain tension, immediately press black strap onto surface of the pelvic sling to secure



Improvised Pelvic Binder (no commercial device available)

- Remove clothing from patient’s pelvic area
- Place the material beneath patient with the ends out to either side at the level of the greater trochanters
- Pull each end to the front of the pelvis

If using a sheet and hemostats

- Tuck one end into the opposite side and hold still against force being applied to the other side
- Pull against the sheet on the untucked end with 150 Newtons of force (approximately 35 pounds)
- Maintain tension, secure in place with hemostats at the upper and lower edge of the sheet (ideally at least 2 at each edge for best securement)

If using a sheet only

- Cross ends over the anterior pelvis gripping the side of the sheet that came from the side you are on
- Mirror this action on both sides
- Pull against your assistant until there is a combined force of 150 Newtons (approximately 35 pounds)
- Maintain tension, twist sheet ends an additional rotation and tuck into the portion encircling the pelvis. Add tape for improved securement

Pericardiocentesis

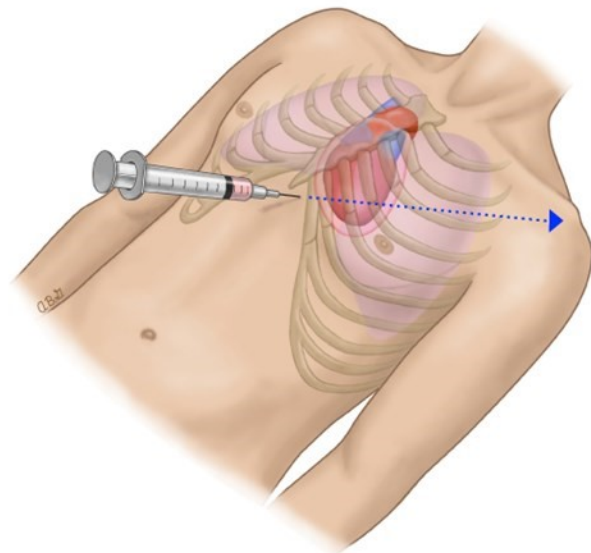
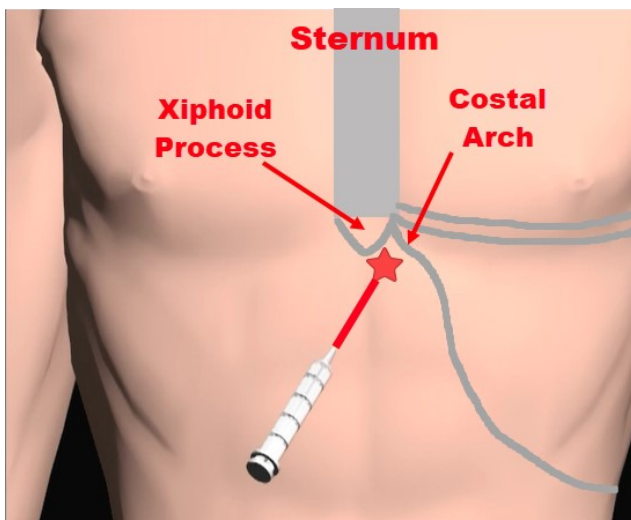
Indications:

- Traumatic circulatory arrest with suspected cardiac tamponade

Precautions:

- Directing too medially (toward sternum) or too steep ($>45^\circ$) carries a risk of right atrial or intra-abdominal puncture/injury.
- If multiple syringes of blood are removed, check position as overpenetration into atrial/ventricle may have occurred.

- Prepare equipment and appropriate PPE
 - Antiseptic swab
 - 20-mL syringe
 - 18-gauge spinal needle (remove and discard stylet, attach needle to syringe)
- Place on continuous ECG prior to procedure, if time allows
- Position the patient supine
- Expose and locate landmarks (xiphoid process and costal arch)
- Prepare site with antiseptic swab
- Insert needle 1 cm inferior to junction between left costal arch and xiphoid process
- Angle the needle between $15\text{-}30^\circ$, aimed toward the left shoulder
- Slowly advance needle while continuously aspirating/withdrawing plunger withdrawal stop once fluid aspirated
- Withdraw needle and redirect angle if no fluid aspirated
- Evacuate pericardium until resistance is met or pulses return
- Monitor for signs of tamponade recurrence, repeat procedure x1 PRN
- Contact [OLMC](#) if >2 pericardiocentesis required



Physical Restraint

Indications:

- Behavioral health emergency and/or agitation AND all other calming attempts have failed, which include at a minimum verbal de-escalation techniques.

Contraindications:

- Inadequate personnel to perform restraint process (including law enforcement)
- Use of EMS restraints for law enforcement detainment or arrest purposes only and no medical condition present

Exception:

- The procedure below does not apply to patients who are in custody/under arrest and are not experiencing a behavioral health emergency and/or agitation that would require EMS restraints or sedation. However, precautions regarding patient positioning and law enforcement officer presence apply to all patients in rigid restraints.

Pearls & Pitfalls:

- Rigid restraints (e.g. handcuffs, flex cuffs) should generally be transitioned to commercial restraint devices for combative patients. In the rare situations this cannot be performed, the following requirements will be adhered to:
 - Handcuffs should be double locked (prevents unintended tightening)
 - Patient shall not lie or recline on handcuffs
 - The law enforcement officer must accompany the patient to the hospital in the transporting EMS vehicle or be immediately available.
- Documentation should include:
 - Efforts attempted prior to use of restraints
 - Reason for use of restraints
 - Type and position of restraints used
 - Time restraints were placed
 - Continuous monitoring
 - Neurovascular checks
- **Patients shall never be restrained or be allowed to position themselves in the prone position, or in a position that compromises the airway or constricts the neck or chest.**
- **Do NOT use:**
 - Hobble/hogtie (hands and feet tied behind back) positioning
 - Devices such as backboards, splints, or other devices placed on top of the patient
 - Non-commercial restraint devices (e.g. triangular bandages, bandage rolls)

Procedure:

- Attempt less restrictive means of managing the patient.
- Request [EMS Supervisor](#) and law enforcement assistance.
- Ensure sufficient personnel available to physically restrain the patient safely.
- Restrain the patient using commercial restraint devices
 - Place in a lateral or supine position.
 - Restrain the extremities at the wrists and ankles.
 - Ensure stretcher straps across the chest allow for adequate chest excursion.
- Elevate the head of the stretcher to 30-degrees or more, if possible.
- Administer oxygen, regardless of SpO2
- Maintain constant observation by a Assist or Advanced provider, which includes:
 - Direct visualization of the patient
 - Frequent blood pressure and continuous ECG, pulse oximetry and EtCO2 monitoring
- Perform neurovascular checks (pulse, motor, sensation) of the restrained extremities q15-minutes, with first check immediately after placement.
- Ensure adequate personnel for transport of the patient

PROCEDURES

Pit Crew (2 Responders)

COMPRESSION NOTES

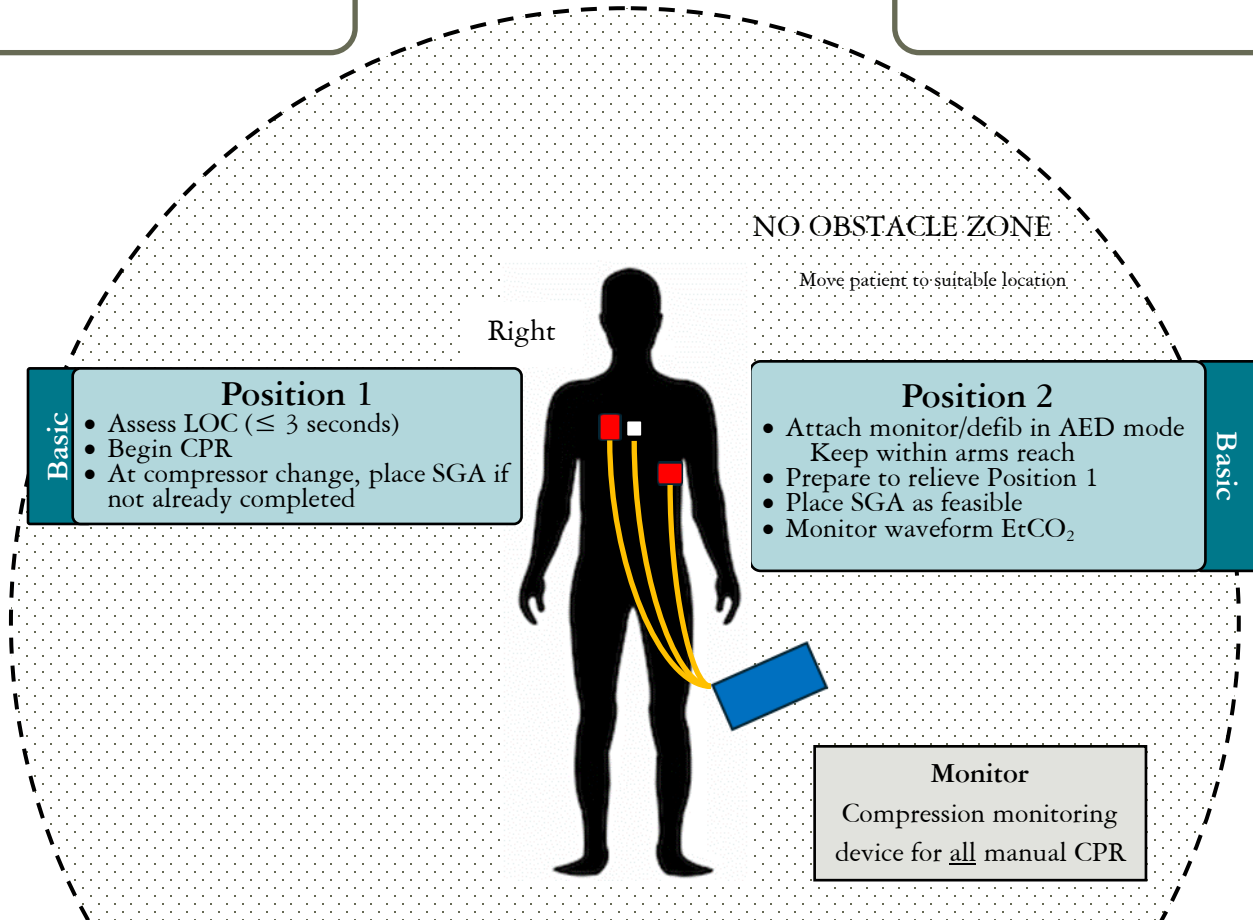
- *"Hover Hands"* over patient chest (every compressor ☐ @ all rhythm checks)
- Continue Compressions during Charge
- Rate: 30:2 @ 100-120 cpm
- Depth: 2-2.5 in
- Pauses: < 10 sec.
- Lean: 0

DEFIBRILLATION:

- Witnessed Arrest*— Immediately apply, analyze, and shock (AED) as advised
- Unwitnessed*— 2 minutes CPR *THEN analyze*

AIRWAY

- Rapidly place SGA with waveform EtCO₂ (no PEEP) as soon as feasible
- Ventilate only during 30:2 pause
- EtCO₂ verification with first and every breath



After every 2 minutes of CPR

Position 1&2 alternate compressor and ventilator roles
Medication deferred until > 2 providers on-scene

Rhythm Analysis

**"No Shock Advised" or Asystole/
PEA**

- Immediately resume CPR

"Shock Advised" or VFIB/VT

- Resume CPR
- Charge defib.
 - Clear patient
 - Deliver shock
 - Immediately resume 2 min. CPR

PROCEDURES

Pit Crew (3 Responders)

COMPRESSION NOTES

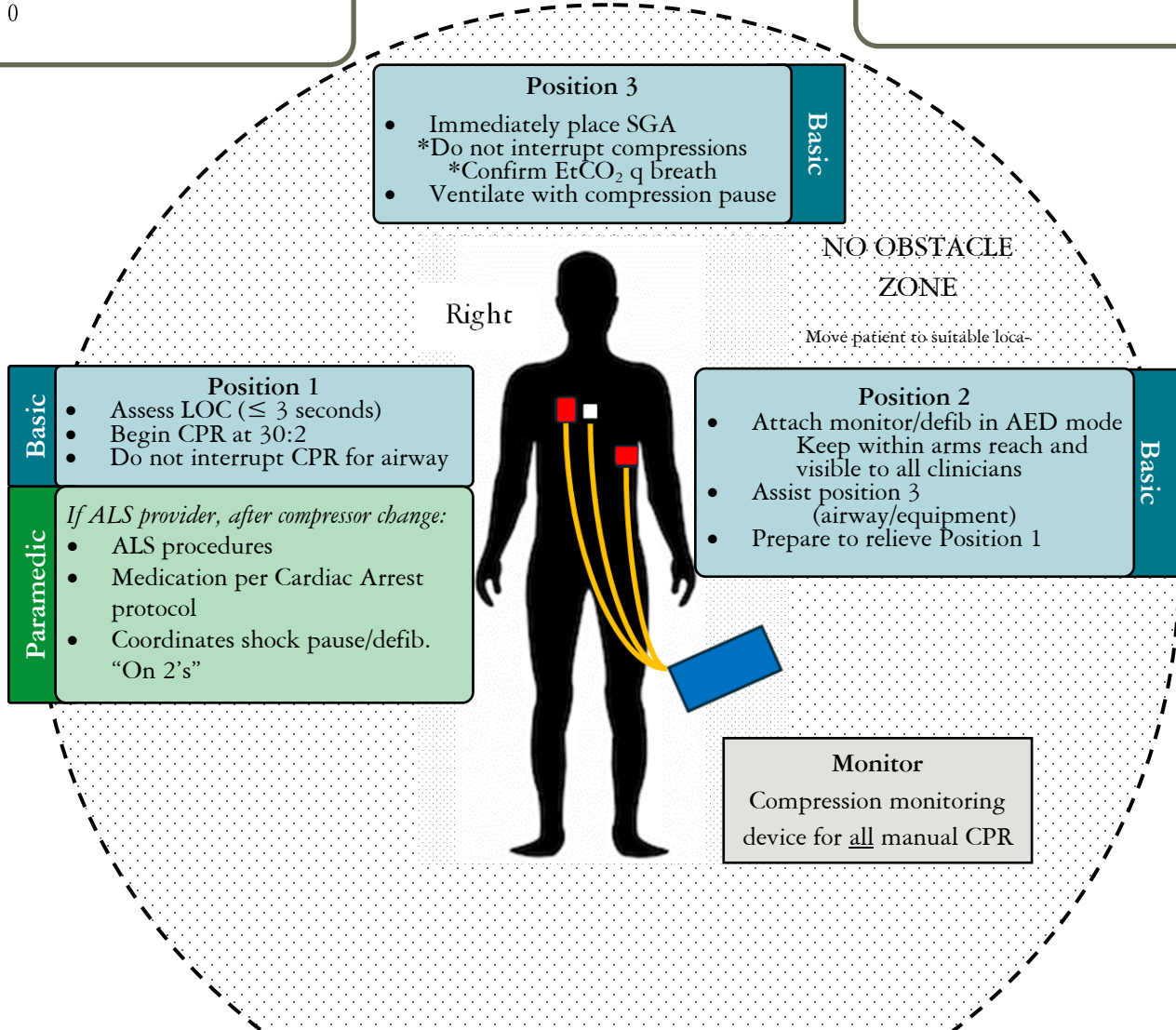
- “Hover Hands” over patient chest (every compressor ☐ @ all rhythm checks)
- Continue Compressions during Charge
- Rate: 30:2 @ 100-120 cpm
- Depth: 2-2.5 in
- Pauses: < 10 sec.
- Lean: 0

DEFIBRILLATION:

- Witnessed Arrest**— Immediately apply, analyze, and shock (AED) as advised
- Unwitnessed**— 2 minutes CPR THEN analyze

AIRWAY

- Immediate SGA placement
 - Do not stop CPR to place SGA
- Ventilate only during 30:2 pause
- EtCO₂ verification with first and every breath



After every 2 minutes of CPR

Position 1&2 alternate compressor role
(additional resources on-scene may rotate into *Position 1&2*)

Medication as indicated per protocol

Rhythm Analysis

“No Shock Advised” or Asystole/PEA

- Immediately resume CPR

“Shock Advised” or VFIB/VT

- Resume CPR
- Charge defib.
 - Clear patient
 - Deliver shock
 - Immediately resume 2 min. CPR

PROCEDURES

Pit Crew (4 Responders)

COMPRESSION NOTES

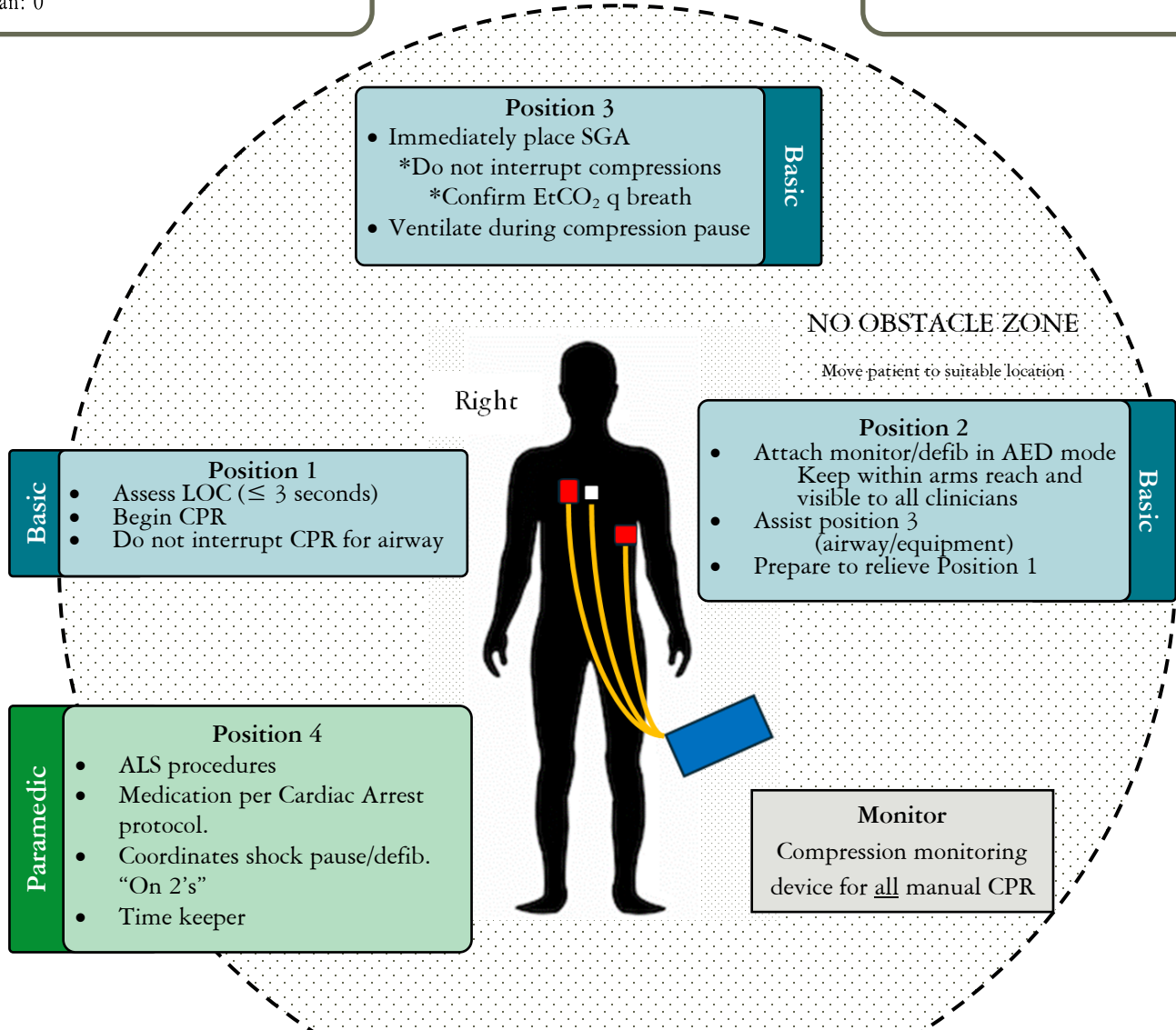
- “Hover Hands” over patient chest (every compressor ☐ @ all rhythm checks)
- Continue Compressions during Charge
- Rate: 30:2 @ 100-120 cpm
- Depth: 2-2.5 in
- Pauses: < 10 sec.
- Lean: 0

DEFIBRILLATION:

- Witnessed Arrest*— Immediately apply, analyze, and shock (AED) as advised
- Unwitnessed*— 2 minutes CPR THEN analyze

AIRWAY

- Immediate SGA placement
 - Do not stop CPR to place SGA
- Ventilate only during 30:2 pause
- EtCO₂ verification with first and every breath



Rhythm Analysis

“No Shock Advised” or Asystole/PEA

- Immediately resume CPR

“Shock Advised” or VFIB/VT

- Resume CPR
- Charge defib.
 - Clear patient
 - Deliver shock
 - Immediately resume 2 min. CPR

After every 2 minutes of CPR

Position 1&2 alternate compressor role
(additional resources on-scene may rotate into *Position 1&2*)

PROCEDURES

Pit Crew (5+ Responders)

COMPRESSION NOTES

- "Hover Hands" over patient chest (every compressor ☐ @ all rhythm checks)
- Continue Compressions during Charge
- Rate: 30:2 @ 100-120 cpm
- Depth: 2-2.5 in
- Pauses: < 10 sec.
- Lean: 0

DEFIBRILLATION:

- Witnessed Arrest**— Immediately apply, analyze, and shock (AED) as advised
- Unwitnessed**— 2 minutes CPR THEN analyze

AIRWAY

- Immediate SGA placement
- Do not stop CPR to intubate/place SGA
- Ventilate only during 30:2 pause
- EtCO₂ verification with first and every breath

Basic

Position 4 Code Assistant

- Assist Position 3 with airway
- Assist with code activities
- DSED
- Swapping compressors
- MCD placement after 15 mins

Position 3

- Immediately place SGA
- *Do not interrupt compressions
- *Confirm EtCO₂ q breath
- Ventilate only during compression pause

Basic

Right

NO OBSTACLE ZONE

Move patient to suitable location

Basic

Position 1

- Assess LOC (≤ 3 seconds)
- Begin CPR
- Place MCD after 15 minutes
- Do not interrupt CPR for airway

Position 2

- Attach monitor/defib in AED mode
- Keep within arms reach and visible to all clinicians
- Prepare to relieve Position 1
- Monitor manager
- Place MCD after 15 minutes

Basic

Paramedic

Position 6

Intervention Paramedic

- ALS procedures
- Medication per Cardiac Arrest protocol

Monitor

Compression monitoring device for all manual CPR

Basic

Position 5 Code Commander

- Utilize Code Commander TAC Sheet
- Coordinate all positions
- Gather PMH and HPI
- Down time
- Cause of the arrest
- Coordinates shock pause/defib. "On 2's"
- Time keeping

After every 2 minutes of CPR

Position 1&2 alternate compressor role
(additional resources on-scene may rotate into *Position 1&2*)

Medication as indicated per protocol

Rhythm Analysis

"No Shock Advised" or Asystole/
PEA

- Immediately resume CPR

"Shock Advised" or VFIB/VT

- Resume CPR
- Charge defib.
 - Clear patient
 - Deliver shock
 - Immediately resume 2 min. CPR

Basic

Position 7 Family Liaison (if available)

- Stay with family
- Keep them informed of resuscitation efforts
- Set expectations
- Handle death notification if necessary

Spinal Motion Restriction

AMBULATORY and Neurologically Intact

- Already self-extricated
- Already standing
- No Thoracic or Lumbar spinal tenderness

1. Place cervical collar
2. Bring stretcher as close as possible
3. Assist patient with pivoting & laying down in position of comfort (may elevate HOB if no thoracic/lumbar spine tenderness)
4. Secure patient to stretcher

OR

ALL OTHERS

1. Place cervical collar
2. Use device (KED/Vacuum Splint/Scoop stretcher/backboard*) to move patient to stretcher
3. Move patient with as little movement as possible, *maintain in-line stabilization*
4. Secure patient SUPINE to stretcher (tape & seat belts)
DO NOT leave EXTRICATION DEVICE in place

Basic

*Backboards and Scoop Stretchers are patient movement devices ONLY. DO NOT LEAVE IN PLACE FOR TRANSPORT

Suction

Indications: → Oral/nasal secretions and/or vomitus unable to be cleared by the patient themselves associated with any condition → Meconium aspiration of non-vigorous neonate (respiratory distress/persistent cyanosis)	Pearls & Pitfalls: → Avoid prolonged suction intervals, oxygenate if possible between attempts at clearing the airway → Avoid contaminating deep suction catheters <i>Rinse catheter often</i> → Avoid inducing vomiting with oral suction, especially for patients who are partially alert → Utilize commercial bite block or suction catheter between the molars when inserting hands in patient's mouth
Nasal Suction (French catheter) - Insert catheter (same technique as for nasal trumpet insertion) Stop insertion at depth of suspected location of blood/secretions/vomitus - Apply suction - Apply suction and spin the catheter while withdrawing (Slow removal when a pool of liquid is encountered until cleared)	
Suction Devices	
Perfusing (no CPR in progress): - Drain patient mouth Roll patient to side (maintain in-line cervical stabilization PRN) Remove large or obvious foreign matter with gloved hand - Sweep or scoop bulk material if visible in mouth - Suction mouth and pharynx on removal	CPR in progress (or unable to roll patient): - Open the patient's mouth <i>Scissor technique (thumb and index finger)</i> - Pinch/remove large or obvious foreign matter with gloved hand - Suction mouth and pharynx on removal
Tracheal Suction (ETT and Tracheostomy) - Measure catheter from stoma/adapter—to two fingers past sternal notch - Insert catheter to premeasured depth - Apply suction and withdraw in a spiral/spinning motion	

Basic

Supraglottic Airway - Air-Q3

Indications:

- First-line for adult and pediatric cardiac arrest
- Respiratory failure
- Need to protect airway

Contraindications:

- Known laryngectomy

Indications for Removal:

- Inability to confirm ventilation in ≤ 5 -breaths with waveform EtCO₂
- Significant gastric contents, secretions, or vomitus in the ventilation port, with absent EtCO₂ waveform

Definition of an Attempt

- Insertion of a supraglottic airway into the mouth

Pearls & Pitfalls:

- Most patients not in cardiac arrest should have RSA performed with ketamine +/- paralytic. In patients without gag and who are severely obtunded, RSA medications may be deferred.
- Assist/Advanced providers may opt to use the device as a primary airway.
- Endotracheal tube placement through Air-Q3 is prohibited
- Make best attempt at achieving SpO₂ $\geq 94\%$ prior to insertion (non-cardiac arrest)

SIZE GUIDE

Ideal Body Weight (IBW)	Air-Q3 Size	Max Gastric Tube Size
< 2 kg	0	5 Fr
2 - 4 kg	0.5	6 Fr
4 - 7 kg	1	8 Fr
7 - 17 kg	1.5	8 Fr
17 - 30 kg	2	10 Fr
30 - 60 kg	3	14 Fr
60 - 80 kg	4	16 Fr
> 80 kg	5	18 Fr

- Place patient in ear-to-sternal notch or neutral head position
- Suction airway as needed
- Lubricate external surface of device including the mask and ridges
- Consider pre-loading gastric tube into appropriate channel in device
- Open mouth and elevate the tongue (using mandibular lift)
- Place the front portion of the Air-Q3 mask between the base of the tongue and soft palate at slight angle
- Continue to insert the device into position within pharynx by gently applying inward/downward pressure
- Continue to advance until fixed resistance felt
- Confirm ventilation with 4-phase waveform EtCO₂ for every breath (use subjective confirmation techniques as appropriate)
- Secure Air-Q3 using commercial tube tamer (use tape if proper tamer size unavailable)
- Place (or if pre-loaded, advance) gastric tube and connect to suction
- Continue to monitor placement with EtCO₂ waveform

*AirQ3 is shorthand for the Air-Qsp3G

Surgical Airway & Transtracheal Ventilation

Indications:

→ Failure to oxygenate and ventilate

Procedure Selection:

- Surgical airway: patient greater than 35 kg body weight or does not fit Broselow tape
- Transtracheal ventilation: patient less than 35 kg or Broselow tape size green or smaller

Definition of an Attempt

Insertion of a needle or scalpel through the neck

Pearls & Pitfalls:

- Follow Advanced Airway Preparation Procedure
- Utilize aseptic technique for all invasive procedures
- Continue to attempt to maintain oxygenation by BVM during the procedure

Surgical Airway

- Position supine-45° head elevation, head extended upward/backward
- Stabilize the larynx with non-dominant hand (index finger and thumb)
- Stabilize the thyroid cartilage with the provider's non-dominant hand
 - Feel for the depression at the bottom border of the thyroid cartilage
 - Stabilize the wrist/forearm of the incising hand on top of the patient's chest
- Make a vertical incision to the skin on the midline of the trachea large enough to identify the cricothyroid membrane with your finger
- Make a vertical stab incision into the cricothyroid membrane, maintain the scalpel position inside the incision
- Rotate the scalpel horizontally, and incise the cricothyroid laterally to the patients left and right side, leaving the scalpel inside the incision
- Pass a bougie alongside the scalpel pointing the tip toward the patient's feet feeling for hang-up to confirm tracheal placement
- Slide a size 6.0 endotracheal tube over the bougie, rotating at the cricothyroid membrane if unable to pass, until just past the tracheal cuff
- Inflate the cuff via pilot balloon
- Secure with a commercial securing device
- Ventilate and confirm ventilation using EtCO₂; listen for lung sounds to rule out right main stem intubation

Transtracheal Ventilation (Pediatric ONLY)

- Position supine-45° head elevation, head extended upward/backward
- Stabilize the larynx with non-dominant hand (middle finger and thumb)
- Stabilize the thyroid cartilage with non-dominant hand (index finger)
 - Feel for the depression at the bottom border of the thyroid cartilage
 - Stabilize the wrist/forearm of the inserting hand on top of the patient's chest
- Puncture the cricothyroid membrane with a size 16-18G IV catheter, perpendicular to the trachea
- Maintain manual control of the IV catheter
- Orient the needle tip towards the patient's feet and advance the catheter until the hub is reached
- Attach the endotracheal tube connector from a size 3.0 ET tube
- Ventilate using an infant bag-valve-mask device
- Maintain manual control of the catheter until arrival at the hospital
- Attach ETCO₂ and confirm presence of waveform
- Deliver breaths until chest rise is noted, allow time for complete exhalation before next breath

Synchronized Cardioversion

Indications:

Tachycardia resulting in:

- Hemodynamic instability
- End organ dysfunction
- Hypotension; SBP ≤ 90 or relative $\downarrow$ BP

Contraindications:

- Unsustained/intermittent tachycardias

Pearls & Pitfalls:

- Withhold defibrillation until removed from standing water/conductive surfaces (metal)
- Hands on defibrillation can result in energy transfer to the provider
- Avoid implanted devices with defibrillator pads

As time allows:

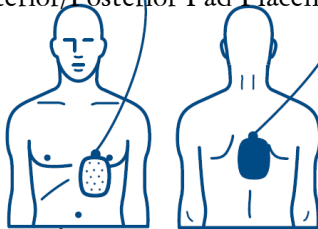
- Remove hair from pad
- Administer sedative agent
(use caution until hypotension is corrected)

- Attach ECG monitoring electrodes (required for demand pacing)
- Adjust view to lead with most upright QRS
- Apply pads to patient's chest
 - Use anterior-posterior placement for pediatrics
 - +++Do not place pads over implanted devices+++
- Activate the "SYNC" function
- Adjust the monitored lead until a marker is above each QRS
- Charge to the appropriate energy setting:

Adult	Pediatric/Infant
Highest energy setting available <i>No change (CPR or energy) for shocks from ICD</i>	0.5-1.0 joules/kg initial shock <i>Then</i> 2 joules/kg Shock

- Clear entire resuscitation team audibly
- Depress and hold the shock/discharge button till shock is delivered (expect delay)
- Evaluate rhythm/hemodynamic status, repeat as needed
- Treat other causes of hemodynamic instability
- Observe for signs of improved hemodynamics
- Treat other causes for poor hemodynamics

Anterior/Posterior Pad Placement*



* variations do exist, use as appropriate for situation

Anterior Pad Placement



Taser Removal

Indications:

Embedded Taser probes

Contraindications:

Probes located in:

- Face
- Eye
- Neck
- Nipple/areola
- Genitals or perineum

Any probe in the provider's judgment requiring excessive force to remove

Pearls & Pitfalls:

Risk communication with Law enforcement:

Underlying etiologies which prompted Taser use may result in any of the following, and patient may still be at risk for in-custody death:

- Hyperactive Delirium with Severe Agitation Arrhythmia/sudden cardiac arrest
- Rhabdomyolysis/kidney injury-failure

Procedure:

- Ensure crew and patient safety
- Stretch skin surrounding the probe site till tight

If the traditional probe was used

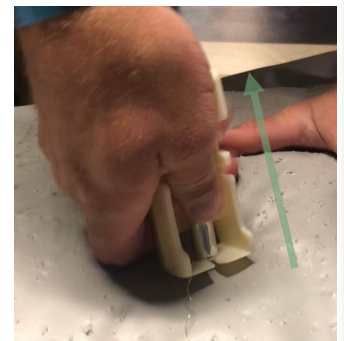
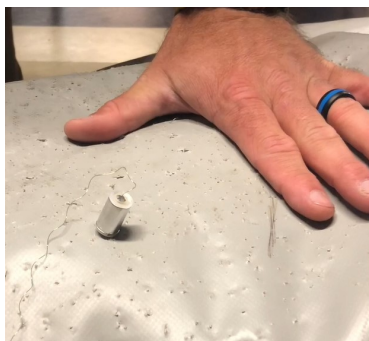
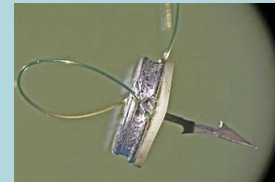
- Pull probe out of the skin in the opposite direction that it penetrated (use firm grip $\pm$ gauze)

If the flat probe style was used

- Use the probe removal tool pulling straight out the opposite direction the probe punctured the skin (do not pry the probe out against the skin)

Once removed successfully

- Clean and bandage puncture wound
- Discard probe in sharp safe container



Thoracostomy - Simple (Finger)

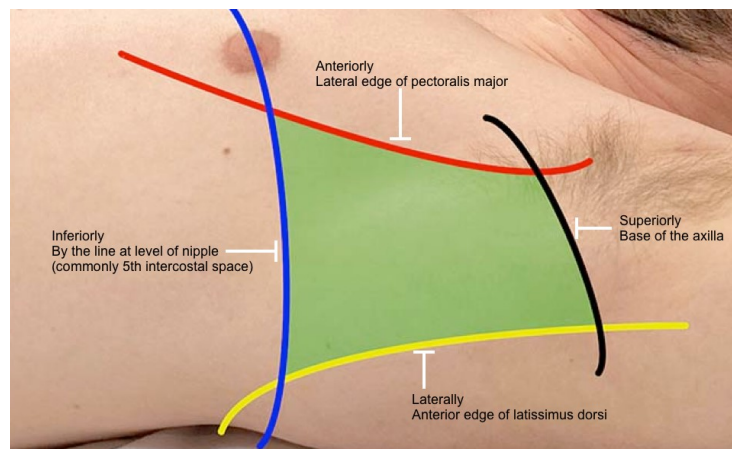
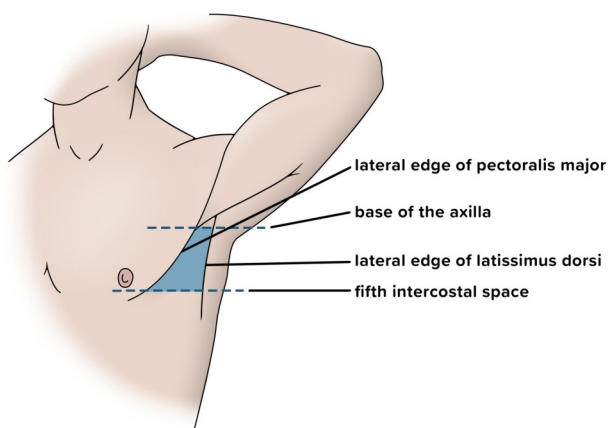
Indications:

- Traumatic circulatory arrest (TCA) or multiple failed needle decompressions

Precautions:

- For TCA - Perform as initial approach if CCP is immediately available, or after an unsuccessful needle thoracostomy prior to CCP care.
- Always err on placement higher (towards head) if landmarks uncertain. Location should be near underarm hair
- Cupping technique for landmark identification: Place your hand into axilla, 4th/5th webspace approximates insertion location

- Prepare equipment and appropriate PPE
 - Antiseptic swab
 - Scalpel
 - Curved “Kelly” hemostat
 - Gauze dressing
 - Apply monitor before if time allows; ECG, Waveform EtCO₂, NIBP q2 min
 - Position supine (arrest) or if non-arrest 45° upright, place or secure arm on side of procedure above patient’s head
 - Expose and locate landmarks within triangle of safety (4th or 5th intercostal space anterior-axillary line)
 - Prepare the incision site with antiseptic swab
 - Make a 1-2 cm horizontal incision over superior rib border at appropriate site
 - Bluntly dissect with index finger through subcutaneous tissues until intercostal muscles are reached and identify the rib above and below
 - Grip clamps with thumb and index finger 1-2 cm from the tip and while sliding OVER the rib puncture into pleural space
 - Open/spread hemostats while withdrawing them from the pleural cavity
 - Insert finger into the pleural space and sweep 360° (may omit if suspected displaced rib fracture)
 - Loosely cover site with non-occlusive gauze
 - Reevaluate clinical status
- If signs of recurrent pneumothorax*
- Remove gauze and resweep pleural space



Tourniquet

Indications:

- Extremity bleeding cannot be controlled with direct pressure

Contraindications:

- Wound over joint
- Junctional wounds

Pearls and Pitfalls:

- If the joint is the 2"-3" above the bleed, place the tourniquet above the joint.
- Placing the tourniquet in direct contact with the skin is preferred.
- Tourniquets can be placed over clothes but avoid placement over pockets containing any items.
- Caution to find the most proximal wound(s) on the extremity and place the tourniquet above, if in doubt place as high on the extremity as possible
- Do not wait for hemodynamic instability to apply a tourniquet
- Damage to the limb is unlikely if removed within several hours

- Place commercial tourniquet 2"-3" inches above the wound or as high as possible
- Tighten until hemorrhage stops and distal pulses are no longer palpable
- If initial tourniquet fails ensure tightness and placement of first tourniquet and consider placing second tourniquet more proximal or if no room below and as close to the first one as possible.
- Document time of tourniquet application
- Do not cover tourniquet
- Dress wounds and consider hemostatic agent or wound packing
- Reassess for bleeding frequently
- Consider pain management
- Do not remove or loosen once hemostasis achieved

Tracheostomy Replacement Procedures

Indications:

BVM

- Respiratory failure (acute or chronic)
- Cardiac arrest
- Suspected airway obstruction

For exchange/replacement

- Failure of 3'Cs of troubleshooting to establish tracheostomy patency
- Complete tracheostomy dislodgement
- Massive tracheostomy hemorrhage and uncuffed tracheostomy

Contraindications for exchange/replacement:

- Fresh Tracheostomy (<7 days)

Pearls & Pitfalls:

- Utilize PPE for all tracheostomy care
- Positioning is critical, tracheostomies are initially placed in hyperextended neck positioning
- If using bougie, trim/cut off coudé (hooked) tip
- Decision to replace/exchange should weigh risks/benefits (age of tracheostomy, anticipated difficulty)
- Fresh tracheostomies have significant risk of false-tract creation with reinsertion attempts

Basic

BVM Ventilation

• If tracheostomy patent:

• Assisted Ventilation/BVM Procedure

- Position airway in slight extension
- If bagging via face
 - Perform Max BVM
 - Gently occlude tracheostomy stoma to prevent air leak

• If bagging via stoma (tracheostomy removed and failure of ventilation or laryngectomy)

- Use pediatric mask (ideally circle) and adult sized reservoir/bag
- Apply mask over the trach stoma
 - May need to hold mouth/nose closed to prevent air leak from upper airway
 - Squeeze bag (confirm 4-phase EtCO₂)

Tracheostomy Replacement/Exchange

- Preoxygenate to SpO₂ ≥ 94% if possible
- Position the patient supine with neck hyperextended, consider padding under shoulders

If no device in-situ

- Maintain sterility of equipment as possible

If replacement tracheostomy available

- Remove inner cannula if present and insert tracheostomy obturator
- If cuffed tracheostomy, assess integrity of cuff
- Lubricate tracheostomy
- Consider “preloading” tie or securing device to one side of tracheostomy
- Gently insert tracheostomy initially at a 90-degree angle and then slowly rotate back to a neutral position and curve downward into the trachea in a sweeping motion
- Mild resistance as balloon passes through stoma may occur

If resistance, consider

- Repositioning and inspection of tracheostomy
- Smaller sized tracheostomy (back-up trach)
- Do not advance tracheostomy and discontinue if marked resistance.
- Insert trach gently until seated level with skin
- Inflate cuff with 10 mL (or manufacturer recommended volume)
- Remove obturator and replace inner cannula (if present and required)

If replacement tracheostomy unavailable

- Utilize 6.0 ETT or size appropriate for patient and lubricate tube
- Insert until thick black line just deep to the skin
- Inflate cuff with 10cc of air and gently withdraw the bougie
- Secure device and verify placement with EtCO₂ and bilateral breath sounds

If tracheostomy is in-situ to facilitate exchange

- Prepare equipment tracheostomy or ETT as above
- No obturator required
- Insert bougie through original tracheostomy, do not insert fully
- While maintaining bougie remove original trach
- Insert new device over bougie
- Inflate cuff, as appropriate

Paramedic

Traction Splint (Sager)

Indications:

Mid-shaft femur fracture

Contraindications:

- Injuries close to the knee or involving the knee itself
 - Hip or pelvic injuries
 - Lower leg or ankle injuries
 - Partial amputation or avulsion with bone separation while only marginal tissue connects the distal limb
-
- After exposing the injured area, check the patient's pulse and motor and sensory function. Adjusts the thigh strap so that it lies anteriorly when secured
 - Estimate the proper length of the splint by placing it next to the injured limb
 - Fits the ankle pads to the ankle
 - Places the splint at the inner thigh, apply the thigh strap at the upper thigh, secure snugly
 - Tighten the ankle harness just above the malleoli. Snug the cable ring against the bottom of the foot
 - Extend the splint's inner shaft to apply traction at about 10% of body weight
 - Secures the splint with elasticized cravats
 - Checks pulse, motor, and sensory functions.

US-Guided Peripheral Intravenous Access

Indications:

- Multiple unsuccessful peripheral IV attempts AND need for emergent fluids and/or medication
- Anticipated difficult IV access (e.g., clinical condition, edema, or body habitus)
- Patient request due to prior difficult access when IV access is otherwise indicated

Contraindications:

- Infection, burn, wound or thrombophlebitis at the site.
- Known deep vein thrombosis of the targeted extremity
- Restricted extremity (AV-fistula, same-sided mastectomy)

Precautions:

- Do not delay IO access for emergent access and treatments for POCUS IV attempts
- Do NOT attempt central vein access veins (internal jugular (IJ), subclavian, or femoral). External jugular access is permitted only when if able to distinguish from IJ and carotid artery.
- Use approved probe cover, tegaderms may damage the US probe.

Equipment:

- POCUS & device • Deep access 2.5" IV catheter • IV start kit • Probe cover • Sterile US gel • Saline flush

Select the Site:

- Apply the tourniquet proximally on extremity
- Scan the extremity using standard ultrasound gel.
- Select a compressible, nonpulsatile vein with an adequate straight course.
 - Identify and avoid veins with nearby arteries, nerves, clots, valves, and bifurcations.

Prepare the Site

- Clean off nonsterile gel.
- Prepare skin with antiseptic
- Apply the probe cover and sterile ultrasound gel.

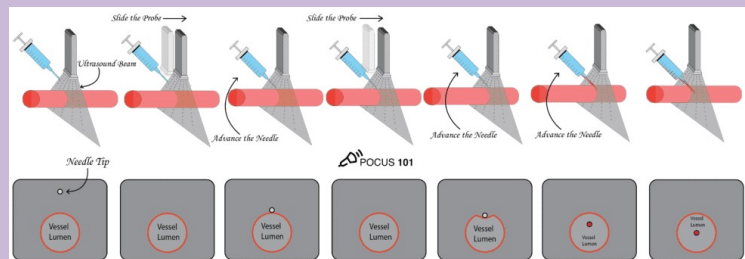
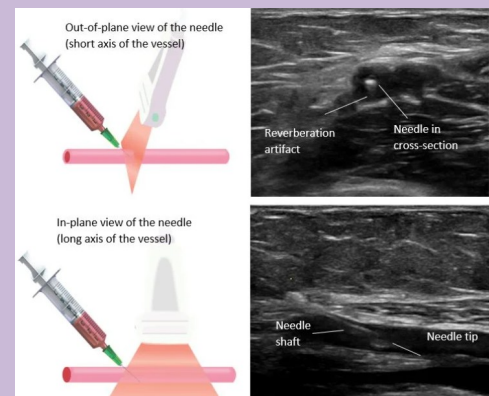
Cannulation Technique

Short-Axis

- Center the targeted vein on the screen. Probe indicator is to operator's left.
- Insert the catheter 2-3 mm from the probe at ~30-45 degrees.
- Creep method: Move probe forward until the needle tip disappears, advance needle until tip reappears, repeat until the vessel is entered.
- Lower the angle and advance the catheter 1-2 cm within the vessel before threading the catheter.

Long-Axis

- Center the targeted vein in short axis, then rotate the probe 90 degrees. Probe indicator is towards operator.
- Align the vessel, needle, and ultrasound beam.
- Insert the catheter at the center of the short end of the probe.
- Continuously visualize needle tip as it enters and advances within the vessel.
- Advance the catheter 1 to 2 cm within the vessel before threading.



Confirm and Secure

- Release the tourniquet and remove the needle.
- Connect extension tubing and flush with saline.
- Confirm blood return and saline infusion without pain, resistance, swelling, or extravasation.
 - Remove catheter if any of these indicators are present or pulsatile flow (+/- bright red colored blood) observed
- Confirm catheter position with ultrasound when feasible.
- Secure with a transparent dressing

Documentation

- In addition to standard documentation of IV access, include methods of confirmation.
- Upload of POCUS confirmation image or video is mandatory

Pharmacopeia

Medication	Class
Acetaminophen	Analgesic/Antipyretic
Indications:	Contraindications:
→ Acute Pain Management → Fever	→ Active and severe hepatic disease → Severe hepatic impairment → Hypersensitivity to acetaminophen

Protocol, Dosage, and Administration

Acute Pain Management,

Adult: 1 g PO

Pedi: 15 mg/kg PO (Max dose 1 g)

Adult: 15mg/kg IV (Max dose 1 g)

Pedi > 2 years of age: Same as Adult

Fever, ≥ 100.4

Adult: 1 g PO

Pedi: 15 mg/kg PO (Max dose 1 g)

Adult: 15mg/kg IV (Max dose 1 g)

Pedi > 2 years of age: Same as Adult

Medication	Class
Adenosine	Endogenous Nucleoside
Indications:	Contraindications:
→ Conversion of SVT:PAT to sinus rhythm → Identification of supraventricular rhythms (SVT:PAT vs. A. Flutter)	→ Irregular wide complex tachycardia → Second or third degree block → Hypersensitivity to adenosine

Protocol, Dosage, and Administration

Tachycardias: Stable, Regular, Narrow Complex

Adult: 12 mg rapid IV/IO

Repeat PRN,18 mg x 1

Pedi: 0.1 mg/kg rapid IV/IO

Repeat PRN 0.2 mg/kg (max 12 mg) x 1

Medication	Class
Albuterol	Sympathomimetic, bronchodilator, beta-2 agonist
Indications:	Contraindications:
→ Treatment of bronchospasm → Wheezing	→ Hypersensitivity to albuterol

Protocol, Dosage, and Administration

Allergic Reaction Anaphylaxis: Wheezing/Bronchospasm

Adult: 2.5 mg with 0.5 mg ipratropium in 3 mL NS nebulized

Repeat PRN x 2

Pedi: Same as Adult

Respiratory Support: Asthma, COPD, Wheezing, Reactive Airway Disease

Adult: 2.5 mg with 0.5 mg ipratropium in 3 mL NS nebulized

Repeat PRN x 2

If persistent wheezing/respiratory distress after 3 albuterol/ipratropium doses

7.5 mg in 9 mL NS (continuously nebulized)

Pedi: Same as Adult

Medication	Class
Amiodarone	Antidysrhythmic
Indications:	Contraindications:
→ Suppression of VF/pulseless VT refractory to defibrillation → Suppression of stable VT	→ Medication induced ventricular dysrhythmias → Second or third-degree block → Hypotension → Bradycardia → Torsades de Points → Narrow Complex (QRS < 0.12 sec) → Hypersensitivity to amiodarone

Protocol, Dosage, and Administration

Preparation:

Bolus: 150 mg in 100 mL of NS

Cardiac Arrest: VF/VT

Adult: 300 mg IV/IO push after second defibrillation

If persistent or recurrent VF/VT 150 mg IV/IO x 1

Pedi: 5 mg/kg IV/IO (max 300 mg) after second defibrillation

If persistent or recurrent VF/VT Repeat PRN x 2 q 4-minutes

Tachycardias: Stable Wide Ventricular Tachycardia

Adult: 150 mg IV/IO bolus over 10 min (600 mL/hr)

Repeat PRN x 1

Pedi: 5 mg/kg IV/IO (max 150 mg) bolus over 10 min

Tachycardia - Pedi	
Kg:	Volume (mL) to infuse over 10 min:
2.5	8
5	17
10	33
15	50
20	67
25	83
30	100
35	100

Medication

Class

Aspirin	Anti-inflammatory, platelet inhibitor
Indications:	Contraindications:
→ Chest pain or anginal equivalents suggestive of ACS	→ Gastrointestinal bleeding → Hypersensitivity to NSAIDs

Protocol, Dosage, and Administration

Acute Coronary Syndrome/STEMI

Adult: 324 mg PO chewed
Pedi: N/A

Medication	Class
Atropine	Anticholinergic
Indications:	Contraindications:
→ Hemodynamically unstable bradycardia → Organophosphate poisoning → Nerve agent antidote	→ Tachycardia → Hypovolemic shock → Hypersensitivity to atropine

Protocol, Dosage, and Administration

Symptomatic Bradycardia

Adult: 1 mg IV/IO
 Repeat PRN to max dose 3 mg

Pedi: 0.02 mg/kg IV/IO (minimum dose 0.1 mg and max single dose 1 mg)
 Repeat PRN x 1

Toxicology: Organophosphate poisoning

Adult: 2 mg IV/IM/IO
 Repeat PRN 2 mg q 3 minutes until signs of significant atropinization

Pedi: 0.02 mg/kg IV/IM/IO (max single dose 2 mg)
 Repeat PRN until signs of atropinization

Medication	Class
Buprenorphine	Opioid partial agonist
Indications:	Contraindications:
→ Detoxification from opioids → Maintenance therapy for opiate use disorder	→ Known or suspected GI obstruction → Respiratory depression → Acute alcohol or benzodiazepine intoxication → Adrenal insufficiency → Hepatic insufficiency → Pregnancy → Severe hypersensitivity

Protocol, Dosage, and Administration

Opiate Use Disorder

Adult; 8 - 24 mg buccal (SL strips or tabs) per physician order
repeat 8 - 16 mg (max 32 mg) q 15 minutes PRN x 1 COWS score >8 or symptoms not resolved

Pedi: N/A

Medication	Class
Calcium Chloride	Parenteral Mineral
Indications:	Contraindications:
→ Calcium channel blocker overdose → Hyperkalemia	→ Suspected digitalis toxicity

Protocol, Dosage, and Administration

Cardiac Arrest: Hyperkalemia, Calcium Channel Blockers

Adult: 1 g IV/IO slow push

Pedi: 20 mg / kg (0.2 mL/kg) IV/IO, slow push (max dose 1 g)

Symptomatic Bradycardia: Hyperkalemia, Calcium Channel Blocker Overdose

Adult: 1 g IV/IO slow push

Pedi: 20 mg / kg (0.2 mL/kg) IV/IO, slow push (max dose 1 g)

Toxicology: Calcium Channel Blocker Overdose

Adult: 1 g IV/IO slow push

Pedi: 20 mg / kg (0.2 mL/kg) IV/IO, slow push (max dose 1 g)

Entrapment/Crush/Traumatic Rhabdomyolysis: Hyperkalemia

Adult: 1 g IV/IO slow push

Pedi: 20 mg / kg (0.2 mL/kg) IV/IO, slow push (max dose 1 g)

Medication	Class
Dexamethasone	Adrenal Glucocorticoid
Indications:	Contraindications:
→ Asthma → Wheezing → Pediatric anaphylaxis → Barking cough/stridor	→ Advanced glaucoma → Systemic fungal infection → Hypersensitivity to dexamethasone

Protocol, Dosage, and Administration

Allergic Reaction/Anaphylaxis

Adult: 10 mg IV/IM

Pedi: 0.6 mg/kg (max dose 10 mg) IM/IV/PO

Circulatory Support: Addison Disease / Adrenal Insufficiency

Adult: 10 mg IV/IM

Pedi: 0.6 mg/kg (max dose 10 mg) IM/IV/PO

Respiratory Support: Asthma/COPD/Wheezing/Croup

Adult: 10 mg IV/IM

Pedi: 0.6 mg/kg (max dose 10 mg) IM/IV/PO

Medication	Class
Dextrose 10%	Carbohydrate, Altered mental status
Indications:	Contraindications:
→ Hypoglycemia → Altered mental status	

Protocol, Dosage, and Administration

Diabetic Emergencies

- Adult: 100 mL IV/IO bolus
Repeat PRN up to 50 g (500 mL)
- Pedi: 5 mL/kg IV/IO bolus
Repeat PRN up to 25 g (250 mL)

OB/GYN - Newly Born: Blood Glucose < 50 mg/dL
Newborn: 2 mL/kg IV/IO bolus

Medication	Class
Diltiazem	Calcium channel blocker
Indications:	Contraindications:
→ Control of rapid ventricular rates caused by atrial fibrillation or atrial flutter during interfacility transports or by order from Hospital at Home (HaH) Physician	→ Hypotension → Second or third-degree block → Wide complex tachycardia → Cardiogenic shock

Protocol, Dosage, and Administration

Tachycardias: Stable, Narrow Complex, Regular or Irregular
Adult: 0.25 mg/kg IV/IO, slow push
Repeat PRN x 1

Pedi: N/A

Medication	Class
Diphenhydramine	Antihistamine, Anticholinergic
Indications:	Contraindications:
→ Allergic reaction → Anaphylaxis → Acute dystonic reactions	→ Hypersensitivity to diphenhydramine

Protocol, Dosage, and Administration

Allergic Reaction/Anaphylaxis:

Adult: 25-50 mg PO

Pedi: PO N/A

Adult: 50 mg IV/IM/IO

Pedi: 1 mg/kg IV/IM/IO (max dose 50 mg)

Toxicology: Dystonia reaction

Adult: 50 mg IV/IM/IO

Pedi: 1 mg/kg IV/IM/IO (max dose 50 mg)

Medication	Class
Droperidol	Dopamine Antagonist
Indications:	Contraindications:
→ Behavioral Emergency/Agitation → Refractory Nausea/Vomiting → Cannabinoid Hyperemesis Syndrome → Atraumatic Headache	→ Unconsciousness → Parkinson's Disease → Hypersensitivity to Droperidol

Protocol, Dosage, and Administration

- Behavioral Emergencies/Agitation:** RASS 2+ to 3+ (Moderate Agitation)
 - Adult: 5 mg IV/IO/IM
 - Repeat PRN 2.5 mg q 10-minutes x1
 - Pedi: **Contact OLMC** 0.05 mg/kg IV/IO/IM
- Behavioral Emergencies/Agitation:** RASS 3+ to 4+ (Severe Agitation) / RASS 4+ (Violent Agitation with Delirium)
 - Adult: 10 mg IM
 - Repeat PRN 5 mg q 10-minutes x1
 - **For patients ≥65 years old: Decrease to half the original dose for dosages ≥5 mg****
 - Pedi: **Contact OLMC** 0.1 mg/kg IV/IO/IM
 - Repeat PRN 0.05 mg/kg q 10-minutes x1
- Nausea and Vomiting:** Despite odansetron, or gastroparesis / cyclical vomiting syndrome
 - Adult: 1.25 mg IM or Slow IV/IO
 - Repeat PRN 0.625 mg q 10-minutes x1
 - Pedi: N/A
- Atraumatic Headache**
 - Adult: 1.25 mg IM/slow IV/IO
 - Repeat PRN 0.625 mg q 10-minutes x1
 - Pedi: N/A

Medication	Class
Epinephrine	Sympathomimetic
Indications:	Contraindications:
→ Cardiac arrest → Anaphylaxis → Shock/hypotension → Severe allergic reaction → Asthma → Symptomatic Bradycardia	→ Hypertension → Hypothermia → Trauma (push-dose only)

Protocol, Dosage, and Administration

Preparation:

Push Dose Epi (PDE): 1 mL 1:10,000 / 9 mL NS Flus
(Solution = 10 mcg/mL)
Infusion: 1 mg (10 mL) 1:10,000 / 250 mL NS
1 mg (1 mL) 1:1,000 / 250 mL NS
(Solution = 4 mcg/mL)
CA Push: 1 mg (1 mL) 1:1,000 / 9 mL NS
(When 1 mg 1:10,000 not available and authorized)

Allergic Reaction/Anaphylaxis: Severe Signs/Symptoms

Adult: 0.5 mg (1:1,000) IM
Repeat PRN q 5 min x2
Pedi: 0.01 mg/kg (1:1,000) IM (max dose 0.5 mg)
Repeat PRN q 5-10 min x2

Allergic Reaction/Anaphylaxis: Signs of Anaphylaxis/Shock

Adult: PDE 10 mcg (1 mL)
Repeat PRN q 5 min,
(max total dose 50 mcg or 5 mL)
Pedi: PDE 1 mcg/kg (max dose 10 mcg)
Repeat PRN q 5 min,
(max total dose 50 mcg or 5 mL)

Adult: Epi Infusion 5 mcg/min
Titrate to MAP > 65
Pedi: Epi Infusion 0.1 mcg/kg/min
Titrate by 0.1 mcg/kg/min q 2 min to age appropriate goals

Cardiac Arrest: All Initial Rhythms

Adult: 1 mg (1:10,000) IV/IO x 1
Pedi: 0.01 mg/kg (1:10,000) IV/IO
Repeat q 5 minutes x 2

Circulatory Support

Adult: PDE 10 mcg (1 mL)
Repeat PRN q 5 min, (max total dose 50 mcg or 5 mL)
Pedi: PDE 1 mcg/kg (max dose 10 mcg)
Repeat PRN q 5 min, (max total dose 50 mcg or 5 mL)
Adult: Epi Infusion 5 mcg/min
Titrate to MAP > 65
Pedi: Epi Infusion 0.1 mcg/kg/min
Titrate by 0.1 mcg/kg/min q 2 min to age appropriate goals

Respiratory Support: Asthma only with impending failure

Adult: 0.5 mg (1:1,000) IM
Repeat PRN q 5 min x1
Pedi: 0.01 mg/kg (1:1,000) IM (max dose 0.5 mg)
Repeat PRN q 5 min x1

Symptomatic Bradycardia

Adult: N/A
Pedi: 0.01 mg/kg IV/IO (max dose 0.1 mg) x1

Symptomatic Bradycardia: Beta Blocker Overdose

Adult: Epi Infusion 5 mcg/min
Titrate to MAP > 65
Pedi: Epi Infusion 0.1 mcg/kg/min
Titrate by 0.1 mcg/kg/min q 2 min to age appropriate goals

Toxicology: Beta Blocker Overdose

Adult: Epi Infusion 5 mcg/min
Titrate to MAP > 65
Pedi: Epi Infusion 0.1 mcg/kg/min
Titrate by 0.1 mcg/kg/min q 2 min to age appropriate goals

Medication	Class
Esmolol (Adult)	Beta Blocker
Indications:	Contraindications:
→ Cardiac arrest	→ Hypertension

Protocol, Dosage, and Administration

Preparation:

- Bolus - push
- Infusion - premixed 2,500 mg / 250 mL (10 mg / mL)

Cardiac Arrest: VF/VT

- Adult: 0.5 mg / kg IV/IO bolus (50 mg max) then
Infusion 0.05 mg / kg / min (5 mg/min max)
- Pedi: N/A

Medication	Class
Fentanyl	Analgesic, Opioid
Indications:	Contraindications:
→ Pain	→ Intolerance / Hypersensitivity → Respiratory depression → Hemodynamic instability (relative) → Active labor (relative)

Protocol, Dosage, and Administration

Acute Pain Management

Adult: 1 mcg/kg IV/IN/IM (max single dose 100 mcg)

Repeat PRN, titrate to pain relief and respiratory/hemodynamic status

Pedi: Same as Adult

Medication	Class
Glucagon	Antihypoglycemic, Pancreatic hormone, Insulin antagonist
Indications:	Contraindications:
→ Hypoglycemia	→ Hyperglycemia
→ Beta-blocker overdose	→ Insulinoma
	→ Hypersensitivity to glucagon

Protocol, Dosage, and Administration

Cardiac Arrest: Beta-blocker overdose

- Adult: 1 mg IV/IO slow push over 1 min
- Repeat PRN 1 mg IV/IO x 1
- Pedi: 0.1 mg/kg IV/IO slow push over 1 min (max single dose 1 mg)
- Repeat PRN 0.2 mg/kg IV/IO x 1 (max single dose 1 mg)

Diabetic Emergencies

- Adult: 1 mg IM
- Pedi: 0.1 mg/kg IM (max dose 1 mg)

Symptomatic Bradycardia: Beta-blocker overdose

- Adult: 1 mg IV/IO slow push over 1 min
- Repeat PRN 1 mg IV/IO x 1
- Pedi: 0.1 mg/kg IV/IO slow push over 1 min (max single dose 1 mg)
- Repeat PRN 0.2 mg/kg IV/IO x 1 (max single dose 1 mg)

Toxicology: Beta-blocker overdose

- Adult: 1 mg IV/IO slow push over 1 min
- Repeat PRN 1 mg IV/IO x 1
- Pedi: 0.1 mg/kg IV/IO slow push over 1 min (max single dose 1 mg)
- Repeat PRN 0.2 mg/kg IV/IO x 1 (max single dose 1 mg)

Medication	Class
Glucose - Oral	Antihypoglycemic
Indications:	Contraindications:
→ Conscious patient with suspected hypoglycemia	→ Decreased level of consciousness → Unable to swallow/maintain own airway → Nausea and vomiting

Protocol, Dosage, and Administration

Diabetic Emergencies

Adult: 15 g buccal

Pedi: 7.5 g buccal

Medication	Class
Haloperidol	Dopamine Antagonist
Indications:	Contraindications:
→ Behavioral Emergency/Agitation → Refractory Nausea/Vomiting → Psychiatric Disease	→ Unconsciousness → Parkinson's Disease → Hypersensitivity to Haloperidol

Protocol, Dosage, and Administration

Behavioral Emergencies/Agitation: RASS 2+ to 3+ (Moderate Agitation)
Adult: 5 mg IV/IO/IM
Repeat PRN 2.5 mg q 10-minutes x1

Pedi: **Contact OLMC** 0.05 mg/kg IV/IO/IM

Behavioral Emergencies/Agitation: RASS 3+ to 4+ (Severe Agitation) / RASS 4+ (Violent Agitation with Delirium)
Adult: 10 mg IM
Repeat PRN 5 mg q 10-minutes x1
****For patients ≥65 years old: Decrease to half the original dose for dosages ≥5 mg****

Pedi: **Contact OLMC** 0.1 mg/kg IV/IO/IM
Repeat PRN 0.05 mg/kg q 10-minutes x1

Nausea and Vomiting: Despite ondansetron, or gastroparesis / cyclical vomiting syndrome
Adult: 1.25 mg IM or Slow IV/IO
Repeat PRN 0.625 mg q 10-minutes x1

Pedi: N/A

Medication	Class
Hydroxocobalamin	Antidote
Indications:	Contraindications:
→ Suspected cyanide poisoning	→ None

Protocol, Dosage, and Administration

Preparation

Bolus infusion: 5 g / 200 mL NS (25 mg/mL)

Toxicology:

- Adult: 5 g IV/IO over 15 minutes,
Repeat PRN x 1
- Pedi: 70 mg/kg IV/IO over 15 minutes,
Repeat PRN x 1;
- Contact [OLMC](#) following initial dose

Toxicology - Pedi	
Kg:	Volume (mL) to infuse over 15 min:
2.5	7
5	14
10	28
15	42
20	56
25	70
30	84
35	98

Medication	Class
Ibuprofen	Nonsteroidal Anti-inflammatory Drug
Indications: → Pain	Contraindications: → Intolerance / Hypersensitivity → Active peptic ulcer disease → Active bleeding / bleeding disorder → Advanced chronic kidney disease with or without dialysis → Renal Transplant → Trauma → Pregnancy or breastfeeding

Protocol, Dosage, and Administration <u>Acute Pain Management</u> Adult: 600 mg PO Pedi > 6 months: 10 mg/kg PO (mas dose 600 mg) <u>Fever</u> Adult: 600 mg PO Pedi > 6 months: 10 mg/kg PO (mas dose 600 mg)

Medication	Class
Ipratropium Bromide	Bronchodilator, Anticholinergic
Indications:	Contraindications:
→ Asthma → COPD → Emphysema → Acute bronchospasm	→ Hypersensitivity to atropine or its derivatives → Hypersensitivity to ipratropium bromide

Protocol, Dosage, and Administration

Allergic Reaction/Anaphylaxis: Wheezing/Bronchospasm
Adult - Mix 0.5 mg with 2.5 mg Albuterol in 3 mL NS and nebulize
Repeat PRN x 2

Pedi - Same as Adult

Respiratory Support: Asthma/COPD/Wheezing/Reactive airway disease
Adult - Mix 0.5 mg with 2.5 mg Albuterol in 3 mL NS and nebulize
Repeat PRN x 2

Pedi - Same as Adult

Medication	Class
Isopropyl Alcohol (inhaled)	Antiemetic
Indications:	Contraindications:
→ Nausea and vomiting	→ Hypersensitivity to isopropyl alcohol

Protocol, Dosage, and Administration

Nausea and Vomiting

Adult: 3-pads, Repeat PRN x 1

Pedi: Same as Adult

Instruct patient to hold pads 1-2 cm from nose and inhale deeply as frequently as required to achieve nausea relief.

Medication

Class

Ketamine

Anesthetic Adjunct

Indications:

- Analgesia
- Sedation for procedures or post-airway management
- Induction agent in intubation

Contraindications:

- Hypersensitivity to ketamine

Protocol, Dosage, and Administration

Preparation

Push

Infusion: Adult - 200 mg / 100 mL NS

Pedi - 50 mg / 100 mL NS

Delayed Sequence Intubation (DSI)

Adult: 2 mg/kg IV/IO (max 200 mg)

Repeat PRN x 1

Pedi: N/A

Rapid Sequence Airway (RSA)

Adult: 2 mg/kg IV/IO (max 200 mg)

Repeat PRN x 1

Pedi: Same as Adult

Post-Invasive Airway Management: Immediately after invasive airway secured or 15 min after rocuronium given or RASS goal

Adult: 2 mg/kg IV/IO

Repeat PRN q 15 min or more frequently to maintain RASS goal of -5

Pedi: Same as Adult

Post-Invasive Airway Management: Infusion if RASS goal not met or signs of awakening, movement, or discomfort

Adult: 1 mg/min, titrate by 1 mg/min to goal RASS

Pedi: 10 mcg/kg/min, titrate by 5 mcg/kg/min to maintain goal RASS

Acute Pain Management: Moderate to severe acute pain

Adult: IV/IO: 0.3 mg/kg in 100 mL NS over 10 min (max single dose: 30 mg), repeat PRN q 10-min x 1

IM: 0.6 mg/kg (max single dose 50 mg), repeat PRN q 10-min x 1

Pedi: Same as Adult

Behavioral Emergencies/Agitation: Violent agitation with delirium (RASS +4)

Adult: 4 mg/kg IM (max single dose 400 mg)

Pedi: 1 mg/kg IV Or 2 mg/kg IM

Cardiac Arrest: Signs/symptoms of CPR induced consciousness

Adult: 1 mg/kg IV/IO slow push (max single dose 200 mg)

Pedi: Same as Adult

Symptomatic Bradycardia: Sedation prior to/during pacing if time permits and if adequate respiration

Adult: IV/IO: 0.3 mg/kg slow push (max single dose: 30 mg), repeat PRN q 10-min x 1

IM: 0.6 mg/kg (max single dose 50 mg), repeat PRN q 10-min x 1

Pedi: Same as Adult

Tachycardia: Sedation prior to/during Cardioversion if time permits

Adult: IV/IO: 0.3 mg/kg slow push (max single dose: 30 mg), repeat PRN q 10-min x 1

IM: 0.6 mg/kg (max single dose 50 mg), repeat PRN q 10-min x 1

Pedi: Same as Adult

Medication	Class
Ketorolac	Nonsteroidal Anti-inflammatory Drug
Indications: → Pain	Contraindications: → Intolerance / Hypersensitivity → Active peptic ulcer disease → Active bleeding / bleeding disorder → Advanced chronic kidney disease with or without dialysis → Renal Transplant → Trauma → Pregnancy or breastfeeding

Protocol, Dosage, and Administration <u>Acute Pain Management</u> Adult: 15 mg IV or 30 mg IM Pedi: 0.5 mg/kg IV/IM (max single dose 15 mg)
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Medication	Class
Labetalol	Antihypertensive, Beta Blocker
Indications:	Contraindications:
→ Maternal Hypertension	→ Hypotension → Severe hypersensitivity → Asthma → Overt cardiac failure → Severe bradycardia

Protocol, Dosage, and Administration

Pre-Eclampsia / Eclampsia: maternal HR > 60 and SBP ≥160 or DBP ≥110 with severe symptoms
Adult; 20mg IV over 2 minutes,
repeat 40 mg IV PRN q 10 minutes

Pedi: N/A

MIH - HaH Program
Adult: Dosing per HaH physician order
Standard dosing 200-400 mg every 12 hours

Pedi: 1-3 mg/kg/day divided every 12 hours; not to exceed 1200 mg/day

Medication	Class
Lidocaine 2%	Local anesthetic
Indications:	Contraindications:
→ IO access	→ Hypersensitivity to lidocaine

Protocol, Dosage, and Administration

Procedure: Intraosseous (IO) Access

Adult: 40 mg slow IO bolus prior to infusion

Pedi: 0.5 mg/kg slow IO bolus prior to infusion

MIH-HaH: program dosing per HaH physician order

Adults: 2% Topical Standard dosing

Apply to the affected area 3-4 times daily

Max single application dose 5g for 2% concentration, or 6 inches for 5% concentration

Pedi: Dose is based on body weight and must be determined by physician

Medication	Class
Magnesium Sulfate	Electrolyte
Indications:	Contraindications:
→ Torsades de Pointes → Asthma → Pre-eclampsia → Eclamptic seizure (peri or postpartum)	→ Heart block → Renal disease

Protocol, Dosage, and Administration

Preparation:

Bolus: slow push
Infusion: 10 g in 250 mL NS

Medical Cardiac Arrest: Torsades de Pointes

Adult: 2 g IV/IO slow push
Pedi: 25-50 mg/kg (max 2 g) IV/IO slow push

Respiratory Support: Severe Asthma/COPD/Wheezing

Adult: 2 g over 15 min (rate 200 mL/hr, total volume 50 mL)
Pedi: 40 mg/kg over 15 min (max 2 g)

PreEclampsia / Eclampsia: Suspected preeclampsia or eclamptic seizure

Adult: 6 g IV over 15 min
Follow with 2 g/hr IV infusion

Respiratory - Pedi	
Kg:	Volume (mL) to in-fuse over 10 min:
2.5	2.5
5	5
10	10
15	15
20	20
25	25
30	30
35	35

Medication

Class

Midazolam

Short-acting benzodiazepine, CNS depressant

Indications:

- Sedation
- Sympathomimetic overdose
- Behavioral emergencies
- Seizures

Contraindications:

- Depressed vital signs
- Shock
- Hypersensitivity to midazolam
- Musculoskeletal spasms

Protocol, Dosage, and Administration

Toxicology: Sympathomimetic intoxication

Adult: 2.5 - 5.0 mg Slow IV/IO

Repeat PRN q 5 minutes (max total dose 10 mg)

Pedi: 0.05 mg/kg (max dose 2.5 mg) IV,

Repeat PRN q 5 min x 1

Behavioral Emergencies/Agitation: RASS +1

Adult - 2.5 mg IV/IO/IM/IN

Repeat PRN q 10-min x 1

Pedi - 0.05 mg/kg (max dose 2.5 mg) IV/IO/IM/IN

Repeat PRN q 10-min x 1

Behavioral Emergencies/Agitation: RASS > +1 and non-pharmacological interventions unsuccessful

Adult - 5 mg IV/IO/IM

Repeat PRN q 10-min

Pedi - 0.1 mg/kg (max dose 5 mg) IV/IO/IM

Repeat PRN q 10-min

Seizure/Status Epilepticus: If actively seizing, or in status epilepticus

Adult: 10 mg IM/IN; or 5 mg slow IV/IO, (IM is first-line route if IV not already established)

Repeat PRN q 5 min x 2

Pedi: 0.15 mg/kg Slow IV/IO/IM (max dose 2.5 mg),

Repeat PRN q 5-min x 1

Hyperthermia/Heat Stroke; If shivering during cooling

Adult: 2.5 mg IV/IO/IN

Pedi: 0.05 mg/kg IV/IO or 0.1 mg/kg IM/IN

Repeat PRN q 5-min x 1 (max total dose 2.5 mg)

Medication	Class
Naloxone	Opioid antagonist
Indications:	Contraindications:
→ Opiate overdose with CNS depression, miosis, and respiratory depression (all 3) → Coma of unknown origin	→ Cardiac arrest with no evidence of opiate overdose → Use with caution in narcotic dependent patients → Use with caution in neonates of narcotic-addicted mothers → Hypersensitivity to naloxone

Protocol, Dosage, and Administration

Opiate Use Disorder: suspected opiate intoxication with respiratory and CNS depression

- Adult: 2 mg IN (1 mg in each nostril)
 - Repeat PRN q 5-minutes x 1
- 0.5 mg IV/IO,
 - Repeat PRN q 5 min (max total dose 4 mg)
- Pedi: 0.5 mg IN
 - Repeat PRN q 5-minutes (max total dose 2 mg)
- IV/IO Same as Adult (max total dose 2 mg)

Medication	Class
Nifedipine	Antihypertensive, Calcium channel blocker
Indications:	Contraindications:
→ Patients between 20 weeks gestation and 6 weeks post partum meeting blood pressure criteria for preeclampsia	→ Hypersensitivity to nifedipine

Protocol, Dosage, and Administration

PreEclampsia / Eclampsia : SBP $\geq$ 160 or DBP $\geq$ 110 confirmed by correctly fitted cuff on 2 readings 5 minutes apart
Adult: 10 mg SL
Pedi: N/A

Medication	Class
Nitroglycerin	Nitrate, Coronary vasodilator
Indications:	Contraindications:
→ Acute angina → Ischemic chest pain → Congestive heart failure pulmonary edema	→ Recent use of erectile dysfunction medications → Hypotension → Hypovolemia → Intracranial bleeding/head injury → Hypersensitivity to nitroglycerin

Protocol, Dosage, and Administration

Acute Coronary Syndrome/STEMI

Adult: 0.4 mg SL q 5 min, titrate to SBP $\geq$ 100 and signs/symptoms

Pedi: N/A

SCAPE

Adult: 0.4 mg SL q 5 min, titrate to goal SBP < 180

Pedi: N/A

Adult: Bolus - 1 mg Slow IV push

Pedi: N/A

Adult: Infusion - 100 mcg/min, titrate rapidly down as blood pressure drops, goal SBP < 180

Pedi: N/A

MIH - H@H Program: Angina Pectoris or Congestive Heart Failure

Adult: 2% Topical, Dosing per H@H physician order

Standard - 1.5 inches every 4 hours (increase by 0.5-1 inch up to 4 inches)

Medication	Class
Norepinephrine	Sympathomimetic, Vasopressor
Indications:	Contraindications:
→ Hypotension	→

Protocol, Dosage, and Administration

Preparation:

Infusion: 4 mg / 250 mL NS

Target BP goals:

- TBI/Stroke: > 110 mm Hg
- Blunt Trauma: = 100 mm Hg (max 500 mL)
- Hemorrhagic Shock or Penetrating Trauma: SBP = 90 mm Hg (max 500 mL)
- Other patients:
 - Adult - MAP > 65 (or SBP > 90 mm Hg if manual measurement)
 - Pedi - SBP > 70 mm Hg + (age in years x 2) or > 90 mm Hg for age 10 or greater

Circulatory Support

Adult - 5 mcg/min, titrate to goals

Pedi - 0.1 mcg/kg/min, titrate to goals

Post ROSC

Adult - reference treatment table below

Pedi - 0.1 mcg/kg/min, titrate to age appropriate goals

Norepinephrine Treatment Table		
SBP	Push Dose	Infusion
< 90	50 mcg q 2 mins	50 mcg / min
90-120	30 mcg q 2 mins	30 mcg / min
> 120	-	Prepare but do not start

Dial-a-Flow Dose and Rate <i>*For Pump Failure Only*</i>	
mcg / min	mL / hr
2	7.5
3	11
4	15
5	19
6	22.5
7	26
8	30
9	34
10	37.5
15	56
20	75
25	94
30	112.5

Medication	Class
Ondansetron	Antiemetic
Indications:	Contraindications:
→ Nausea and vomiting	→ Hypersensitivity to ondansetron

Protocol, Dosage, and Administration

Nausea and Vomiting

Adult: 4 mg ODT
Repeat PRN q 10-min x 1

Pedi: 8-15 kg: 2 mg ODT
Repeat PRN q 10-min x 1

16-30 kg: Same as Adult

Nausea and Vomiting

Adult: 4 - 8 mg IM/IV
Repeat PRN q 10-min x1

Pedi: 0.15 mg/kg (max dose 4 mg) IM/IV

Medication	Class
Oxymetazoline (Afrin)	Decongestant, vasoconstrictor
Indications:	Contraindications:
→ Epistaxis	→ Hypersensitivity to drug or ingredients

Protocol, Dosage, and Administration

Hemorrhage Control: if ongoing epistaxis despite direct pressure, blow nose then:
Adult: 2 squirts to affected nare(s)
Pedi: Same as adult

Medication	Class
Oxytocin	Pituitary hormone, Uterine stimulant
Indications:	Contraindications:
→ Postpartum hemorrhage	→ Hypersensitivity to oxytocin

Protocol, Dosage, and Administration

Hemorrhage Control: if significant OB related hemorrhage following complete placental delivery
Adult: 10 units IM followed by 20 units / 1 L NS IV, run wide open
Pedi: N/A

Medication	Class
Phenylephrine	Vasoconstrictor
Indications: → Hypotension refractory to norepinephrine	Contraindications: → Ventricular tachycardia → Severe hypertension → Closed angle glaucoma → Severe hypersensitivity

Protocol, Dosage, and Administration

Preparation

Push Dose: 10 mg / 100 mL NS; 100 mcg / mL

Circulatory Support

Adult: 50 mcg (0.5 mL) q 3 minutes; titrate to target BP goals

Pedi: N/A

Medication	Class
Racemic Epinephrine	Bronchodilator
Indications:	Contraindications:
→ Moderate to severe croup	Hypersensitivity to epinephrine

Protocol, Dosage, and Administration

Respiratory Support - Pediatric

Pedi: ≤10 kg - 0.25 ml (1/2-ampule) mixed with 3 ml NS, nebulized
Repeat PRN x 1

> 10 kg - 0.5 ml (1-ampule) mixed with 3 ml NS, nebulized
Repeat PRN x 1

Medication	Class
Rocuronium	Non-depolarizing Neuromuscular Blocker
Indications:	Contraindications:
→ Paralysis for intubation	→ Hypersensitivity to rocuronium

Protocol, Dosage, and Administration

Delayed Sequence Intubation (DSI)
Adult: 1.5 mg/kg IV/IO x 1 (max 150 mg)
Pedi: N/A

Rapid Sequence Airway (RSA)
Adult: 1.5 mg/kg IV/IO x 1 (max 150 mg)
Pedi: Same as Adult

Medication	Class
Sodium Bicarbonate	Electrolyte
Indications:	Contraindications:
→ Known or suspected acidosis → TCA overdose → Hyperkalemia	Alkalosis Hypocalcemia

WARNING This medication cannot be mixed with other drugs. Flush line prior to and after administration this drug to prevent crystallization and loss of IV access.

Protocol, Dosage, and Administration

Cardiac Arrest: Medical CA not witnessed by bystander, Metabolic acidosis etiology (e.g. DKA), Hyperkalemia, Tricyclic Antidepressant Overdose
Adult: 1 mEq/kg IV/IO (max dose 100 mEq)
Pedi: Same as Adult

Symptomatic Bradycardia: Hyperkalemia (if suspected acidosis)
Adult: 1 mEq/kg IV/IO (max dose 100 mEq)
Pedi: Same as Adult

Toxicology: Tricyclic Antidepressant (TCA)
Adult - 1 mEq/kg IV/IO (max dose 100 mEq)
Pedi - Same as Adult

Entrapment/Crush/Traumatic Rhabdomyolysis: ECG findings of hyperkalemia
Adult - 1 mEq/kg IV/IO (max dose 100 mEq)
Pedi - Same as Adult

Medication	Class
Suboxone	Opioid partial agonist
Indications:	Contraindications:
→ Detoxification from opioids → Maintenance therapy for opiate use disorder	→ Known or suspected GI obstruction → Respiratory depression → Acute alcohol or benzodiazepine intoxication → Adrenal insufficiency → Hepatic insufficiency → Pregnancy → Severe hypersensitivity

Protocol, Dosage, and Administration

Opiate Use Disorder

Adult; 8 - 24 mg buccal (SL strips or tabs) per physician order
repeat 8 - 16 mg (max 32 mg) q 15 minutes PRN x 1 COWS score >8 or symptoms not resolved

Pedi: N/A

Suboxone is buprenorphine + naloxone and the naloxone is chemically inactive when taken SL/oral. Either is acceptable and supply may vary based on availability. Dosing is the same between the two agents.

Medication	Class
Tranexamic Acid (TXA)	Hemostatic agent
Indications:	Contraindications:
→ Significant tracheostomy hemorrhage → Ongoing epistaxis → Postpartum hemorrhage → Traumatic hemorrhage (if traumatic cardiac arrest, administer only if ROSC achieved)	→ Hypersensitivity to TXA → ≥ 3 hours since injury → Early pregnancy → Signs of DIC → Upper or lower gastrointestinal bleeding

Protocol, Dosage, and Administration

Hemorrhage Control: ongoing epistaxis despite direct pressure
 Adult - 2 g topical on cotton ball to affected nare(s)

Pedi - Same as Adult

Hemorrhage Control: significant traumatic, OB, tracheostomy hemorrhage and $SBP \leq 90$ or $HR \geq 110$ with poor perfusion

Adult - 2 g IV/IO, slow push over 1 min

Pedi - N/A

Prehospital Blood Administration

Adult - 2 g IV/IO, slow push over 1 min

Pedi - N/A

Medication	Class
Vasopressin	Vasoconstrictor
Indications: → Hypotension refractory to norepinephrine	Contraindications: → Coronary artery disease
Protocol, Dosage, and Administration	
<u>Preparation</u> Infusion: 20 units / 100 mL NS (0.2 units / mL)	
<u>Circulatory Support:</u> hypotension refractory to norepinephrine Adult: 0.04 units / minute infusion (12 mL / hr) Pedi: N/A	

Medication	Class
Furosemide	Loop diuretic
Indications:	Contraindications:
→ Congestive heart failure	→ Hypersensitivity to Lasix
→ Pulmonary edema	→ Hypersensitivity to sulfa drugs

Protocol, Dosage, and Administration

- MIH - Congestive Heart Failure
 - 3-5 lbs over: double PO Lasix x 3 days
 - > 5 lbs over: administer double the patients PO dose of Lasix as IVP x 1

Medication	Class
Potassium	Electrolyte
Indications:	Contraindications:
→ Hypokalemia	→ Hyperkalemia

Protocol, Dosage, and Administration

- MIH - CHF
 - K+ 2.5-2.9
 - Increase by 50% for length of time patient has increased Lasix dosing
 - K+ 3.0-3.4
 - Increase by 25% for length of time patient has increased Lasix dosing
 - K+ 3.5-5.0
 - No change
 - K+ 5.1-5.4
 - Discontinue supplement
- MIH-HaH program dosing per HAaH physician order
 - Standard dosing
 - Adults: 20-100 mEq PO qDay in divided doses
 - Pedi > 1 month: 2-5 mEq/kg PO in divided doses

CCP

IFT-Chest Tube Management Procedure

1. Inspect the patient's chest wall to ensure that all connections are tight and that the tubing is not kinked. Also check the skin around the insertion site for subcutaneous emphysema. Be sure that all connections are tight and that all connections between the tube and the chest drain system are secured with non-porous tape.
2. Note color, consistency and amount of drainage.
3. Note any air leak in the water chamber. Ask the sending facility staff RN if there has been a prior leak.
4. Mark Pleur-evac (or other drainage system) with a pen at the current level of drainage in the system.
 - Be alert to sudden changes in the amount of drainage.
 - A sudden increase indicates hemorrhage or sudden patency of a previously obstructed tube.
 - A sudden decrease indicates chest tube obstruction or failure of the chest tube or drainage system.
5. Adjust wall suction to create a gentle rolling of bubbles in the water seal chamber or until suction indicator in appropriate range. Vigorous bubbling results in water loss. Note that some systems do not include a water seal chamber and therefore may not bubble.
6. Verify the level of the suction control chamber is at the level prescribed by the physician (usually -20 cm).
7. Do not clamp the patient's drainage tube at any time during travel. The water seal in the unit prevents backflow of air, whether or not suction is applied.
8. Position patient in semi-fowlers (if condition allows) to enhance air and fluid evacuation. NEVER raise the chest tube above the chest or the drainage will backup into the chest. Avoid any dependent loops as drainage problems and tube obstruction may occur. The tubing should be coiled flat on the bed and from there fall in a straight line to the chest drainage system.
9. After placing the patient in the ambulance, place the Pleur-evac next to the cot and secure with 3" tape so that it is kept upright during transport.
10. Dislodgment of the chest tube - If the chest tube falls out or is accidentally pulled out, it is important to quickly seal off the insertion site. Use a gloved hand until petroleum gauze is available. Petroleum gauze is necessary to prevent air from entering the pleural cavity. Apply 4-sided petroleum gauze occlusive dressing. If respiratory distress and/or signs of tension pneumothorax, remove one side of the dressing in an attempt to burp the chest.
11. Dislodgment from the drainage system (Pleur-evac) - If the chest tube becomes disconnected from the Pleur-evac or other collection device, clamp the chest tube (using Kelly clamps) until corrective action can be taken.

IFT-Extracorporeal Membrane Oxygenation (ECMO) Procedure

ECMO accredited staff must be present to manage and maintain changes during transport.

Unlike standard cardiopulmonary bypass which provides cardiopulmonary support following cardiac surgery or cardiac arrest, ECMO provides longer-term support, typically over 3-10 days.

Prevention of complications is fundamental to successful ECMO care. Ensure and document the following prior to initiation of transport.

1. Securing Cannula: All ECMO lines **MUST** be secured at 2 points with properly adherent skin dressings. Initial securing is the responsibility of the cannulator (physician) and cannot be delegated.
2. Prior to transport, ensure that backup components of critical items are available
3. Cannula positions: Cannula position must be confirmed radiographically by medical staff prior to transport.
4. ECMO Cannula dressings: Sterility must be maintained and insertion sites kept unsoiled.
5. Patient Movement: Prevent tension or torsion to the ECMO circuits during patient movement.

During transport:

1. Monitor – vitals every 15 minutes and document all pertinent labs (i.e. INR, PLT) and medications.
2. Contact transferring physician or [OLMC](#) for additional guidance or concerns.

IFT-Hemodynamic Monitoring Procedure

All patients who are transported by a Critical Care Paramedic that have invasive pressure lines will be monitored continuously with the use of a cardiac monitor. All pulmonary artery catheters will be monitored during transport. The following standards will be achieved on all patients meeting the criteria for hemodynamic monitoring.

1. Assess the pressure waveform displayed on the sending facility monitor.
2. Obtain a pre-transport strip of waveform from sending facility's monitoring equipment as well as a post- transport strip from receiving facility's monitoring equipment.
3. Obtain current pressure readings from the monitor and patient care records.
4. The CCP will evaluate the pressure transducer for compatibility with the CCP equipment. If the line is not compatible, the pressure line must be changed to facilitate monitoring by the CCP unit during the transport.
5. Flush the invasive line prior to changing over to CCP equipment to ensure patency.
6. Once line has been changed over, flush any visible air out of line via stopcock before flushing to patient.
7. The pressure bag will be inflated to 300 mmHg.
8. The pressure cable will be connected to the monitor and the patient end will be connected to the transducer port on the pressure tubing.
9. The transducer will be placed at the Phlebostatic axis (4th intercostal space, mid-chest level) line and taped securely.
10. All excess tubing will be coiled and taped in an orderly fashion.
11. The pressure line will be zeroed and calibrated to the monitor.
12. The waveform will be identified by the labels provided in the monitor (PA, ART).
13. The waveform will be assessed on the monitor, a pressure reading will be obtained and a strip will be printed showing the waveform. The strip will be identified as to the type of tracing.
14. Pulmonary artery pressures will be documented in conjunction with the secondary survey, as well as every 10 minutes for the duration of the transport. The pulmonary artery catheter should never be wedged during transport.
15. Arterial pressures will be documented in conjunction with the secondary survey, as well as every 10 minutes for the duration of the transport.
16. All distal pulses, capillary refill times, skin temperature, and sensation will be assessed and documented on extremities used.

IFT-Pulmonary Artery Catheter Procedure

1. Check and document PCWP at sending facility ONLY. Check PA systolic, diastolic and mean pressures at sending facility and every 10 minutes.
The Pulmonary Artery Capillary Pressure (PCWP) will only be obtained at the sending facility
 - a. Normal Mean Values:
 - i. Pulmonary Artery Pressure (PAP) Systolic 15-30 mmHg Diastolic 4-12 mmHg
 - ii. Pulmonary Artery Capillary Pressure (PCWP): 4-10 mmHg
 - iii. Central Venous or Right Atrial Pressure (CVP): 0-12 mmHg(Therapeutic ranges may be somewhat higher than the above values)
 - b. Exceptions:
 - i. The optimal mean PCWP (wedge) may be 15-20 mmHg in patients with compromised left ventricular function, post-op stress or post MI.
 - ii. For patients with COPD and respiratory failure, expect PCWP pressures in the range of 30-50 mmHg. PCWP should be normal in pure pulmonary hypertension.
2. Trends in PAP and PCWP pressures are the most significant factors in detecting significant physiological changes in the patient's condition. Be sure to obtain history of these values prior to transport.
3. Inspect and document the insertion site. Note and document the PA insertion depth.
4. Calibrate the transducer at the beginning of the transfer before the patient is transferred over to the stretcher and with any major position changes.
5. Maintain pressurized flush system at 300 mmHg.
6. If change in waveform occurs, contact Medical Control for direction.
7. Follow set parameters for specific IV vasoactive drips as ordered by transferring physician or see protocol for IV vasoactive pharmaceutical titrations and/or communicate with the online physician.
8. CCP must document all interventions that take place regarding PA catheter.
9. Label all pressure tracings and document the tracings on the patient care report.

IFT-Transvenous Pacemaker Procedure

1. Place a new battery in the temporary pacemaker and test it prior to use.
2. Connect pacer wires to Temporary Pacemaker Cables with leads/heartwires - the patient cable with lead or heartwire plugs into socket on top of unit. In the absence of patient cables, temporary transvenous leads plug directly into the two smaller sockets.
3. Match the positive (+) and negative (-) leads to the positive (+) and negative (-) sockets or clips (as applicable). There may be instances where the leads are reversed in polarity to obtain capture. CCP will connect in the same manner as the sending facility.
4. Set the pacemaker controls
 - a. Set the sensitivity (the highest number is least sensitive; the lowest is most sensitive)
5. Demand mode - (withholds its pacing stimulus after sensing a spontaneous depolarization) set the sensitivity value to detect intrinsic activity.
 - a. Set pacemaker's rate 10 bpm slower than patient's intrinsic rate (the sense indicator will flash regularly)
 - b. Reduce milliamps (output) to the minimum value (this avoids risk of competitive pacing).
 - c. Sensitivity should be set at its lowest value necessary to ensure mechanical capture, and should be increased only to the point of stopping any oversensing.
 - d. Restore original pulse generator rate and output values.
6. If asynchronous mode is indicated (stimulates at a fixed, preset rate independently of the electrical and/or mechanical activity of the heart) turn sensitivity dial to ASYNC (not the preferred mode for critical care transport).
 - a. Set the rate and milliamps (output)
 - b. Set the milliamps (output) at 5 and the rate at 60 or as directed by the physician orders.
7. Turn the pacemaker ON
8. Check the monitor to ascertain that capture (depolarization of the atria and/or ventricles) is obtained- if not, increase the milliamps slowly until capture is obtained, this is the threshold (minimum electrical stimulus needed to consistently elicit a cardiac depolarization). Then set the milliamps at two (2) x the threshold.

Setting stimulation threshold:

1. Ensure the patient is connected to pacemaker and being monitored on EKG.
2. Set pulse generator rate at least 10 ppm faster than the patient's intrinsic rate (The pace indicator will be flashing regularly at the set rate).
3. Decrease the milliamps (output) until 1:1 capture is lost (the pace and sense indicators will be flashing intermittently).
4. Increase the milliamps (output) to restore 1:1 capture. This value is the stimulation threshold for the chamber being paced. (The pace indicator will be flashing; and the sense indicator will have stopped flashing.)
5. Set output value to 2-3 times the threshold value. This safety margin will allow for threshold variation while maintaining capture.
6. Restore original pacemaker rate value (60 or physician prescribed rate).

Ventricular Assist Device Procedure (all others)

While some VADs produce pulsatile flow, most VADs use continuous flow technology, thereby creating a non-pulsatile continuous flow. This means most patients with a VAD will not have a palpable pulse and, therefore, taking a blood pressure with a manual cuff and stethoscope will rarely allow you to auscultate a pressure. It is imperative that the type and model of VAD be identified (i.e. HeartWare HVAD vs Jarvik 2000 FlowMaker). Important aspects of transport include allowing a family member to ride along with the patient because the family member can be an invaluable resource. They are often trained in the operation of the equipment and know how to handle an emergency, and can also be a comfort to the patient.

Refer to device specific manual for setup and troubleshooting or questions. Verify you are using the most current procedure manual before operation.

If patient not responsive to pain and has capillary refill ≥ 3 seconds (inadequate perfusion)

If CPR and defibrillation can be performed on the patient (see VAD reference or documentation)

- See, [Cardiac Arrest](#)

If CPR and defibrillation are contraindicated

1. Check controller for alarms. (i.e. low battery, driveline malfunction, pump stopped.)
2. Auscultate and feel left upper abdominal quadrant for a continuous whirring sound and vibrations.
3. Determine if there is a “hand pump” or external device to utilize.
4. Remember not to perform chest compressions because they could dislodge the pump, making the patient bleed to death. (Unless the patient is in obvious cardiac arrest and the pump isn’t working. Use the assistance of the VAD coordinator to figure this out before starting any compressions).
5. Perform all other BLS/ACLS protocols as written.
6. Avoid kinking or twisting driveline when strapping the patient onto the stretcher.
7. Keep batteries and controller in reach and secured to the patient during transport. Keep them dry.
8. Take the patient’s emergency travel bag when leaving the scene. (It has an extra controller, batteries and the VAD coordinator’s emergency contact number.) Access back up controller and power sources as needed.
9. Monitor and document all IBP (in hospital), ECG, and Wave form EtCO₂ and ventilator settings every 15 minutes.
10. Contact online medical control for further instructions.

*If feasible, transport the patient to their implant hospital. If not, transport to the nearest most appropriate hospital.

If patient is out-of-hospital and hemodynamically stable

1. If available, utilize doppler device to auscultate blood pressure. The first sound heard is approximately equivalent to the mean arterial pressure (normal Doppler pressure range is 60–90 mmHg). A pressure of 60–90 mmHg is considered acceptable. Note that you may or may not hear normal heart tones with a stethoscope.
2. Assess the patient’s EtCO₂, mental status, skin, and lips to assess perfusion status.
3. Take the patient’s emergency travel bag when leaving the scene. It may have an extra controller, batteries, and the VAD coordinator’s emergency contact number.
4. Ensure the controller and battery packs are close to the patient and aren’t dangling off the side of the cot. Be sure that the driveline (the power cord of the pump) isn’t pulled, kinked, or cut.

IFT-Ventricular Assist Device Procedure (IABP)

Procedure:

1. Review the most recent 12-lead ECG. Select lead with greatest R-Wave amplitude. Place patient in this lead on cardiac monitor for continuous monitoring during transport. Limit chest artifact. ECG leads for the IABP will be secured with tape to the patient's chest and maintained during transport. Lead selection may need to be changed in order to get the best R-wave and capture on the balloon pump (if ECG triggered).
2. Arterial line shall be maintained on the IABP. If a transducer is used, ensure that it is directly connected to the pump and in working order. Maintain adequate arterial tracing. If radial site is used, secure arm with arm board to protect site during transport. Secure tubing.
3. Evaluate balloon insertion site. Note balloon size in the medical record. Check dressing site appearance. Monitor site frequently (every 15 minutes and as needed) during transport. Instruct patient to keep affected leg straight. Ensure that a knee immobilizer is in place prior to transport for additional reinforcement.
4. Establish baseline condition. Evaluate hemodynamics and clinical condition.
5. Hemodynamic assessment will include: temperature; blood pressure; respiration rate and quality; heart rate and rhythm; arterial blood pressure; Augmented pressures, MAP; CVP; PAP; augmented diastolic pressure (ADP). Document findings including patient's weight.
6. Evaluate pulses, both radial sites as well as posterior tibial and dorsalis pedis to facilitate subsequent localization during transport, also capillary filling times and extremity temperature.
7. Review lab values and trends.
8. Maintain H.O.B. at lowest point tolerated by patient, never to exceed 30 degrees.
9. Evaluate and closely monitor urinary output. All patients will have an in-dwelling urinary catheter.
10. Maintain IABP at prescribed timing/ratio (i.e.: 1:1; 1:2; 1:4). Evaluate effects.
11. Document hemodynamics. Document: IABP type, model and trigger (ECG, A-Line)

Precautions:

- Never leave balloon pump inactive in patient for more than 20-30 minutes (i.e., not inflating and deflating). Thrombosis formation could occur after 30 minutes. Utilize 60 ml syringe to manually fill and deflate balloon.
- Balloon leak: Observe tubing for blood. If blood is observed in the pneumatic tubing, shut off the balloon pump and leave intact. Maintain sterile technique and notify the physician and receiving facility immediately.
- IABP Failure: Evaluate patient's condition and hemodynamics. Troubleshoot the device and make every effort to correct the problem and maintain the patient's safety. If IABP is inoperable for greater than 20-30 minutes, inflate IABP manually with 60 cc syringe every 3-5 minutes to avoid clot formation (Inflate with 10cc less than balloon size).
- Ensure IABP battery is charged and Helium tank level is sufficient for transport. The balloon pump should be plugged into the ambulance inverter or generator outlets during transport.
- Ensure there is ample tubing length for transfer and loading the patient into the ambulance. Secure the IABP tubing at patient end and stretcher end, but not mid-line. Put loops in tubing if length permits.
- If bleeding is observed at the insertion site, apply direct pressure to the site until bleeding stops
- If CPR is required, the IABP should be switched to "pressure trigger" mode

IFT-Ventricular Assist Device Procedure (Impella)

The Impella is intended for partial circulatory support using an extracorporeal bypass unit, for periods from 6 hours (Impella 2.5) to 2 weeks (Impella 5.0).

1. Confirm that Impella placement has been verified with echocardiography. Document position of the Impella as reported by sending facility. If possible, bring reports and/or imaging studies that document confirmation of placement.
2. Verify the patient's Activated Clotting Time (ACT) has been checked and is between 160-180 seconds.
 - a. If the ACT is not verified, ensure it is evaluated before transport.
 - b. If the ACT is <160 or >180 seconds, request that it is addressed before transport per the sending facility guidelines.
3. Evaluate and confirm Impella settings. Document and monitor:
 - a. pump performance level (P2-P9)
 - b. flow (1.1 to 5.3 L/min [device dependent])
 - c. placement signal pulsatile [mmHg] (red waveform)
 - d. purge pressure 300-1100 mmHg
 - e. motor current <1000 and pulsatile (green waveform)
 - f. pump position
 - g. purge fluid infusion rate (2-30 mL/hr)
4. Ensure the Tuohy-Borst on the Impella catheter is tight to prevent catheter migration (tighten completely to the right).
5. Evaluate insertion site for signs of bleeding, swelling or hematoma, and catheter on initial assessment, following each patient transfer, and frequently (every 15 minutes and as needed) during transport. Document findings following each evaluation.
6. Evaluate pulses, capillary filling time, and temperature of affected lower extremity on initial assessment, following each patient transfer, and frequently (every 15 minutes and as needed) during transport.
7. Evaluate urine output and color on initial assessment and monitor during transport. Changes in urine color may indicate hemolysis.
8. Establish the patient's baseline condition. Evaluate hemodynamics and clinical progression.
9. Patients should remain flat throughout transport. Under no conditions is head of bed (HOB) elevation to exceed 30°.
10. Instruct the patient to keep the affected leg straight. Apply knee immobilization device if needed to prevent movement.
11. During transport, maintain pump performance level and flow rate at ordered levels. If unable to maintain ordered flow rate at ordered levels, contact OLMC for guidance.
12. If alarms occur during transport, follow on-screen troubleshooting guidance for resolution. If alarms not resolved following troubleshooting, contact OLMC for further guidance.
13. If purge solution requires replacement during transport replace with D10 solution or solution provided by sending facility.
14. Refer to the hemodynamic monitoring protocol for arterial line maintenance.

Impella Precautions: Next Page

Ventricular Assist Device Procedure (Impella)

Precautions:

- Verify the battery charge level before unplugging and moving the Impella controller. A fully charged battery will support the system for approximately 60 minutes. The Impella controller should always be plugged in for transport.
- Place the Impella controller must on a flat surface, where the screen is easily visible during transport. The controller must be secured during transport to avoid accidental dislodgement of the sheath and to prevent the controller from becoming a dangerous projectile. Consider using the bed mount as a loop through which to secure the device with straps.
- Movement of the HOB is the primary cause of migration of the Impella during transport. Do not move the HOB from its initially established position.
- Keep the stopcock on the peel-away introducer or repositioning sheath in the closed position. Significant bleeding can occur if the stopcock is in the open position.
- Do not decrease pump performance (P) level below P2 as long as the pump is in the ventricle. Below P2, retrograde flow will occur across the aortic valve.
- CPR should be initiated immediately per MedStar protocol if indicated. When starting CPR, reduce the Impella flow rate to P2. If return of spontaneous circulation, return the flow rate to the previous P-level, by increasing one P-level every 30-60 seconds and assess placement signals on the controller.
- Infusion through the side port of the introducer can be done only after all air is removed from the introducer. If performed, the infusion should be done for flushing purposes only and NOT for delivering therapy or monitoring blood pressure or MAP.
- Base the management of the patient's hemodynamic status on MAP readings from an arterial line. Target MAP to >65 mmHg or level ordered by sending facility.
- If there are any changes in the patient's condition during transport or there are unresolved Yellow or Red alarms, contact the receiving facility with updated information so they can prepare for the proper interventions before patient arrival.
- Contact the 24-hour clinical support line at 1-800-422-8666 with any questions or concerns during transport. Use only for general information about the device functionality only. For any orders needed for patient management, contact OLMC. the receiving facility with updated information so they can prepare for the proper interventions before patient arrival.

IFT-Ventriculostomy Monitoring Procedure

1. Maintain patient's head position per physician's order (usually 30 degrees).
2. Check and document dressing site and appearance.
3. Confirm level of drain and any other patient specifics in regards to monitoring, as follows.
 - a. Review physician's order to place ventriculostomy to either drain or monitor.
 - i. *If ventriculostomy is placed to drain*
 - Verify that the stopcock at the zero level is opened to the drainage bag side. The drip chamber is placed so that the zero level is at the foramen of Monroe (Point of communication between the 3rd and lateral ventricles of the brain). Anatomical landmark for foramen of Monroe is the external auditory canal. Ensure the Burette is moved so that the pressure line is at the ordered level of drainage.
 - ii. *If ventriculostomy is set to monitor*
 - Do not collect measurements during transport.
4. The system must be secured on a pole at all times. The system is adjusted to obtain the zero level.
5. If tubing becomes occluded during transport, do not flush or manipulate line. Notify receiving staff upon arrival.
6. Document on PCR drainage amount, color, ICP and any other pertinent information.

MIH

Congestive Heart Failure (CHF) Protocol

This protocol is to be used by an appropriately credentialed Mobile Integrated Health (MIH) Provider as standing orders for patients enrolled in an approved Mobile Integrated Health program. This protocol may be used in visits requested by partner agencies or 911 calls from program clients. The primary point of contact for all patient consultations is that individual's PCMH primary provider contact or, if unavailable, contact [OLMC](#).

- Contact appropriate partner agency staff
- Review relevant patient clinical record and lab values
- Measure and document vital signs (BP, weight, O₂, pulse)
- Perform [12-lead ECG](#)

Considerations for Patient Education

- Educate patient on appropriate dietary and medication compliance.
- Encourage ingestion of food or milk to reduce GI upset if increasing potassium dose.
- Have patient record weight daily.

- Interpret 12-lead ECG
- Perform and interpret i-STAT (ensure sample not hemolyzed)

Hypokalemia

If $K^+ < 2.5$ mEq/L or ECG findings consistent with hypokalemia

- Administer patient's Potassium - 40 mEq PO
- Request ambulance for transport to ED

Hyperkalemia

If there are any ECG changes consistent with hyperkalemia

- Request ambulance for transport to ED, and [treat for hyperkalemia \(see treatment box\)](#)

If $K^+ > 7.0$ mEq/L (regardless of ECG changes)

- Request ambulance for transport to ED, and [treat for hyperkalemia \(see treatment box\)](#)

If there are no ECG changes consistent with hyperkalemia

If $K^+ > 5.0 - 6.0$ mEq/L, AND if the most recent $K^+ > 5.0$ mEq/L (within the last 72 hrs)

- Contact partner agency staff / OLMC for further guidance to discuss plan of care, to potentially include:
 - Stop oral potassium supplementation for 2 days
 - Recheck potassium at least daily until < 5 mEq/L
- If the patient is not taking oral potassium AND is not scheduled for urgent diuresis*
 - Request ambulance for transport to ED

If $K^+ > 5.0 - 6.0$ mEq/L, AND if the most recent $K^+ < 5.0$ mEq/L (within the last 72 hrs)

- Request ambulance for transport to ED

If $K^+ 6.0-7.0$ mEq/L (independent of previous K^+ value)

- Request ambulance for transport to ED

If Creatinine > 3 mg/dl

- Contact PCMH

If patient is on warfarin (Coumadin)

- Review patient's PT/INR, when available, with the PCMH, who will provide instructions for changes in dosing and follow-up

- Adjust diuresis and potassium dosing per CHF Protocol Dosing Schedule

Contraindications

- Weight gain of less than 2 lbs. over baseline.
- Potassium of < 2.5 or > 5.5 mEq/L (transport if present)
- Acute clinical changes such as chest pain, dyspnea, or signs of acute decompensation (transport if present)
- If in the MHP's clinical judgment the patient requires transport/ED evaluation

Urgent/Emergent Treatment of Hyperkalemia

- [Calcium Chloride](#) - 1 g IV slow push
- [Sodium Bicarbonate](#) - 1 mEq/kg IV/IO (if suspected acidosis)

Congestive Heart Failure (CHF) Protocol (Dosing Schedules)

Diuresis Dosing Schedule

3-5 lbs. over	>5 lbs. over
Double PO furosemide or torsemide for 3 days. <i>Refer to K⁺ dosing schedule below</i>	Administer double the patients <u>single</u> PO dose of furosemide as IVP x1. (e.g. Patient on 40 mg PO twice daily = 80 mg IVP) <i>Refer to K⁺ dosing schedule below</i>
MIH-P follow-up in 24 hours.	- MIH-P follow-up in 4 hours (can be phone call). 24 hour follow-up in person
PCP notification	Extensivist / PCP follow up in 48 hours.
Extensivist / PCP follow up in 48 hours.	

Potassium Dosing Schedule:

K ⁺ = 2.5 – 2.9	K ⁺ = 3.0 – 3.4	K ⁺ = 3.5 – 4.9	K ⁺ ≥ 5.0
Increase by 50% for the length of time patient has increased Lasix dosing.	Increase by 25% for the length of time patient has increased Lasix dosing.	No Change	Refer to protocol

PEARLS:

- Furosemide (Lasix), Torsemide (Bumex)
- If diuresis is performed more than 3-visits in a row refer to an Advanced Heart Failure Clinic.

COPD/Asthma Protocol

This protocol is to be used by an appropriately credentialed Mobile Integrated Health (MIH) Provider as standing orders for patients enrolled in an approved Mobile Integrated Health program. This protocol may be used in visits requested by partner agencies or 911 calls from program clients. The primary point of contact for all patient consultations is that individual's PCMH primary provider contact or, if unavailable, contact [OLMC](#).

- See [Respiratory Support](#)
- Initiate transport if the patient fails to respond to nebulizer therapy

If patient has a positive response to nebulizer therapy

- Contact PCMH to arrange appropriate follow-up

Diabetes Protocol

This protocol is to be used by an appropriately credentialed Mobile Integrated Health (MIH) Provider as standing orders for patients enrolled in an approved Mobile Integrated Health program. This protocol may be used in visits requested by partner agencies or 911 calls from program clients. The primary point of contact for all patient consultations is that individual's PCMH primary provider contact or, if unavailable, contact [OLMC](#)

If patient is obtunded, unconscious, or altered

- See [Diabetic Emergencies](#) and request ALS transport

If patient is conscious

- Measure Blood Glucose

If blood glucose ≤ 60 mg/dl and symptomatic

- Oral Glucose - 15 g buccal (if intact gag reflex and able to tolerate)
- Recheck blood glucose
- Contact PCMH for any suggested changes in dosing and/or for appropriate follow up

If blood glucose ≥ 300 mg/dl and asymptomatic

- Verify with appropriate partner agency that patient is on insulin sliding scale
 - Teach and assist patient with insulin self-administration

If patient is unable to administer insulin

- Contact PCMH for any suggested changes in dosing and/or for appropriate follow up

If blood glucose ≥ 300 mg/dl and symptomatic (e.g. AMS, signs of hypovolemia, suspected DKA or hyperosmolar state)

- Perform i-STAT

If $CO_2 \leq 16$ or anion gap ≥ 20

- NS - 1 L IV bolus
- Contact PCMH and recommend ambulance transport to ED

High Utilizer Group (HUG) Protocol

This protocol is to be used by an appropriately credentialed Mobile Integrated Health (MIH) Provider as standing orders for patients eligible for, or enrolled in, the High Utilizer Group program. Patients with frequent utilization of the 911 EMS or hospital Emergency Department system are eligible for the High Utilizer Group (HUG) program. Patient will either be referred internally or by partner agencies. MedStar will conduct a series of home visits to help enable patients to navigate themselves through the healthcare system. The primary point of contact for all patient consultations is that individual's PCMH primary provider contact or, if unavailable, contact [OLMC](#).

Referral Criteria

High Utilizer Group patients may include individuals who meet the following criteria:

- Requested 15 or more 911 ambulance responses during the past 90-days, OR
 - Referred by a partner agency for avoidable visits to the Emergency Department during the past 12-months
- AND
- Live in the MIH service area
 - Possesses mental capacity to support navigational assistance
 - Willing to participate in the program and allow MIH Providers into their home for assessment and follow-up

Initial Home Visit/Patient Assessment

- Conduct initial assessment of barriers to the patient's care, which may include:
 - Living environment
 - Social barriers to appropriate engagement in care
 - Transportation
 - Access to primary care
 - Disease management
- Facilitate the development and implementation of a care plan by the PCMH, which may include:
 - Primary Care Provider (PCP) assignment (if necessary)
 - Series of home visits to educate the patient and family on appropriate care management
 - Assistance with navigation through the patient's primary care network/resources
 - Provision of 24/7 non-emergency number to request mobile healthcare provider support during the duration of the program enrollment

Scheduled Home Visits

Enrolled patients will receive a series of home visits to educate:

- The patient and family on appropriate ways to manage their disease process
- The patient on how to navigate the healthcare system

Unscheduled Home Visits

The patient will be provided a non-emergency phone number in the event they would like a phone consultation or an unscheduled home visit between scheduled visits.

911 Responses

Enrolled patients will be tracked in the computer aided dispatch (CAD) system, and in the event of a 911 call to their residence, a 911 ambulance response will be initiated, along with an MIH provider who will be dispatched to the scene. Once on-scene, the MIH provider may be able to intervene and navigate the patient to an alternate source of care, including PCMH, urgent care, self-care, or by employing the use of the Disease Management MIH protocols.

Care Management Protocols (CMP)

The primary point of contact for all patient consultations is that individual's PCMH primary provider contact or, if unavailable, contact [OLMC](#). In consultation with the PCMH, patients with conditions including, Diabetes, COPD, or CHF can either have their medications adjusted in the field, or they may receive in-home therapy through Care Management Protocols, with an in-office follow-up appointment to minimize any unnecessary transport to the Emergency Department. Refer to the appropriate CMP (e.g. Diabetes, CHF, COPD/Asthma)

High Utilizer Group (HUG) Protocol

Program Length

Term of program will be a minimum of 30-days and a maximum of 90-days after acceptance into the program, based on patient compliance and meeting established program goals.

Record Keeping

Patients enrolled in the program have a continual electronic medical record (EMR) that allows all care providers mobile access to the patient's entire course of assessments and treatments during enrollment, including care notes, lab values, vital signs, ECG tracings and treatments initiated. These records can be provided to caregivers in accordance with the Treatment Payment Operations (TPO) definitions of Health Insurance Portability and Accountability Act (HIPAA).

Hospice Patients

This protocol is to be used by an appropriately credentialed Mobile Integrated Health (MIH) Provider as standing orders for patients enrolled in an approved Mobile Integrated Health program. This protocol may be used in visits requested by partner agencies or 911 calls from program clients.

If concern/complaint related to hospice care

- Responding ambulance crew should remain on-scene and only transport if it is unsafe to wait for a MIH provider to arrive.
- Upon arrival on scene, the MIH provider will assist in addressing the family/patients concerns. The MIH provider will help to ensure the patient's comfort and may use the hospice supplied in-home comfort-pack if required once they have consulted with hospice provider or, if unavailable, [OLMC](#).
- The responding MIH provider will remain with the family/patient until the hospice nurse arrives or until the family and patient are comfortable with the patient's status.

If the patient/family insists on being transported to the ED

- Attempt to arrange for a direct admit to an inpatient hospice care facility

If complaint not associated with the patient's hospice diagnosis

- Responding ambulance crew should transport only if acuity/condition is unsafe to wait for MIH provider to arrive
- Upon arrival on-scene, the MIH provider will work with the patient/family to ensure their wishes are carried out and the appropriate care is provided, while awaiting the arrival of a hospice representative.

If the patient/family insists on being transported to the ED and are unwilling to wait or discuss the situation with the responding Hospice representative

- Facilitate transportation by ambulance to the appropriate acute care facility.

Insulin Titration

This protocol is to be used for patients with hyperglycemia or hypoglycemia on the second home visit who have recently been released from the hospital and have not seen their new PCP or their PCP has been contacted twice (on two subsequent visits) without a response.

- Contact appropriate partner agency
- Measure blood glucose

If hyperglycemia present (blood glucose ≥ 300 mg/dl prior to short acting insulin treatment and asymptomatic)

Hyperglycemia

- Perform iStat and calculate anion gap

If anion gap < 12

- Glucose 300-400 mg/dl increase long-acting insulin by 2 units on next dose
- Glucose 400+ increase long-acting insulin by 4 units on next dose

If hypoglycemia present

- For symptomatic with hypoglycemia see, [Diabetic Emergencies](#) and if no transport consider [Insulin Titration](#)

→ Fasting or overnight

Blood glucose < 54	Blood glucose 55-70 and	Blood glucose 55-70 and
Reduce long-acting insulin dose by 40%	Reduce long-acting insulin by 4 units or 10% (whichever is greater)	Reduce evening intermediate insulin dose by 2 units

→ Daytime and corresponds with sliding scale or set pre-prandial insulin dosage

(use sliding scale insulin dosage given 30 minutes-6 hours prior to hypoglycemic episode)

Blood glucose ≤ 54	Blood glucose 55-70
Reduce sliding scale or pre-prandial insulin by 40%	Reduce sliding scale insulin dosage If sliding scale < 10 units reduce by 2 units If sliding scale 11-20 units reduce by 4 units If sliding scale > 20 units reduce by 8 units

→ Daytime & Does Not Correspond with Sliding Scale

Blood glucose ≤ 54	Blood glucose 55-70 and long-acting insulin	Blood glucose 55-70 and intermediate insulin
Reduce long-acting insulin dose by 40%	Reduce long-acting insulin by 4 units or 10% (whichever is greater)	Reduce morning and evening intermediate insulin dose by 2 units

→ Fasting or Overnight and Daytime & Corresponds with Sliding Scale

Blood glucose ≤ 54	Blood glucose 55-70 and long-acting insulin	Blood glucose 55-70 and intermediate insulin
Reduce long-acting insulin dose by 40%	Reduce long-acting insulin by 4 units or 10% (whichever is greater)	Reduce morning and evening intermediate insulin dose by 2 units

→ Fasting or Overnight and Daytime & Does Not Correspond with Sliding Scale

Blood glucose ≤ 54	Blood glucose 55-70 and long-acting insulin	Blood glucose 55-70 and intermediate insulin
Reduce long-acting insulin dose by 40%	Reduce long-acting insulin by 4 units or 10% (whichever is greater)	Reduce morning and evening intermediate insulin dose by 2 units

Pearls:

- Intermediate-acting insulins (examples): Humulin N, Insulin NPH, Novolin N
- Long acting insulins (examples): Insulin glargine, insulin detemir, insulin degludec
- For this protocol basal insulin is any intermediate or long-acting insulin

i-STAT Procedure

Precautions:

Avoid the Following Circumstances:

- Drawing a specimen from an arm with an I.V.
- Stasis (tourniquet left on longer than two minutes before venipuncture)
- Extra muscle activity (fist pumping)
- Hemolysis (alcohol left over puncture site, or a traumatic draw)
- Time delays before filling cartridge, especially lactate, ACT, and PT/INR

Criteria For Specimen Rejection:

- Evidence of clotting
- Specimens collected in vacuum tubes with anticoagulant other than lithium or sodium heparin
- Specimens for ACT or PT/INR collected in glass syringe or tube or with anticoagulant of any kind
- Incompletely filled vacuum tube for the measurement of ionized calcium or PCO₂
- Other sample types such as urine, CSF, and pleural fluid

Procedure:

Cartridges:

A single-use disposable cartridge contains microfabricated sensors, a calibrant solution, fluidics system, and a waste chamber. A whole blood sample of approximately 1 to 3 drops is dispensed into the cartridge sample well, and the sample well is sealed before inserting it into the analyzer. An individual cartridge may be used after standing 5 minutes, in its pouch, at room temperature. An entire box should stand at room temperature for one hour before cartridges are used. Cartridges may be stored at room temperature (18 to 30° C or 64 to 86° F) for 14 days. Cartridges should not be returned to the refrigerator once they have been at room temperature, and should not be exposed to temperatures above 30° C (86° F). If the pouch has been punctured, the cartridge should not be used. Write the date on the cartridge box or individual cartridge pouches to indicate the two-week room temperature expiration date. Cartridges should remain in pouches until time of use. Do not use after the labeled expiration date.

Testing:

Press the Power button to turn on the Handheld.
DO NOT insert the cartridge to start the test.

Press the “2” button to start a new test. Follow the handheld prompts. For “Operator ID,” enter your MedStar ID number. For “Patient ID,” enter the run number for the call.

Scan or Enter
Operator ID

Screen 2

Scan or Enter
Patient ID

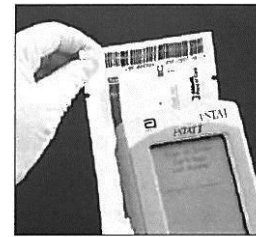
Screen 3

i-STAT Procedure

Scan the Lot Number on the cartridge pouch. Position the barcode 3-9 inches from the scanner window on the handheld. Press and hold "Scan" to activate the scanner. Align the laser light to cover the entire barcode. The handheld will beep when it reads the barcode successfully. If you cannot scan the barcode, enter the lot number using the numbered keys, ignoring any letters. **DO NOT** open cartridge pouch before scanning the barcode.



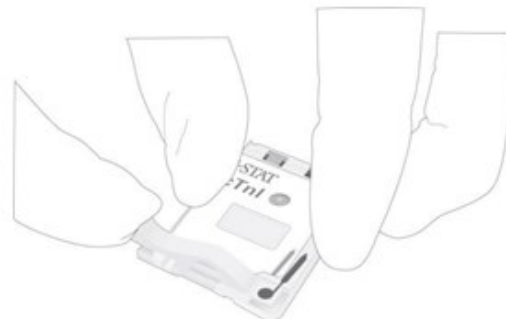
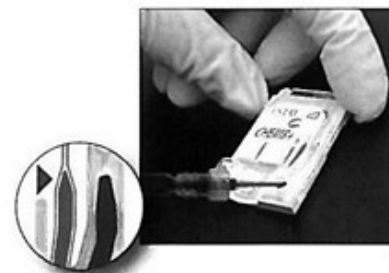
Screen 1



Remove cartridge from pouch. Handle the cartridge by its edges. Avoid touching the contact pads or exerting pressure over the center of the cartridge.



Mix blood and collection tube additives by inverting a tube gently at least ten times. Following thorough mixing of the sample, use a plastic capillary tube, pipette, or syringe to transfer sample from a tube to a cartridge. Direct the dispensing tip containing the blood into the sample well. Dispense the sample until it reaches the fill mark on the cartridge and the well is about half full. Close the cover over the sample well until it snaps into place. (Do not press over the sample well.)



i-STAT Procedure

Insert the cartridge into the cartridge port on the analyzer until it clicks into place. The analyzer must remain horizontal during the testing cycle. Never attempt to remove a cartridge while the LCK or "Cartridge Locked" message is displayed.

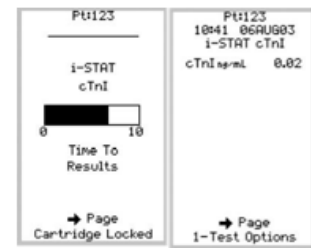
Wait until testing cycle is complete. Results are displayed numerically with their units. Electrolyte, chemistry and hematocrit results are also depicted as bar graphs with reference ranges marked under the graphs.

To print the results, turn printer on if green power light is not on. Align IR windows of analyzer and printer. Display results. Press the Print key.

Do not move analyzer or printer until printing is complete.

Note: Results printed on thermal paper will fade with time and are therefore not acceptable as a permanent chartable record.

To print a stored test record(s), select "Print Results" from the Stored Results menu. Select records to be printed by pressing the Key(s) corresponding to the numbers beside the record(s). Press the numbered key again to deselect a record. Then press the PRT Key. Do not move the analyzer while "Printing" is displayed.



Screen 4

Screen 5

Suppressed Results

There are three conditions under which the i-STAT System will not display results:

1. Results outside the System's reportable ranges are flagged with a < or > , indicating that the result is below the lower limit or above the upper limit of the reportable range respectively. (See the table of Reportable Ranges.) The < > flag indicates that the results for this test were dependent on the result of a test flagged as either > or <.
2. Cartridge results which are not reportable based on internal device problem are flagged with ***. **Action:** Analyze the specimen again using a fresh sample and another cartridge. If the specimen integrity is not in question, the results that are not suppressed should be reported in the usual manner.
3. A Quality Check message will be reported instead of results if the analyzer detects a problem with the sample, calibrant solution, sensors, or mechanical or electrical functions of the analyzer during the test cycle. The device should be serviced as soon as possible.

The following should be used as a guideline to determine appropriate actions when any of the following are identified:

Abnormal Lab Values - When Chem 8 values are abnormal, but not "critical", notification to client's physician's office must be made prior to terminating visit. This may be telephone or email but must also be documented in the client record.

Critical Lab Values - When Chem 8 values report in the "critical range" (as below) patient's physician must be consulted immediately. If consultation with the patient's physician cannot be completed, the Office of the Medical Director on-call physician, or delegate, must be consulted. Consider transport to appropriate facility as needed.

NOTE: For End-stage Renal Disease (ESRD) patients on dialysis who have received regularly scheduled dialysis and have a normal potassium, an abnormal creatinine or BUN value does not require contact.

Test	Reference Range	Critical Levels
Sodium (Na)	138-146 mEq/L	<120 or >160
Potassium (K)	3.5-4.9 mEq/L	<2.5 or >6
Chloride (Cl)	98-109 mEq/L	<90 or >120
Ionized Calcium (iCa)	4.5-5.3 mg/dl	<4 or >6
Total CO ₂ (TCO ₂)	24-26 mEq/L	<10 or >40
Glucose (Glu)	10-105 mg/dl	>400
Urea Nitrogen (BUN)	8-26 mg/dl	<2 or >80
Creatinine (Crea)	0.6-1.3 mg/dl	>2.8
Hematocrit (Hct)	38-51% PCV	<20 or >60
Hemoglobin (Hgb)	12-17 g/dl	<6 or >20
Anion Gap (Agap)	10-20 mEq/L	>20

Non-Compliant HUG Protocol

This protocol is to be used by an appropriately credentialed Mobile Integrated Health (MIH) Provider as standing orders for patients who are found to be non-compliant with the High Utilizer Group program.

Non-Compliant Evaluation

When an agency official believes that an individual HUG patient may be chronically and inappropriately utilizing the 911 EMS system, a report shall be provided to the OMD with the following information:

- Identity of the individual
- 911 utilization before and during enrollment in the HUG program
- Chief Complaint when calling 911
- Past Medical History
- Any previous history of enrollment in MIH programs, and the outcomes of those enrollments
- History of Police utilization during prior 911 responses or patient visits
- Frequency of hospital visits
- Contact information for any known PCMH or other outpatient care providers (including mental health providers), and details of prior service requests, interactions, and discussions regarding facilitation of a care plan
- Assigned home hospital
- Copies of patient record forms completed by all EMS providers who have previously interacted with the patient

Non-Compliant Assignment

The Medical Director will review the report. If the individual is deemed non-compliant, the patient will be registered as such, and a Client Specific Care Plan will be issued.

Calls to 911

All 911 requests for Non-Compliant HUG patients shall receive an appropriate 911 response.

If identified as a Non-Compliant HUG patient during 911 call-taking process

- Communications Center will initiate a concurrent MIH response

If not identified as a Non-Compliant HUG patient during 911 call-taking process

- Responding crew shall:
 - Perform and document a careful assessment on all patients
 - Initiate an MIH response via radio or phone request

If the crew identifies an emergent or possible life-threatening condition

- Initiate 911 treatment and transport, as appropriate

If identified as a Super Non-Compliant HUG patient during the 911 call-taking process

- Communications Center will initiate a non-transport response as per the Client Specific Care Plan

MIH Response, Management, and Disposition

- Respond, if available
- Assign themselves to the CAD incident, if not already done so by the Communications Center
- Respond in non-emergency mode
- Access the client's information, if available
- Take a verbal report from the responding 911 crew to obtain the following:
 - Current complaint
 - Vital signs
 - Significant history and examination findings
- Complete a thorough assessment
- Evaluate the patient for possible navigation to an alternative source of care, or initiate 911 transport to the ED

Non-Compliant HUG Protocol

If patient is a candidate for alternate source of care

- Contact **OLMC** for discussion of treatment, transport modality, and disposition
- Facilitate transport and allocation of additional resources, which may include:
 - Bus pass
 - Taxi voucher
 - Follow-up home visit
 - Assisting client to schedule visit with a doctor or urgent care

If patient does not necessitate ED transport, or alternate source of care

- Contact **OLMC**, and if agreement, assign disposition of Medical Director Refusal

Documentation

- Complete ePCR and sign as the primary paramedic, and include summary of **OLMC** disposition
- Attempt to have the client sign the authorization section, acknowledging the assessment provided and assigned disposition
 - If the client refuses to sign, place the client's name in the appropriate field and mark that the client "refused to sign"
- Attempt to obtain a witness signature

Quality Assurance

- A file will be maintained on each OMD registered Non-Compliant HUG patient, including ePCR documentation of all transports and non-transports
- All cases will be reviewed every 6-months for renewal of Non-Compliant HUG status
- Patients whose 911 utilization falls below 1/3 of their original usage may have their non-Compliant status removed

Observation Avoidance Protocol

This protocol is to be used by an appropriately credentialed Mobile Integrated Health (MIH) Provider as standing orders for patients eligible for, or enrolled in, the Observation Avoidance program. Patients are referred by the Emergency Department case manager or any member of the care team. The MIH Provider initially consults with care providers and evaluates patients while in the ED. The MIH Provider then performs scheduled home assessment follow-up visits until patient care is transitioned to the PCMH, within 7-days. The primary point of contact for all patient consultations is that individual's PCMH primary provider contact or, if unavailable, contact [OLMC](#).

Referral Criteria

To be eligible for enrollment into the Observation Avoidance Program, the patient must:

- Be referred prior to discharge, and be present in the ED when the MIH Provider arrives
- Possess mental capacity to provide informed consent for treatment and management
- Be willing to participate in the program and allow MIH Providers into the home for assessment and follow-up
- Live in the MIH service area
- Be eligible for a follow-up visit within the next 7-days

Program Length

Completion of program is based on the patient's care being successfully transitioned to the PCMH. Term of program will be a minimum of 1-day and a maximum of 7-days.

Enrollment

To enroll patients into the program, the MIH Provider will:

- Perform an initial visit and assessment in the ED
- Meet with the patient and referring physician to discuss patient's management following discharge and prior to PCP or specialist follow-up
- Schedule an appointment with the follow-up care provider within 7-days.
- Explain to the patient the service that will be provided
- Schedule an in-home visit
- Provide the non-emergency contact number to the patient for episodic needs while enrolled in the program.

Any change in the patient's condition, or consultation regarding the patient's condition or treatments, will be communicated to the referring Emergency Department physician or PCMH, for inclusion in the patient record.

Follow-up

The MIH coordinator or Triage Nurse will provide a report to the follow-up provider's office, including the patient's assessment, treatments provided, and any written documentation.

The MIH coordinator or ECNS Nurse will confirm the time of the patient's appointment, remind the patient of the appointment time, and ensure that the patient has transportation to the follow-up provider's appointment

Unscheduled Home Visits:

The patient will be provided a non-emergency phone number for MIH in the event they would like a phone consultation or an unscheduled home visit between scheduled visits.

911 Responses

Enrolled patients will be tracked in the computer aided dispatch (CAD) system, and in the event of a 911 call to their residence, a 911 ambulance response will be initiated, along with a MIH-P who will be dispatched to the scene.

Once on-scene, the MIH-P may be able to intervene and navigate the patient to an alternate source of care, including PCMH, urgent care, self-care, or by employing the use of the appropriate CMP protocols.

Record Keeping

Patients enrolled in the program have a continual electronic medical record (EMR) that allows all care providers mobile access to the patient's entire course of assessments and treatments during enrollment, including care notes, lab values, vital signs, ECG tracings and treatments initiated. These records can be provided to caregivers in accordance with the Treatment Payment Operations (TPO) definitions of Health Insurance Portability and Accountability Act (HIPAA).

Oropharyngeal / Nasopharyngeal Swab Procedure

Indications:

- Clinical concern for strep pharyngitis
- Clinical concern for COVID-19 +/- influenza

Contraindications:

- Recent facial trauma / fracture / surgery
- History of bleeding disorders
- Nasal septal or palate defect

Pearls & Pitfalls:

- Up to 20% of asymptomatic school-aged children and 25% of asymptomatic household contacts of children with strep throat are colonized with Group-A Strep
- Patients who have recently tested positive for COVID-19 may remain positive for weeks to months

Procedure:

- Wear appropriate PPE for droplet precautions: face mask, gloves, protective eye wear
- Ensure patient is in a comfortable position.
- **Nasopharyngeal Swab**
 - Hold swab with a pencil grip and insert horizontally into one nostril parallel to the palate. Insert to the following depth, or until resistance is met:
 - 1 cm if <2 years
 - 1.5 cm if 2-6 years
 - 2 cm if 6-12 years
 - 2-3 cm if >12 years
 - Rotate swab 5 times against the nasal wall.
 - Remove Swab and insert into transport medium or vial.
- **Oropharyngeal Swab**
 - Using a tongue depressor, flatten tongue and insert swab. Swab tonsillar beds and back of throat, avoiding tongue. Rotate tip of swab for 3-5 seconds.
 - Remove Swab and insert into transport medium or vial.

Peak Flow Procedure

This protocol is to be used by an appropriately credentialed Mobile Integrated Health (MIH) Provider as standing orders for patients enrolled in an approved Mobile Integrated Health program. This protocol may be used in visits requested by partner agencies or 911 calls from program clients. The primary point of contact for all patient consultations is that individual's PCMH primary provider contact or, if unavailable, contact [OLMC](#).

Indications:

- Patients with limited or severely restricted expiratory flow
- Patients on bronchodilator therapy
- Patient able to understand and physically able to attempt the test

Contraindications:

- Age or cognition does not enable ability to comprehend or cooperate
- Facial condition or neurological condition that alters their ability to do the test.
- Respiratory distress level to point patient could deteriorate with testing

Procedure:

- Ensure indicator is at the bottom of the number scale
- Position patient in an upright sitting or standing
- Instruct the patient to hold the peak flow meter horizontal being careful not to block the opening
- Instruct patient to inhale as deeply as possible and then place mouth firmly around the mouthpiece making a tight seal.
- Instruct patient to blow out as hard and fast as they can through the mouthpiece
- Move the indicator back to the bottom of the scale, and repeat steps 2-5 for two more attempts
- Instruct the patient to repeat this maneuver three times (if able to do so)
- Document the highest reading as the peak flow

*** Please contact the ordering community partner with the results of Peak Flow test***

Zones	Signs & Symptoms
Green (80% of predicted)	No asthma symptoms No nighttime cough Normal activities No need for rescue medications
Yellow (50-80% of predicted)	Some asthma symptoms Decreased peak flow
Red (<50% of predicted)	Increased asthma symptoms Decreased in peak flow Poor or no response to rescue medications

Admission/Readmission Avoidance Protocol

This protocol is to be used by an appropriately credentialed Mobile Integrated Health (MIH) Provider as standing orders for patients eligible for, or enrolled in, the Admission/Readmission Avoidance program. Patients at risk for admission/readmission are referred by the patient's Case Manager or PCMH. The MIH Provider will conduct a series of home visits to educate the patient and family on appropriate healthcare management, coordinate in-home therapy, schedule a follow-up appointment with the PCMH, or facilitate emergency transport or navigation to an alternate source of care.

Referral Criteria

To be eligible for enrollment into the Admission/Readmission Avoidance Program, the patient must:

- Be referred during an inpatient admission or be at high risk for a preventable readmission
- Possess mental capacity to make informed decisions regarding their disease management
- Be willing to participate in the program and allow the MIH Providers into their home for assessment and follow-up
- Have an established relationship with a PCMH
- Must live in the MIH service area

Patient may be deemed ineligible for the program if, for example, they are:

- Stage-3 or 4 Chronic Kidney Disease (CKD) without an attending nephrologist
- Pregnant
- Age 18-years or younger
- Living outside the MIH service area
- Currently receiving chemotherapy and/or radiation therapy
- Homeless and not living in a shelter
- Previously non-adherent with an MIH program

Any case, at any time, may be deemed ineligible and excluded from the MIH program after review by OMD. All reasonable efforts will be made by the MIH Provider to notify the client, PCMH, and home health partners of the client's status.

Scheduled Home Visits

Enrolled patients will receive a series of home visits by an MIH Provider to:

- Educate the patient and family on appropriate management of their disease process, including:
 - Diet and weight management
 - Medication compliance
 - Healthy lifestyle changes
- Educate the patient on how to navigate their primary/specialty care network for the purpose of managing their disease process, including:
 - When to call for an appointment
 - Important information to share with providers

Unscheduled Home Visits

The patient is provided a non-emergency phone number for MIH in the event they would like a phone consultation or an unscheduled home visit between scheduled visits.

911 Responses

Enrolled patients will be tracked in the computer aided dispatch (CAD) system, and in the event of a 911 call to their residence, a 911 ambulance response will be initiated, along with a MIH-P who will be dispatched to the scene.

Once on-scene, the MIH-P may be able to intervene and navigate the patient to an alternate source of care, including PCMH, urgent care, self-care, or by employing of the use of the appropriate CMP protocols.

In consultation with the patient's PCMH, patients with a Care Management Plan (CMP), e.g. Diabetes, CHF, COPD/ Asthma, can either have their medications adjusted in the field, receive in-home therapy through their CMP, or with the PCMH. Refer to the appropriate CMP.

Admission/Readmission Avoidance Protocol

Program Length

Term of program will be a minimum of 30-days and a maximum of 90-days after acceptance into the program, based on patient compliance and meeting established program goals.

Record Keeping

Patients enrolled in the program have a continual electronic medical record (EMR) that allows all care providers mobile access to the patient's entire course of assessments and treatments during enrollment, including care notes, lab values, vital signs, ECG tracings and treatments initiated. These records can be provided to caregivers in accordance with the Treatment Payment Operations (TPO) definitions of Health Insurance Portability and Accountability Act (HIPAA).

Suture/Staple Removal Procedure

This protocol is to be used by an appropriately credentialed Mobile Integrated Health (MIH) Provider as standing orders for patients enrolled in an approved Mobile Integrated Health program. This protocol may be used in visits requested by partner agencies or 911 calls from program clients.

Indications: Request from a clinician to remove staples or a known type of suture

Contraindications: Signs of wound complications, dehiscence (wound edges do not meet), or infection

Procedure:

- Visually assess the wound for uniform closure of the wound edges, absence of drainage, redness, and swelling
- Utilize non-sterile gloves and cleanse site with alcohol prep prior to beginning

Simple Interrupted Suture Removal

- Gently grasp the knot or the tail of suture with forceps and raise slightly off skin
- Place the curved tip of the suture scissors directly under the knot or on the side, close to the skin
- Gently snip the suture and remove it with forceps. Never snip both sides of the knot.
- Ensure all suture material is removed and placed on sterile gauze
- Remove every second suture until the end of the wound line.
- Assess for signs of dehiscence after each removal (*if present see below*)
- Continue removal until all sutures removed

Staple Removal

- Place the lower jaw of the staple remover under a staple
- Squeeze the handles completely to close the device bending the staple in the middle and pulling the edges of the staple out of the skin
- Gently move the staple away from the wound once both ends are visible
- Relax pressure on the staple remover's handles to release the staple onto clean gauze. Consider staple disposal into a sharps container.
- Remove every second staple until the end of the wound line
- Assess for signs of dehiscence (*if present see below*)
- Continue removal until all staples removed

Post-removal care

- Apply sterile wound strips to reduce likelihood of dehiscence
- Advise patient of ongoing self-care and warning signs for infection

Urinary Catheter (Foley) Malfunction

This protocol is to be used by an appropriately credentialed Mobile Integrated Health (MIH) Provider as standing orders for patients enrolled in an approved Mobile Integrated Health program. This protocol may be used in visits requested by partner agencies or 911 calls from program clients.

- Review clinical record
- Consult with appropriate partner agency.
- Flush the catheter or remove as necessary
- Re-insert new urinary catheter

If two unsuccessful attempts

- Contact appropriate partner agency staff or, if unavailable, contact [OLMC](#)

Wound VAC Malfunction Protocol

This protocol is to be used by an appropriately credentialed Mobile Integrated Health (MIH) Provider as standing orders for patients enrolled in an approved Mobile Integrated Health program. This protocol may be used in visits requested by partner agencies or 911 calls from program clients.

- Review clinical record
- Contact appropriate partner agency staff or, if unavailable, contact [OLMC](#)
- Remove Wound VAC
- Pack wound with wet to dry dressings
- Cover dressing with 4×4 or abdominal pad and secure with tape.
- Notify appropriate partner agency staff

Clinical Policies

Ambulance Capabilities

1. **Purpose.** This policy defines the use and designation of all ambulances in the Fort Worth Regional EMS System (System) to facilitate reliable response to all levels of ambulance calls and outlines the use of non-transport emergency vehicles.
2. **Scope.** This policy applies to EMS ambulance operations, outlining the designation, staffing, and use of BLS and MICU ambulances, Critical Care non-transport units, and use of non-transport emergency vehicles for transport under extenuating circumstances.
3. **Unit Inventory and Staffing Requirements.**
 - 3.1. BLS Ambulances are “Basic Life Support with MICU Capability” units.
 - 3.1.1. Such units shall be equipped and staffed as required by the Texas Department of State Health Services EMS Provider License regulations, contractual requirements, and FWOMD requirements. They must be equipped, at a minimum, to support the Basic level of protocol.
 - 3.1.2. Basic credentialed personnel may be assigned to work on BLS Ambulances with at least a Basic credentialed partner and may function within stated policy, protocol, and credentialed scope of practice.
 - 3.2. MICU Ambulances are “MICU Ambulance” units.
 - 3.2.1. Such units shall be equipped and staffed as required by the Texas Department of State Health Services EMS Provider License regulations, contractual requirements, and FWOMD requirements.
 - 3.2.2. Paramedic credentialed personnel may be assigned to work on MICU Ambulances with at least a Basic credentialed partner and may function within stated policy, protocol, and credentialed scope of practice.
 - 3.3. Critical Care non-transport units.
 - 3.3.1. Such units shall be equipped and staffed as required by agreement and FWOMD requirements.
 - 3.3.2. CCP credentialed personnel may be assigned to work on critical care non-transport units and may function within stated policy, protocol, and credentialed scope of practice.
4. **Appropriate use of Non-Transport Emergency Vehicles**
 - 4.1. Non-transport emergency vehicles may be used under the following circumstances in the transport of patients when concern for emergent transport exists and a transport unit is not immediately available:
 - 4.1.1. MCI with ≥ 10 patients
 - 4.1.1.1. Alternate transport considerations have been exhausted
 - 4.1.1.2. Intercept with responding transport unit should be attempted (including Air Medical)
 - 4.1.1.3. An attendant should be present during transport when available
 - 4.1.1.3.1. Attendant should have the highest appropriate level of EMS or other medical licensure or certification available if possible
 - 4.1.1.4. Transport patient to the closest appropriate hospital
 - 4.1.1.5. Patient should be transported in an enclosed environment as available
 - 4.1.1.6. Patient should be appropriately restrained in the vehicle if it will not compromise patient well-being
 - 4.1.2. All other situations
 - 4.1.2.1. Contact On-line Medical Control for further transport guidance

Ambulance Capabilities

5. Appropriate use of BLS Ambulances

- 5.1. BLS Ambulances may be used for BLS eligible patients described by the protocol and operate under the Basic protocols and procedures.

6. Appropriate use of MICU Ambulances

- 6.1. MICU Ambulances may be used for any patient and operate under the Paramedic protocol and procedures.

7. Appropriate use of Critical Care non-transport units

- 7.1. Critical Care non-transport units may be used to supplement BLS and ALS ambulance personnel as described by protocol and operate under the CCP protocols and procedures.

8. Changes in Patient Condition While Engaged in Transport.

- 8.1. Any treatment beyond the clinician's credentialed scope of practice must be ordered by direct on-line medical direction. In case the condition of a patient deteriorates, personnel should provide the indicated stabilization within their scope, immediately notify Medical Control, and request appropriate orders. If it is an inter-facility transfer that originated at a hospital, the team should return to the facility if still near the sending facility; otherwise, transport should continue to the receiving facility. In extreme cases, proceed to the nearest appropriate facility for additional evaluation of the patient.

Purpose:

This procedure establishes the requirements for the receipt, storage, monitoring, documentation, administration, and provider education related to blood products utilized by EMS agencies under the authority of the Fort Worth Office of the Medical Director to promote safe blood product management and minimize preventable wastage.

Definitions:

Approved Portable Refrigeration Unit (APRU): Designated refrigeration equipment approved for the storage and transport of blood products and capable of maintaining required storage temperatures.

Approved Blood Tracking System (ABTS): The electronic system used to document and track blood product inventory, temperature monitoring, administration, and disposition.

Blood Product: Blood or blood components received, stored, transported, or administered by EMS.

Blood Surface Temperature: The measured temperature of the exterior surface of a blood product container obtained using an approved, validated thermometer.

Quarantine: The removal of a blood product from available inventory and restriction from administration or redistribution until its disposition has been determined.

Temperature Excursion: An event in which the storage environment or blood product temperature falls outside the established storage temperature range of 1–6°C.

Temperature Alert: Notification generated by the temperature-monitoring system when the APRU temperature reaches a predetermined alert threshold. A temperature alert does not, by itself, establish that a blood product has experienced a temperature excursion.

Restricted Inventory: A blood product determined acceptable for administration by EMS following a temperature excursion but no longer eligible for return or redistribution to the blood supplier.

Qualified Personnel: Personnel responsible for logistical and clinical management of blood products determined by the organizational policy of the EMS agency in possession of blood products.

General Information:

- I. Blood products shall be received, stored, transported, administered, and disposed of in accordance with this SOP and current Office of the Medical Director (OMD) protocols.
- II. Blood products shall be stored and transported in an Approved Portable Refrigeration Unit (APRU) and maintained at a temperature of 1–6°C except as otherwise provided within this SOP.

- III. Blood products shall remain identifiable and traceable from receipt through final disposition.
- IV. Temperature excursions, equipment failures, or other conditions that may affect blood product integrity shall be promptly evaluated and managed according to this SOP.
- V. Blood products shall be inspected prior to administration and shall not be administered when product integrity cannot be confirmed.
- VI. All blood product receipt, inventory, temperature monitoring, administration, disposition, wastage, and other required activities shall be documented in the designated recordkeeping system.

Procedures:

I. Receiving Blood Products

- A. Blood products shall be received by qualified personnel as determined by department policy .
- B. Upon receipt, qualified personnel shall:
 - 1. Verify blood product temperature is between 1–10°C.
 - 2. Verify the unit number, component type, and expiration date against the accompanying documentation.
 - 3. Visually inspect each unit for damage, leakage, abnormal discoloration, clots, or other abnormalities.
 - 4. Sign and date the receipt, as applicable.
 - 5. Records of receipt should include:
 - a. The name and address of the collection facility
 - b. Date and time received
 - c. Blood product temperature
 - d. Unit/donor number and component type
 - e. Expiration date
- C. Blood products not meeting acceptance requirements shall be quarantined until disposition is determined.

II. Storage and Routine Monitoring

- A. Blood products shall be stored and transported in the designated APRU and maintained at 1–6°C.
- B. The on-duty qualified personnel shall complete and document a daily inspection that includes:
 - 1. APRU and redundant thermometer temperature

2. Visual inspection of blood products for expiration date, damage, leakage, clots, abnormal discoloration, or other abnormalities.
- C. APRU temperatures shall be continuously monitored using the designated wireless temperature-monitoring system. Temperature alerts shall be set at 2.0°C and 5.5°C.
- D. Temperature alerts, out-of-range temperatures, or equipment malfunctions shall be promptly evaluated.
- E. If an APRU cannot maintain the required storage temperature, blood products shall be transferred to another operational APRU or other approved blood storage refrigerator capable of maintaining 1–6°C.

III. Blood Products Removed but Not Administered

- A. A blood product removed from the APRU for potential administration but not used may be returned to storage when:
 1. The blood surface temperature does not exceed 10°C.
 2. The product has not been spiked or otherwise opened.
 3. The product passes visual inspection and has no evidence of damage, leakage, clotting, hemolysis, or abnormal discoloration.
- B. Blood products not meeting these requirements shall be quarantined and managed according to the Temperature Alerts and Excursions section of this SOP.
- C. The removal and return of the blood product shall be documented in ABTS.

IV. Temperature Alerts and Excursions

- A. Initial Actions for Temperature Alert
 1. Upon notification of a temperature alert or identification of an out-of-range temperature, the qualified personnel shall promptly evaluate the APRU and affected blood products.
 2. The qualified personnel shall:
 - a. Verify the APRU temperature and review available temperature-monitoring data.
 - b. Check the APRU power supply, lid seal, battery, and environmental conditions and correct any identified issue when possible.
 - c. Measure the blood surface temperature using an approved, validated thermometer.
 - d. Quarantine affected blood products when product acceptability cannot be immediately confirmed.
 - e. Transfer blood products to another operational APRU or approved blood storage refrigerator if the affected APRU cannot promptly maintain 1–6°C.

- f. Visually inspect affected blood products for evidence of compromised product integrity.
3. A temperature alert that is corrected before the blood product temperature falls outside 1–6°C does not constitute a blood product temperature excursion.
4. When a blood product temperature excursion has occurred, product disposition shall be determined using the applicable Warm or Cold Temperature Excursion criteria below.

B. Excursion Classification and Disposition

1. Confirmed temperature excursions shall be classified according to the measured blood surface temperature, ambient temperature, and duration of exposure.
2. Warm temperature excursions shall be evaluated using *Appendix A – Warm Temperature Excursion Criteria*.
3. Cold temperature excursions shall be evaluated using *Appendix B – Cold Temperature Excursion Criteria*.
4. Blood products shall remain quarantined until disposition is determined when required by the applicable excursion criteria.
5. Product disposition may include:
 - a. Return to normal inventory.
 - b. Restricted Inventory for EMS use only.
 - c. Release for immediate use only.
 - d. Disposal.

C. Notification and Documentation

1. Temperature excursions requiring quarantine, restricted use, immediate use, or disposal shall be documented in ABTS.
2. Documentation shall include the affected unit(s), APRU identification, temperature and duration of the excursion, blood surface temperature, suspected cause, product disposition, and corrective actions taken.
3. In the event of an excursion, notification shall be made to OMD as outlined in the applicable excursion criteria (*Appendix A, B*).

D. Investigation and Corrective Action

1. Temperature excursions requiring investigation under the applicable excursion criteria shall be reviewed to determine the cause and identify necessary corrective actions.
2. Equipment associated with an unresolved malfunction shall be removed from blood product service until proper function is confirmed.

3. Recurrent temperature excursions, equipment failures, or other identified system issues shall be referred to the OMD quality management process for further review.

V. Patient Identification and Criteria for Administration

- A. Criteria for blood product administration shall be established by current OMD clinical protocols.
- B. A TxDSHS wristband shall be applied to each patient receiving blood products to provide a unique patient identifier and support blood product traceability.
- C. The patient identifier shall be documented with the associated blood product administration record.

VI. Patient Consent

- A. Informed consent shall be obtained from patients with decision-making capacity prior to blood product administration.
- B. When a patient lacks decision-making capacity and delaying transfusion would jeopardize the patient, blood products may be administered under implied consent in accordance with current OMD clinical protocols.
- C. Known religious or other objections to receiving blood products shall be respected when applicable.
- D. Consent, refusal, or the use of implied consent shall be documented in the patient care record.
- E. The following consent shall be read to the patient (or family members if available and patient unable to consent):

“We believe the patient has a life-threatening hemorrhagic shock, and the benefit of blood transfusion outweighs the risk. Risks include allergic reaction, transfusion reaction, and transmission of diseases such as HIV or Hepatitis. The risk of obtaining a disease is about 1 in 1 million. Do you consent to transfusion?”

VII. Staff Training and Annual Competency.

- A. Personnel with responsibilities related to blood products shall receive initial training and annual continuing education appropriate to their assigned duties.
 1. Each designated provider who will be carrying blood product will be provided both initial and annual training on blood carrying and monitoring equipment along with temperature monitoring in addition to the blood administration training.
- B. Completion of required training and competency shall be documented.

VIII. Adverse Events

- A. The qualified personnel administering a blood product shall monitor for and report potential infectious and noninfectious adverse events, including:
 - 1. Anaphylaxis.
 - 2. Hemolytic reaction.
 - 3. Disseminated intravascular coagulation (DIC).
 - 4. Other suspected transfusion reactions.
 - 5. Infection.
- B. If an adverse event is suspected, the transfusion shall be stopped immediately and the patient managed in accordance with current OMD clinical protocols.
- C. The qualified personnel shall report suspected transfusion reactions or other blood product-related adverse events through the OMD quality management referral process (selfreport@fortworthtexas.gov)
- D. OMD shall review reported adverse events through the quality management process. The review shall include, as appropriate:
 - 1. Identification of contributing factors or process deviations.
 - 2. Corrective or remedial actions necessary to prevent recurrence.
 - 3. Notification of the blood supplier when findings may be attributable to the blood product or collection facility.
 - 4. Required regulatory reporting including Technical Consultant
- E. In the event of a suspected transfusion-related fatality:
 - 1. The designated Technical Consultant shall provide initial notification to the FDA as soon as possible.
 - 2. A written follow-up report shall be submitted to the FDA within seven (7) days of the fatality.
 - 3. The Technical Consultant shall notify COLA and coordinate any additional required regulatory reporting.
 - 4. The initial notification and follow-up report shall contain the information required by current FDA reporting requirements.

IX. Hospital Notification

- A. The qualified personnel shall notify the receiving facility when blood products have been administered and when a suspected transfusion reaction has occurred.
- B. Blood product administration shall be documented in the patient care record, including the unique patient identifier and identifying information for each blood product administered.
- C. Blood product bags, segments, and other required transfusion-related materials shall be transferred to the receiving facility with the patient.
- D. The receiving nurse shall acknowledge receipt of blood product bags and associated materials as part of the blood administration record.

- E. Transfer of blood products and associated materials to the receiving facility shall be documented in the patient care record.

X. Stocking, Rotation, Replacement, and Disposal.

- A. Blood product inventory shall be monitored to ensure appropriate stock levels and minimize expiration and wastage.
- B. Blood products eligible for return shall be rotated through Blood supplier for exchange no less than 14 days prior to expiration.
- C. Blood products administered or otherwise removed from inventory shall be replaced according to the established blood replacement process.
- D. Blood products designated as **Restricted Inventory** following a temperature excursion:
 - 1. Shall not be returned to Blood supplier.
 - 2. Shall be clearly identified to prevent inadvertent return.
 - 3. Shall be prioritized for EMS use when appropriate.
 - 4. Shall be disposed of if not administered before expiration.
- E. Blood products determined unsuitable for use shall be removed from inventory, documented as wastage in ABTS, and disposed of according to the established biohazardous waste process.

XI. Equipment Validation and Maintenance

- A. Blood storage, warming, and temperature-monitoring equipment shall be maintained in accordance with manufacturer recommendations.
- B. Preventive maintenance shall be performed by the manufacturer or an approved vendor as required.
- C. Non-disposable equipment shall be cleaned in accordance with manufacturer's recommendations. Disposable equipment and supplies shall be discarded after use according to established procedures.
 - 1. APRU alarm and temperature-monitoring systems shall be tested quarterly using *Appendix C – Quarterly Temperature Test Procedure*.
- D. Testing shall include:
 - 1. Battery/power alarm activation.
 - 2. APRU offline
 - 3. High-temperature alarm activation.
 - 4. Low-temperature alarm activation.
 - 5. Verification and documentation that alarm notifications are received by designated personnel.
- E. Blood product temperature-monitoring devices shall be verified annually against a NIST-certified or NIST-traceable thermometer and shall be within $\pm 1^{\circ}\text{C}$.
- F. Equipment that fails required testing or cannot reliably perform its intended function shall be removed from service until repaired or replaced.

XII. Records Retention, Look Back, and Blood Administration Records Review

- A. Records related to blood product administration shall be retained for a minimum of 10 years.
- B. Blood product records shall:
 - 1. Provide traceability of each unit from receipt through final disposition.
 - 2. Identify personnel responsible for applicable steps in the blood product process.
 - 3. Include records of suspected transfusion reactions, complaints, investigations, and follow-up.
 - 4. Include temperature excursions, biological product deviations, wastage, and other identified blood product issues.
- C. Blood product deviations and identified product issues shall be reviewed as part of the monthly OMD quality assurance process. When an EMS agency is notified by the blood supplier of a potentially affected blood product:
 - 1. Blood products in inventory shall be evaluated and affected units immediately quarantined.
 - 2. Affected units shall remain quarantined until disposition is determined in coordination with the blood supplier.
 - 3. If an affected unit was administered, OMD shall coordinate appropriate notification and follow-up with the patient, receiving healthcare facility, Technical Consultant, and blood supplier.
 - 4. All actions and notifications shall be documented.
- D. Blood administration records shall be reviewed by the Medical Director or designee within 72 hours to verify compliance with applicable requirements and confirm the clinical indication for transfusion. The Medical Director's electronic signature shall serve as the signed Statement of Need.

XIII. Biological Product Deviations

- A. Biological product deviations shall be evaluated and reported in accordance with applicable FDA requirements, including 21 CFR 606.171.
- B. A biological product deviation involving a transfused blood product shall be evaluated for reportability. Errors or deviations identified and corrected prior to transfusion are not reportable as biological product deviations under this requirement.
- C. Biological product deviations may include:
 - 1. Issuance or administration of an incorrect blood product or blood group.
 - 2. Failure to complete or document required issuing or verification procedures.
 - 3. Failure to perform or document required visual inspection.

4. Administration of an expired blood product.
 5. Improper storage or transport conditions affecting an administered blood product.
 6. Failure to maintain or document required temperature control.
- D. The designated Technical Consultant shall coordinate required biological product deviation reporting with the appropriate regulatory entities.
 - E. Reportable biological product deviations shall be submitted within 45 days of discovery, as required by applicable FDA regulations.
 - F. All biological product deviations, including events determined not to require external reporting, shall be documented and reviewed through the OMD quality management process

APPENDIX A – WARM TEMPERATURE EXCURSION CRITERIA

Warm temperature excursions shall be evaluated using the blood surface temperature, ambient temperature, and duration of exposure. Product disposition shall be determined according to the criteria below.

Severity	Ambient Temperature	Blood Surface Temperature	Duration Above 10°C Ambient Temperature	Disposition / Action
Level 1 (Minimal)	6.1–10°C	< 6°C	0 minutes	Return to normal inventory If the APRU promptly returns to 1–6°C and blood surface temperature remains ≤6°C, the product may remain in inventory. Evaluate for an identifiable cause.
Level 2 (Minor)	6.1–14°C	6.1–10°C	≤ 30 minutes	Quarantine and evaluate for return to inventory - If the APRU promptly returns to 1–6°C and cumulative exposure to ambient temperature >10°C does not exceed 30 minutes, the product may be returned to inventory. - Document event.
Level 3 (Moderate)	6.1–14°C	6.1–10°C	30 min – 6 hours	Restricted Inventory - Consult the Medical Director. The product may be released for EMS use when blood surface temperature is ≤10°C and product age is <28 days. Reduce remaining shelf life by the duration of the excursion. - The product shall not be returned or redistributed to the blood supplier. - Perform and document a root cause analysis.
Level 4 (Significant)	6.1–14°C	6.1–10°C	6–12 hours	Quarantine and evaluate for immediate use - Consult medical director. Unit may be released for immediate use or should be discarded. Do not return to inventory. - Perform root cause analysis and document event.
Level 5 (Severe)	Above 6°C	> 10°C	Any duration	Discard immediately Notify medical director. Perform root cause analysis

APPENDIX B – COLD TEMPERATURE EXCURSION CRITERIA

Cold temperature excursions shall be evaluated using the blood surface temperature, ambient temperature, duration of exposure, and evidence of freezing. Product disposition shall be determined according to the criteria below.

Severity	Ambient Temperature	Blood Surface Temperature	Duration Below 1°C Ambient Temperature	Disposition / Action
Level 1 – Minor	0–1°C	1–6°C	≤60 minutes	Quarantine and evaluate for return to inventory. • Visually inspect the product for evidence of freezing, including ice crystals, discoloration, or compromised bag integrity. • If no evidence of freezing is present, the product may be returned to inventory after re-equilibration to 1–6°C. • Document the event.
Level 2 – Moderate	0–1°C	1–6°C	>60 minutes	Quarantine and evaluate for restricted use. • Visually inspect the product for evidence of freezing, including ice crystals, discoloration, or compromised bag integrity. • If no evidence of freezing is present, consult the Medical Director or blood supplier to determine whether the product may be released for EMS use. • The product shall not be returned or redistributed to the blood supplier.
Level 3 – Severe	<0°C	Any	Any duration	Discard • Remove the product from service due to the risk of freezing and hemolysis. Visual inspection alone is insufficient to exclude cellular damage. • Perform and document a root cause analysis.

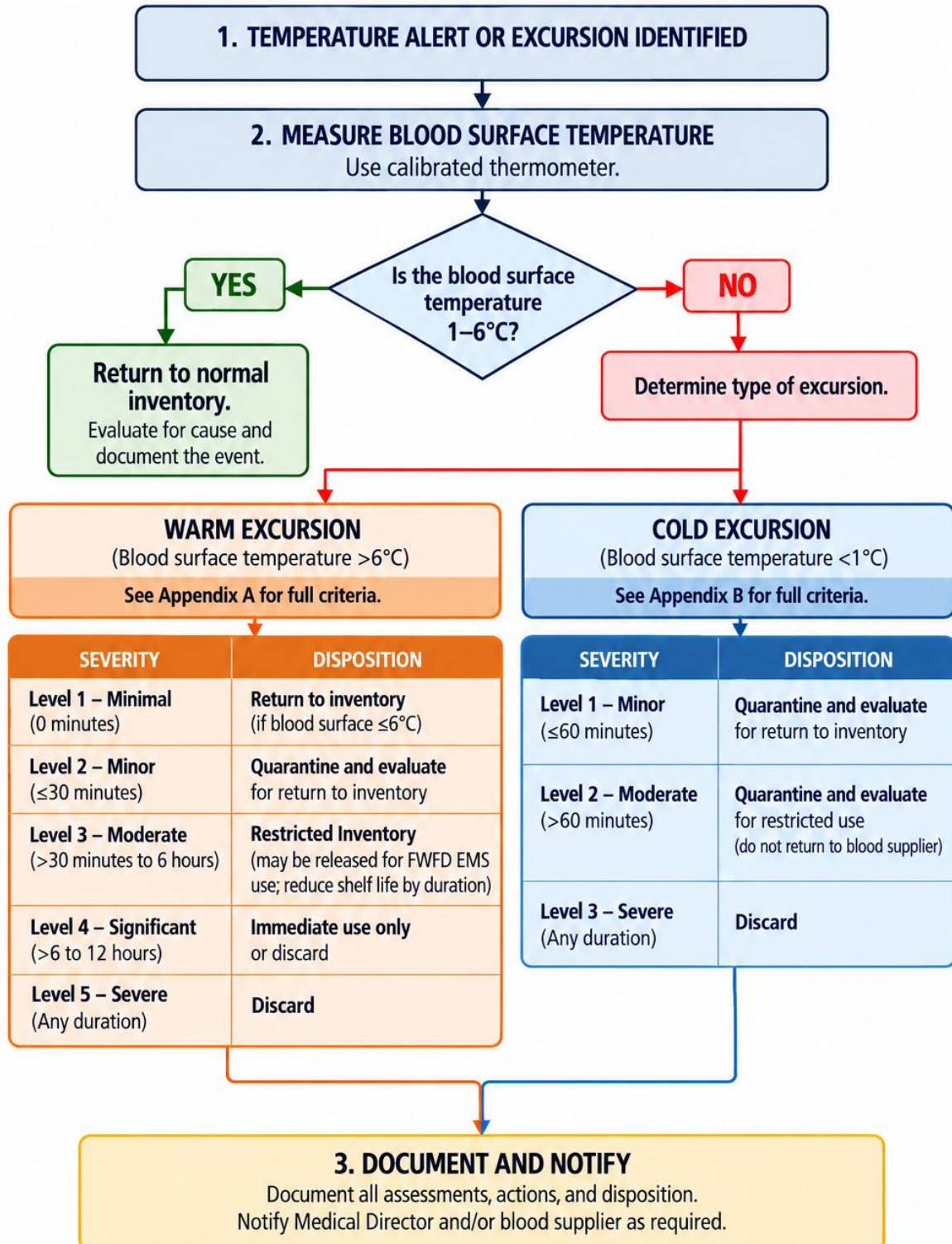
Appendix C – Quarterly Temperature Test Procedure

1. For high temp excursion alarm test, open the refrigerator unit to room temperature.
 - a. Record the temperature at which the alarm was activated.
 - b. Document receipt of the alarm to all programmed devices.
 - c. Document response of each individual receiving the alarm.

2. For low temp excursion alarm test, fill the refrigerator unit with ice.
 - a. Record the temperature at which the alarm was activated.
 - b. Document receipt of the alarm co all programmed devices.
 - c. Document response of each individual receiving the alarm.

APPENDIX D – TEMPERATURE ALERT / EXCURSION DECISION GUIDE

Guide for determining blood product disposition after a temperature alert or excursion.



Comprehensive Clinical Management Program

1. **Purpose.** This policy addresses the Comprehensive Clinical Management Program (CCMP) for the Fort Worth Regional EMS System (System). Additionally, it addresses credentialed provider eligibility, tracking, and approval of the CCMP renewal option with Texas Department of State Health Services (DSHS).
2. **Scope.** This policy applies to System personnel credentialed within the System for at least six months.
3. **Procedure**
 - 3.1. **Definitions**
 - 3.1.1. CCMP - Comprehensive Clinical Management Program is a recertification / relicensure training program coordinated by the Fort Worth Office of the Medical Director (FWOMD) for System credentialed personnel employed by or affiliated with the System in meeting the recertification or re-licensure requirements outlined in TAC §157.34(b)(5).
 - 3.1.2. CCMP Participation – All credentialed FWFD providers are eligible to participate in the CCMP.
 - 3.1.3. Renewal- The renewal process for a system provider to renew their DSHS EMS certification.
 - 3.2. **CCMP Professional Development Hours**
 - 3.2.1. The System will provide, at a minimum, the following amounts of professional development hours per year: Paramedic -24 hours, AEMT -20 hours, EMT -16 hours, and ECA -10 hours.
 - 3.2 **Eligibility**
 - 3.2.1. Any System personnel who meet the FWOMD Credentialing Requirements policy and have been credentialed for a minimum of six months within the system.
4. **Process**
 - 4.1 **Process**
 - 4.1.1. Upon credentialing, System providers will receive a credentialing letter stating the date of credentialing as well as the date of CCMP participation eligibility. CCMP eligibility date will be six months post-credential date.
 - 4.1.2. The System will provide annually the number of professional development hours listed in 3.2.1 to comply with the CCMP program and this policy.
 - 4.1.3. A 90-day certification expiration report will be generated at the end of each month. CCMP Coordinator will verify biennial maintenance credentialing requirements per OMD Credentialing Requirements policy and DSHS approved EMS Jurisprudence course have been completed.
 - 4.1.4. Upon completion of the biennial maintenance requirements, a letter will be sent on behalf of the System Medical Director to the individual stating their current participation in the CCMP.
 - 4.1.5. Individuals will submit a renewal application, selecting the CCMP Recertification Option, including their CCMP participation letter to DSHS.
 - 4.1.6. All continuing education programs provided or sponsored by the System must be approved by the FWOMD to ensure consistency with the System Medical Director's practice of medicine and alignment with current protocol, procedure, and quality improvement initiatives.

Credentialing Requirements

1. **Purpose:** This policy describes the initial and maintenance requirements of credentialing for Fort Worth Regional EMS System (System) clinicians to provide patient care.
2. **Scope:** This policy applies to all state-licensed personnel that provide clinical care within the EMS System
3. **Definitions**
 - 3.1. DSHS - Texas Department of State Health Services
 - 3.2. IBSC – International Board of Specialty Certification
 - 3.3. PRM - Protocol Review Module
 - 3.4. PIM - Process Improvement Module
 - 3.5. System CE – continuing education provided by FWOMD or System providers in support of licensure maintenance
 - 3.6. FTO – agency assigned field training officer who mentor and evaluate individuals for credentialing
 - 3.7. Skills competency assessment – psychomotor skills evaluation to be conducted by FWOMD or Agency FTO
 - 3.8. Clinical competency verification – the agency’s established field training in verifying FWOMD clinical competencies conducted by an agency FTO
 - 3.9. MegaCode evaluation – scenario-based protocol application assessments of a medical, trauma, adult, pediatric, and infant resuscitation
 - 3.10. Clinical Credentialing Interview (CCI) – table-top case presentation conducted by FWOMD as the final evaluation step to credentialing of EMT provider
 - 3.11. Mock interview – table-top case presentation conducted by FWOMD to assess readiness for Medical Director Interview
 - 3.12. Medical Director Interview (MDI) – table-top case presentation conducted by a Medical Director or designated EMS Fellow as the final evaluation step to credentialing of Paramedic, Mobile Health Paramedic, and Critical Care Paramedic provider
4. **Process**
 - 4.1. On-boarding
 - 4.1.1. Notify FWOMD of new hire and level of credential to be pursued
 - 4.1.2. Individual must hold a current, verified by FWOMD, DSHS or National Registry (EMT/Paramedic)
 - 4.1.2.1. Must hold board certification from IBSC in Critical Care or Community Paramedic for the critical care or mobile health paramedic credential
 - 4.1.3. Individual must complete an on-boarding process that includes, at a minimum, a comprehensive orientation process consisting of the services, policies and procedures, treatment and transport protocols, safety precautions, and the quality management process of the EMS System and their specific agency.
 - 4.1.4. Prior to Field Training, the individual must:
 - 4.1.4.1. Hold a current, verified, DSHS and, if needed, critical care or mobile health paramedic certification for the credential level sought
 - 4.1.4.2. Complete FWOMD Clinical NEOP
 - 4.1.4.3. Complete FWOMD approved cardiac resuscitation course
 - 4.1.4.4. Complete clinical knowledge assessment
 - 4.1.5. Other components of credentialing may be accomplished in field training or lab
 - 4.1.5.1. Skills competency assessment
 - 4.1.5.2. Clinical competency verification
 - 4.1.5.3. MegaCode evaluation as required
 - 4.1.5.4. Patient contacts that include ambulance transport
 - 4.1.6. Final interview and recommendation
 - 4.1.6.1. Upon completion of all components of credentialing, a recommendation for credentialing is to be submitted to FWOMD by the training officer

Credentialing Requirements

- 4.1.6.1.1. For Paramedic, MHP, and CCP credentialing, upon receipt of the recommendation for credentialing, a Medical Director interview will be scheduled
 - 4.1.7. The agency is required to maintain a copy of all documentation of the components of credentialing
 - 4.1.8. FWOMD will provide and maintain a letter of credentialing to the agency for documentation purposes upon verification of successful completion of all components of credentialing
 - 4.2. Maintenance
 - 4.2.1. FWOMD will conduct monthly audits to validate compliance with maintenance requirements of credentialing to include verification of current state certification
 - 4.2.2. Providers must maintain an FWOMD approved card course certification or successfully complete the appropriate MegaCode assessment for their respective discipline
 - 4.2.3. By state regulations, providers must complete an annual PRM on Allergic Reaction/Anaphylaxis
 - 4.2.4. Every two years (biennial), credentialed providers must complete the required maintenance of credentialing components listed within their respective credential level
 - 4.2.4.1. The agency will submit active roster and all credentialing documentation upon FWOMD request
 - 4.2.5. All PIMs must be completed within the designated timeframe during the maintenance period, all other components must be completed by the end of the two-year maintenance cycle
 - 4.3. See FWOMD policy, Examination and Testing, for requirements regarding skill assessment, clinical competency verification, and MegaCode evaluation along with retesting and credentialing interviews
- 5. Emergency Care Attendants (ECA)**
- 5.1. Initial Requirements:
 - 5.1.1. Current ECA by the DSHS
 - 5.1.2. Completion of FWOMD approved cardiac resuscitation course
 - 5.1.3. Completion of agency specific on-boarding process to include:
 - 5.1.3.1. Completion of all Basic PRMs
 - 5.1.3.2. Completion of National Registry EMR skills assessment
 - 5.2. Maintenance requirements:
 - 5.2.1. Current ECA by the DSHS
 - 5.2.2. Current FWOMD approved cardiac resuscitation course
 - 5.2.3. Completion of all Basic PRMs
 - 5.2.4. Current with all PIMs
 - 5.2.5. Completion of National Registry EMR skills assessment
- 6. Basic (EMT-B, A-EMT, or EMT-P/LP)**
- 6.1. Initial Requirements:
 - 6.1.1. Current EMT-B (or above) by the DSHS
 - 6.1.2. Completion of FWOMD approved cardiac resuscitation course
 - 6.1.3. Completion of agency specific on-boarding process to include:
 - 6.1.3.1. Completion of FWOMD clinical NEOP
 - 6.1.3.2. Completion of Basic clinical knowledge assessment
 - 6.1.3.3. Completion of the Basic skills competency assessment
 - 6.1.3.4. Completion of clinical competency verification program (Field Training)
 - 6.1.3.4.1. Includes patient contacts with ambulance transport
 - 6.1.4. Completion of CCI by FWOMD.
 - 6.2. Maintenance requirements:
 - 6.2.1. Current EMT-B (or above) by the DSHS
 - 6.2.2. Current FWOMD approved cardiac resuscitation course

Credentialing Requirements

- 6.2.3.Completion of all Basic PRMs
- 6.2.4.Current with all PIMs
- 6.2.5.Completion of the Basic skills competency assessment

7. Paramedic (EMT-P/LP)

7.1. Initial requirements:

- 7.1.1.Current Paramedic (EMT-P/LP) by the DSHS
- 7.1.2.FWOMD approved cardiac resuscitation course
- 7.1.3.Completion of agency specific on-boarding process to include:
 - 7.1.3.1. Completion of FWOMD clinical NEOP
 - 7.1.3.2. Completion of the Paramedic skills competency assessment
 - 7.1.3.3. Completion of System MegaCodes
 - 7.1.3.4. Completion of clinical competency verification program (Field Training)
 - 7.1.3.4.1. Includes patient contacts with ambulance transport
 - 7.1.3.5. Completion of mock interview by FWOMD
- 7.1.4.Completion of MDI by a Medical Director or designated EMS Fellow

7.2. Maintenance Requirements:

- 7.2.1.Current Paramedic (EMT-P/LP) by DSHS.
- 7.2.2.Current FWOMD approved cardiac resuscitation course
- 7.2.3.Completion of all PRMs
- 7.2.4.Current with all PIMs
- 7.2.5.Completion of System MegaCode verification
- 7.2.6.Completion of the Paramedic skills competency assessment

8. Mobile Healthcare EMT – MH-EMT (EMT, EMT-I, EMT-P/LP)

8.1. Initial requirements:

- 8.1.1. Meet Basic level credentialing requirements.
- 8.1.2.Completion of an approved Mobile Healthcare Paramedic Course
- 8.1.3.Completion of all MIH PRMs
- 8.1.4.Completion of the MIH skills competency assessment
- 8.1.5.Completion of clinical competency verification program (Field Training)
- 8.1.6.Completion of MH-EMT MDI by FWOMD

8.2. Maintenance Requirements:

- 8.2.1.Meet Basic credential maintenance requirements
- 8.2.2.Completion of all MIH PRMs
- 8.2.3.Current with all MIH PIMs
- 8.2.4.Completion of the MIH skills competency assessment

9. Mobile Healthcare Paramedic – MHP (EMT-P or LP)

9.1. Initial requirements:

- 9.1.1.Meet Paramedic level credentialing requirements.
- 9.1.2.Completion of an approved Mobile Healthcare Paramedic Course
- 9.1.3.Hold IBSC Community Paramedic certification (CP-C)
- 9.1.4.Completion of all MIH PRMs
- 9.1.5.Completion of the MIH skills competency assessment
- 9.1.6.Completion of MHP clinical competency verification program (Field Training)
- 9.1.7.Completion of mock interview by FWOMD
- 9.1.8.Completion of MHP MDI by a Medical Director

Credentialing Requirements

9.2. Maintenance Requirements:

- 9.2.1. Meet Paramedic credential maintenance requirements
- 9.2.2. Current Community Paramedic certification (CP-C)
- 9.2.3. Completion of all MIH PRMs
- 9.2.4. Current with all MIH PIMs
- 9.2.5. Completion of the MIH skills competency assessment

10. Critical Care Paramedic - CCP (EMT-P or LP)

10.1. Initial requirements:

- 10.1.1. Meet Paramedic level credentialing requirements.
- 10.1.2. Completion of an approved Critical Care Paramedic Course
- 10.1.3. Hold IBSC Critical Care Paramedic certification (CCP-C or FP-C)
- 10.1.4. Completion of CCP PRMs
- 10.1.5. Completion of CCP clinical knowledge exam
- 10.1.6. Completion of the CCP skills competency assessment
- 10.1.7. Completion of CCP clinical competency verification program (Field Training)
- 10.1.8. Completion of mock interview by FWOMD
- 10.1.9. CCP-MDI and recommendation by a Medical Director.

10.2. Maintenance Requirements:

- 10.2.1. Meet Paramedic credential maintenance requirements
- 10.2.2. Current Critical Care Paramedic certification (CCP-Cor FP-C)
- 10.2.3. Completion of any assigned continuing education
- 10.2.4. Completion of all CCP PRMs
- 10.2.5. Current with all PIMs
- 10.2.6. Completion of the CCP skills competency assessment

11. Extended Absence – Return to Work Re-credentialing

11.1. ≤ 60-days absent

- 11.1.1. Current required certification(s)
- 11.1.2. Complete any new PRMs
- 11.1.3. Complete any new PIMs
- 11.1.4. Complete any new skill assessment

11.2. > 60 to 120 days absent

- 11.2.1. Current required certification(s)
- 11.2.2. Complete all PRMs
- 11.2.3. Complete all current PIMs
- 11.2.4. Complete new skills assessment
- 11.2.5. Complete MegaCode verification

- 11.2.5.1. Failure of MegaCode will result in FTO time with specific objectives to be accomplished prior to MegaCode reverification

11.2.6.

11.3. > 120 to 365 days absent

- 11.3.1. Complete initial requirements of credentialing for desired level with exception of credentialing interview
- 11.3.2. Complete all current PIMs

Credentialing Requirements

11.4. >365 Days

11.4.1. Complete the initial requirements of credentialing for desired level

11.4.2. Complete all current PIMs

Deceased Patient Transport

1. Purpose. To address the procedure for patients who are declared deceased while in an ambulance or where scene factors are unsafe or inappropriate to leave the body on scene. Transport of patients who do not respond to appropriate resuscitative efforts presents risks to crew safety, consumes critical ED/hospital resources, provides false hope for patient's families, and leads to unnecessary expenses.
2. Scope. This policy applies to all FWOMD-credentialed providers.
3. Inclusion criteria
 - 3.1. Patients who have all the following criteria
 - 3.1.1. An online medical control physician has as given an order to terminate resuscitative efforts.
 - 3.1.2. The body is in an ambulance OR a location that is deemed by Incident Command and Law Enforcement to be either unsafe or inappropriate to leave on scene.
 - 3.1.3. Death occurred in Tarrant County Medical Examiner's District jurisdiction
 - 3.1.4. Death felt likely to be determined by ME staff to be ME case:
 - 3.1.4.1. Traumatic arrest
 - 3.1.4.2. Death by, or suspected to be by, suicide.
 - 3.1.4.3. Medical arrest not under direct care of a physician (e.g., hospice, home health care)
4. Exclusion criteria
 - 4.1. Death not in Tarrant County Medical Examiner District
 - 4.2. Death occurred in health care institution (hospital, nursing facility)
 - 4.3. Death in any location where it is safe & appropriate to leave body on scene
5. Procedure
 - 5.1. Ensure all inclusion and no exclusion criteria are met
 - 5.2. Contact the Medical Examiner Forensic Investigator at 817-920-5700, option 5 and discuss the case and confirm it is appropriate to transport to ME office.
 - 5.2.1. If Forensic Investigator approves:
 - 5.2.1.1. Transport body without lights and sirens to ME office at 200 Feliks Gwozdz Pl. Fort Worth, TX 76104
 - 5.2.2. If Forensic Investigator declines:
 - 5.2.2.1. Contact the closest appropriate hospital via phone and speak with the ED charge nurse to inform them that an online medical control physician has declared the patient deceased and the body is being transported without resuscitative efforts to their ED due to on scene circumstances.
 - 5.2.2.1.1. Note: Approval by hospital staff is not required, this is a courtesy report.
 - 5.2.3. Transport the body without further resuscitative efforts and without use of lights & sirens to the hospital report was called to.
 - 5.3. Contact EMS Supervisor for any concerns or disputes.

Do Not Resuscitate

1. **Purpose.** Chapter 166 of the Health and Safety Code establishes Out-of-Hospital Do-Not-Resuscitate (OOH DNR) Orders. The chapter allows the development of a local DNR policy that complies with the State-wide DNR protocol adopted by the Board of Health.
2. **Scope.** This policy applies to all System providers and in all cases of out-of-hospital events including cardiac arrests that occur during inter-facility transports.
3. **DNR Form and Identification of Patients.**
 - 3.1. EMS personnel may only accept the original or a copy of the standardized OOH DNR Order
 - 3.2. EMS personnel may accept an approved OOH DNR bracelet or necklace (identification device) as proof that an OOH DNR order form has been executed by or issued on behalf of the person wearing the identification device.
 - 3.3. When presented with a “DNR Order,” EMS personnel should make every effort to identify the patient as the person for whom the OOH DNR Order has been executed or issued. Relatives, friends, neighbors, documents, ID bracelets, or other identification may be used as sources of identification.
4. **Honoring an OOH DNR Order.**
 - 4.1. When presented with a DNR Order, EMS personnel are to review the form to make sure that it is correctly completed and signed as required by the Health and Safety Code. If the order appears valid, the OOH DNR Order shall be honored.
 - 4.2. EMS personnel are not required to honor an OOH DNR Order that does not comply with the Health and Safety Code.
5. **Revocation of an OOH DNR Order.**
 - 5.1. The patient may revoke an OOH DNR Order, or the patient may direct someone in his or her presence to destroy the order and remove the patient’s identification device.
 - 5.2. A qualified relative, legal guardian or patient’s agent having medical power of attorney (or a person acting on behalf of any of these persons) may revoke the OOH DNR Order.
 - 5.3. The patient’s physician may revoke the OOH DNR Order.
 - 5.4. In case of a revocation of the OOH DNR Order, EMS personnel shall document the name of the person who revoked the order, the date, time, and location of the revocation.
 - 5.5. Upon revocation of the OOH DNR Order, EMS personnel shall provide care for the patient as required by protocol. This does not mean EMS must begin resuscitation if deemed futile per the Withholding Protocol.
6. **Disputes related to OOH DNR Orders.** In case a dispute arises regarding an OOH DNR Order, EMS personnel shall contact On-Line Medical Control (OLMC) for direction and assistance.
7. **Pregnant Persons and OOH DNR Orders.** EMS personnel may not withhold cardiopulmonary resuscitation or certain other life-sustaining treatment from a person known to be pregnant unless futility criteria are met as per the Withholding Protocol.
8. **Other presented paperwork or request for termination.** Contact OLMC if presented with other request to withhold resuscitation efforts such as a verifiable Medical Power of Attorney (mPOA), Medical Orders on Scope of Treatment (MOST), Physician’s Orders for Life-Sustaining Treatment (POLST) or any request by family members on-scene.



OUT-OF-HOSPITAL DO-NOT-RESUSCITATE (OOH-DNR) ORDER

TEXAS DEPARTMENT OF STATE HEALTH SERVICES

Print Form

This document becomes effective immediately on the date of execution for health care professionals acting in out-of-hospital settings. It remains in effect until the person is pronounced dead by authorized medical or legal authority or the document is revoked. Comfort care will be given as needed.

Person's full legal name _____

Date of birth _____

☐ Male
☐ Female

A. Declaration of the adult person: I am competent and at least 18 years of age. I direct that none of the following resuscitation measures be initiated or continued for me: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Person's signature _____

Date _____

Printed name _____

B. Declaration by legal guardian, agent or proxy on behalf of the adult person who is incompetent or otherwise incapable of communication:

I am the: ☐ legal guardian; ☐ agent in a Medical Power of Attorney; OR ☐ proxy in a directive to physicians of the above-noted person who is incompetent or otherwise mentally or physically incapable of communication.

Based upon the known desires of the person, or a determination of the best interest of the person, I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Signature _____

Date _____

Printed name _____

C. Declaration by a qualified relative of the adult person who is incompetent or otherwise incapable of communication: I am the above-noted person's:

☐ spouse, ☐ adult child, ☐ parent, OR ☐ nearest living relative, and I am qualified to make this treatment decision under Health and Safety Code §166.088.

To my knowledge the adult person is incompetent or otherwise mentally or physically incapable of communication and is without a legal guardian, agent or proxy. Based upon the known desires of the person or a determination of the best interests of the person, I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Signature _____

Date _____

Printed name _____

D. Declaration by physician based on directive to physicians by a person now incompetent or nonwritten communication to the physician by a competent person: I am the above-noted person's attending physician and have:

☐ seen evidence of his/her previously issued directive to physicians by the adult, now incompetent; OR ☐ observed his/her issuance before two witnesses of an OOH-DNR in a nonwritten manner.

I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Attending physician's
signature _____

Date _____

Printed
name _____Lic

E. Declaration on behalf of the minor person: I am the minor's: ☐ parent; ☐ legal guardian; OR ☐ managing conservator.

A physician has diagnosed the minor as suffering from a terminal or irreversible condition. I direct that none of the following resuscitation measures be initiated or continued for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Signature _____

Date _____

Printed name _____

TWO WITNESSES: (See qualifications on backside.) We have witnessed the above-noted competent adult person or authorized declarant making his/her signature above and, if applicable, the above-noted adult person making an OOH-DNR by nonwritten communication to the attending physician.

Witness 1 signature _____

Date _____

Printed name _____

Witness 2 signature _____

Date _____

Printed name _____

Notary in the State of Texas and County of _____. The above noted person personally appeared before me and signed the above noted declaration on this date: _____.

Signature & seal: _____ Notary's printed name: _____ Notary Seal

[Note: Notary cannot acknowledge the witnessing of the person making an OOH-DNR order in a nonwritten manner]

PHYSICIAN'S STATEMENT: I am the attending physician of the above-noted person and have noted the existence of this order in the person's medical records. I direct health care professionals acting in out-of-hospital settings, including a hospital emergency department, not to initiate or continue for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Physician's signature _____

Date _____

Printed name _____

License # _____

F. Directive by two physicians on behalf of the adult, who is incompetent or unable to communicate and without guardian, agent, proxy or relative: The person's specific wishes are unknown, but resuscitation measures are, in reasonable medical judgment, considered ineffective or are otherwise not in the best interests of the person. I direct health care professionals acting in out-of-hospital settings, including a hospital emergency department, not to initiate or continue for the person: cardiopulmonary resuscitation (CPR), transcutaneous cardiac pacing, defibrillation, advanced airway management, artificial ventilation.

Attending physician's
signature _____

Date _____

Printed
name _____

Lic# _____

Signature of second physician _____

Date _____

Printed
name _____

Lic# _____

Physician's electronic or digital signature must meet criteria listed in Health and Safety Code §166.082(c).

All persons who have signed above must sign below, acknowledging that this document has been properly completed.

Person's signature _____

Guardian/Agent/Proxy/Relative signature _____

Attending physician's
signature _____

Second physician's signature _____

Witness 1
signature _____Witness 2
signature _____Notary's
signature _____

This document or a copy thereof must accompany the person during his/her medical transport.

Emergency 911 Calls from within a hospital

1. **Purpose.** This policy addresses when a patient calls for an ambulance within a hospital. This policy does not apply when a person or patient is calling from other types of care facilities.
2. **Scope.** This policy applies when a person contacts the Fort Worth Fire Alarm Office (FAO) from within a hospital requesting an ambulance for care. This policy describes the procedure to follow when providing care to this patient.
3. **Appropriate action to follow.** If a person within a hospital contacts the FAO requesting an ambulance, the following procedure will be followed:
 - 3.1. **Properly EMD the call:** The call will be screened utilizing current procedures and then confirm that the patient is calling from within the hospital.
 - 3.2. **Provide instructions:** If the person is calling from within the hospital, they should be instructed to immediately report to the Triage Nurse or Charge Nurse and inform them that they have contacted 911 requesting an ambulance.
 - 3.2.1. Explain to the person that an ambulance may not be dispatched by their request and that it must be requested by the hospital personnel.
 - 3.3. **Contact the Hospital:** The Communications Specialist should immediately contact the charge nurse of that ED or hospital by phone and advise them of the situation.
 - 3.4. **If the person is outside of the hospital:** If the patient requesting the ambulance is outside of the hospital, or there is any confusion, the Communications Specialist should follow regular 911 call procedures. If the patient is on hospital grounds, transport should be to that hospital's emergency department.
4. **If the hospital then requests an ambulance:** If the hospital requests an ambulance for the patient, the Communications Specialist should follow the process for inter-facility transfer.

Emergency Care Attendants

1. **Purpose.** The purpose of this policy is to establish care guidelines for First Responders trained at the Emergency Care Attendant (ECA; Texas Department of State Health Services) / Emergency Medical Responder (EMR; National Registry of EMTs)
2. **Scope.** This policy applies to all Fort Worth Regional EMS System (System) providers credentialed at the ECA / EMR Level.
3. **Protocol variations.** ECA / EMR providers will generally operate under the “Basic” level in the System protocols, with the following modifications. ECA / EMR:
 - 3.1. May provide general first aid as per Basic level protocols.
 - 3.2. May administer oxygen as per protocol at the Basic level.
 - 3.3. Are required to have available epinephrine auto-injectors and be trained in their use; they may not administer IM injections otherwise.
 - 3.4. May administer naloxone (Narcan) as per the Basic level protocol for suspected opioid intoxication; they may not administer intra-nasal medications otherwise.
 - 3.5. Are permitted to assist with patient self-administration of nitroglycerin (already prescribed and available on-scene) if the systolic blood pressure is greater than 100, as per the *Acute Coronary Syndrome/STEMI* protocol.
 - 3.6. May administer aspirin as per the *Acute Coronary Syndrome/STEMI* protocol.
 - 3.7. May administer oral glucose as per the *Altered Mental Status and Diabetic Emergencies* protocols.
 - 3.8. May administer Isopropyl Alcohol as per the Adult and Pediatric *Nausea and Vomiting* protocol.
 - 3.9. May not administer CPAP.
 - 3.10. May not administer nebulized medications.
 - 3.11. May not perform spinal motion restriction; patients who may have suffered spinal trauma should have manual cervical spine stabilization performed until higher-level providers arrive.
4. **Required medications/equipment for ECA / EMR First Responders:**
 - 4.1. Oxygen, with BVM, nasal cannula, and non-rebreather devices in both adult and child sizes
 - 4.2. Emergency childbirth kit
 - 4.3. Epinephrine auto-injector in both pediatric and adult doses
 - 4.4. Aspirin
 - 4.5. Oral glucose
 - 4.6. Naloxone
 - 4.7. Isopropyl Alcohol pads
 - 4.8. Basic bandaging / splinting materials
 - 4.9. Blood pressure cuff with stethoscope
 - 4.10. Glucometer
 - 4.11. Manual suction device

EMT 12-Lead Acquisition & Interpretation

1. **Purpose.** To define the scope of practice for Emergency Medical Technicians (EMTs) related to ECG acquisition, interpretation, and STEMI alert activation, ensuring compliance with clinical guidelines and billing regulations.
2. **Scope.** This policy applies only Basic credentialed providers within the Fort Worth Regional EMS System.
3. **Procedure:**
 - 3.1. ECG Acquisition and Documentation
 - 3.1.1. EMTs may perform and document the acquisition of a 12-lead ECG.
 - 3.1.2. EMTs must not document a manual ECG interpretation.
 - 3.1.3. EMTs may include the machine-generated automated interpretation in the report (e.g., “Acute MI/STEMI”).
 - 3.2. STEMI Alert Activation
 - 3.2.1. If the automated ECG interpretation indicates “Acute MI/STEMI” and the patient’s chief complaint is chest discomfort, EMTs are authorized to activate a STEMI alert.
 - 3.2.2. The ECG should be transmitted as part of the STEMI alert process.
 - 3.2.3. EMTs may transport the patient via BLS if no readily available paramedic intercept exists, in accordance with the BLS Transport Criteria Protocol.
 - 3.3. Involvement of Higher-Credentialed Clinicians
 - 3.3.1. If a paramedic or higher-level clinician is present on scene and performs an ECG interpretation, they must be:
 - 3.3.1.1. Added to the patient care crew, and
 - 3.3.1.2. Document the interpretation themselves.
 - 3.3.1.3. Complete an ALS-BLS handoff portion of the chart if not accompanying the patient during transport.
 - 3.3.1.4. Post-call manual interpretation or documentation by higher-level providers is not permitted.
 - 3.4. ECG Transmission Guidelines
 - 3.4.1. Do not transmit ECGs to the emergency department for physician review, unless the machine interpretation indicates STEMI.
 - 3.4.2. Transmission is reserved for cases where a machine-identified STEMI is present, and a STEMI alert is being activated.

Equipment Failure

1. **Purpose.** This policy describes the process of reporting equipment failures
2. **Scope.** This procedure applies to all Fort Worth Regional EMS System (System) providers who experience an equipment failure while providing patient care.
3. **Overview.** If while rendering patient care, a provider experiences a failure of any piece of equipment, it must be reported to FWOMD and as per the agency's policy. This may also include the manufacturer and the proper State/Federal agencies.
4. **The Process.**
 - 4.1. The provider experiencing the equipment failure should retain the specific item and all associated components if possible.
 - 4.2. Package the item in a biohazard bag if it is contaminated with human fluids.
 - 4.3. Turn the item into their agency's designated individual as stated in their policies & procedures.
 - 4.4. The Agency should then report the failure to the FWOMD and follow agency policy and procedures for reporting requirements to the manufacturer and potentially State and/or Federal agencies.

Examination and Testing

1. **Purpose.** The FWOMD relies on periodic examinations, verifications, and competency evaluations as tools to assess retention of required knowledge, protocol application, and mastery of skill performance among credential EMS clinicians.
2. **Scope.** This policy applies to all Fort Worth Regional EMS System (System) providers seeking initial credentialing or maintenance of current credentials.
3. **Procedure.**
 - 3.1.1.1. All System providers are required to pass the following verification exams/evaluations to be credentialed:
 - 3.1.2. Clinical Knowledge Assessment,
 - 3.1.2.1. A multiple-choice scenario exam evaluating protocol application and understanding for protocols that do not have an associated PRM.
 - 3.1.2.2. Exam pass score is 78% with three (3) attempts
 - 3.1.2.3. Clinicians may utilize the protocol app during testing
 - 3.1.3. Successful completion of a skills verifications packet for credential level
 - 3.1.3.1. Each skill associated with the scope of practice of the credentialed level will be evaluated utilizing a standardized skill verification process
 - 3.1.4. MegaCode evaluation for medical and trauma, along with adult, pediatric, and infant resuscitation.
 - 3.1.4.1. MegaCode evaluation is a standardized scenario-based protocol application assessment required for credentialing at the Paramedic level and above
- 3.2. Clinical Credentialing Interview (CCI)
 - 3.2.1. The CCI is the final step in the credentialing of an individual seeking to be credentialed at any level below Paramedic
 - 3.2.2. The CCI is a table-top case presentation conducted by FWOMD to assess individuals' readiness to function independently in the System
- 3.3. Medical Director Interview (MDI)
 - 3.3.1. Mock-Medical Director Interview
 - 3.3.1.1. The Mock-MDI is a table-top case presentation conducted by FWOMD to assess individuals' readiness for their credentialing MDI
 - 3.3.2. MDI
 - 3.3.2.1. The MDI is the final step in the credentialing of an individual seeking to be credentialed at the Paramedic level or higher.
 - 3.3.2.2. The MDI will be scheduled at the recommendation of FWOMD after a Mock MDI has been conducted in assessment of readiness
 - 3.3.2.3. The MDI is a table-top case presentation conducted by a Medical Director or designated EMS Fellow to assess individuals readiness to function independently in the EMS System
 - 3.3.2.3.1. The MDI at the MHP and CCP credential level will be conducted by a Medical Director

Examination and Testing

3.4. Exam / Evaluation Attempts

3.4.1. Clinical Knowledge Assessment Exam

- 3.4.1.1. Three (3) attempts are provided with mandatory review sessions between 2nd and 3rd attempt with FWOMD or Agency Training Officer.

3.4.2. Protocol Review Modules

- 3.4.2.1. Unlimited attempts are given at agency's discretion
- 3.4.2.2. Upon failing to meet the 80% or agency defined passing score, the individual must rewatch the PRM to attempt the exam again

3.4.3. Skills verification

- 3.4.3.1. Unlimited attempts for each skill verification at agency's discretion
- 3.4.3.2. Remediation is to be provided between each failed attempt
- 3.4.3.3. Should it be determined the individual will not be successful, the individual will be eligible to credential at a lower level at the agency's discretion.

3.4.4. Clinical application scenarios (MegaCodes)

- 3.4.4.1. Individual is given 3 attempts, at least 72 hours a part
- 3.4.4.2. If unsuccessful on the third attempt, the individual must successfully complete the corresponding card course of the MegaCode scenario failed
 - 3.4.4.2.1. Corresponding card course with MegaCode
 - 3.4.4.2.1.1. AMLS = Medical
 - 3.4.4.2.1.2. PHTLS = Trauma
 - 3.4.4.2.1.3. ACLS = Adult Resuscitation
 - 3.4.4.2.1.4. PALS = Pediatric / Infant
 - 3.4.4.2.2. Upon presenting a valid course completion card, the individual will then be expected to pass the specific MegaCode. Next steps, should the MegaCode again be failed, will be at the discretion of the System Medical Director and agency.
- 3.4.4.3. If unsuccessful in passing the corresponding card course, the individual will be eligible to credential at a lower level at the agency's discretion

3.4.5. Clinical Credentialing Interview

- 3.4.5.1. Individuals are given 3 attempts, at least 24 hours a part
- 3.4.5.2. If unsuccessful on the third attempt, the individual will be eligible to credential at a lower level at the agency's discretion

3.4.6. Mock Medical Director Interview

- 3.4.6.1. Individuals are given 3 attempts, at least 24 hours a part
- 3.4.6.2. If unsuccessful on the third attempt, the individual will be eligible to credential at a lower level at the agency's discretion

3.4.7. Medical Director Interview

- 3.4.7.1. Individuals are given 3 attempts, at least 24 hours a part
- 3.4.7.2. If unsuccessful on the third attempt, the individual will be eligible to credential at a lower level at the agency's discretion

Examination and Testing

- 3.5. If an individual fails at any required component of credentialing, they may be offered a lower-level credential if available at agency's discretion and System Medical Director agreement.
 - 3.5.1. The individual's ability and timeframe to reenter the credentialing process is at the agency's discretion

3.6. Maintaining Credentialing

- 3.6.1. All existing credentialed personnel within the System are required to follow all requirements listed in the **Continuing Education Policy** and the **Credentialing Requirements Policy** to maintain their FWOMD credential.
- 3.6.2. Individuals are responsible for gathering their own study materials. OMD will provide an electronic copy of the approved protocols and any course material that may be required.

Field Training Officers

1. **Purpose.** The FWOMD is responsible for credentialing emergency medical services personnel. That process depends on the integrity of the Field Training Officer (FTO) program within the Fort Worth Regional EMS System (System). The objective of the FTO Selection Process is to assure that a standardized method for selection of FTOs will be used in a consistent manner and to assure that the System Medical Director or designee will participate in the selection process.
2. **Scope.** The FTO assignment procedure applies to System agencies.
While the System Medical Director or designee is a participant in the selection of FTOs, these personnel are employees of that individual agency and must comply with their specific policies.
3. **The Selection Process.** Each agency is responsible for organizing the FTO selection process.
At minimum, the Agency shall implement a non-biased, non-discriminatory selection process that allows candidates to compete based on their qualifications. The System Medical Director or designee shall be a participant in the selection process.
4. **Final Selection.** The System Medical Director or designee will provide the agency with written confirmation of recommended candidates. The System Medical Director, in cooperation with the agency, shall have final approval of all FTO personnel.
5. **Allowance for alternate training programs:** If a First Responder agency does not use an FTO-based process, the clinical training process for that agency will be reviewed and approved by the System Medical Director.
6. Due to the diverse nature of FRO training, individual FRO agencies will work with OMD to develop agency-specific FTO selection criteria and training.

Helicopter EMS

1. **Purpose.** The FWOMD is responsible for establishing guidelines for the role of helicopter utilization in emergency care. The FWOMD recognizes the benefit of this specialized service but also realizes it must be used appropriately and safely.
2. **Scope.** This policy applies to Fort Worth Regional EMS System (System) providers responsible for initiating a helicopter response. All HEMS requests must be done through the Fort Worth Fire Alarm Office (FAO).
3. **Appropriate use of helicopter transport.** There are circumstances that will require the expeditious use of HEMS transport. These include, but are not limited to:
 - 3.1. Patient inaccessible due to terrain or environmental conditions (i.e., high water, mud, rough terrain).
 - 3.2. Extended travel time of a critical patient (greater than 30 minutes) to an appropriate receiving facility due to distance or traffic.
 - 3.3. As an additional resource during a Mass Casualty Incident (MCI) with critically injured patients.
4. **Requesting Emergency Helicopter Support.**
 - 4.1. **Initiating a Standby/Launch Request.** “Standby” status places the helicopter crew on alert for possible scene response. A launch order or “alert go” physically request the helicopter and flight crew to lift-off and proceed to the requested location. Provide the height and weight of the patient (if known) at the time of launch request. A standby/launch request through the FAO may be initiated by any of the following:
 - 4.1.1. Any first responding unit or ambulance.
 - 4.1.2. Fire and Civil Defense personnel.
 - 4.1.3. State and Local Law Enforcement personnel.
 - 4.1.4. Industrial safety personnel.
 - 4.2. **Who May Cancel the Helicopter:** Once launched the helicopter will only be cancelled by:
 - 4.2.1. The initiating official/agency or Paramedic provider on-scene after patient contact has been established, and:
 - 4.2.1.1. Performance of a proper patient assessment, and
 - 4.2.1.2. Notifying fire department incident commander of decision
 - 4.2.1.3. If disagreement concerning cancellation exists between the incident commander and credentialed provider, the ultimate decision will be made by the highest credentialed provider on-scene.
5. **Safety.** The decision to launch is totally under the control of the helicopter pilot. Factors influencing flight safety for the patient and HEMS personnel will always take precedence in this decision.
 - 5.1. All personnel within the System shall complete a helicopter safety training program as part of their orientation or continuing education program.
6. **Documentation.** A full patient care form must be completed for each patient transported by a helicopter.
7. **QA/QI.** HEMS utilization will be reviewed on an as needed basis.

Incident Command System

1. **Purpose.** The Fort Worth Office of the Medical Director (FWOMD) is tasked with setting standards for patient care. Large or complex incidents require specialized policies to establish a unified command structure, common terminology, and an incident action plan (IAP). The objective is to assure that rescuers remain safe and that single resources are utilized effectively and efficiently as they treat and transport patients in an organized fashion.
2. **Scope.** This policy applies to Fort Worth Regional EMS System (System) during a large-scale incidents or a Mass Casualty Incident (MCI).
3. **Procedure Overview.** All emergency events will be managed in accordance with the nationally recognized Incident Command System (ICS) as established by the Federal Emergency Management Administration. The Fire Department Incident Commander (IC) will direct the overall operation at the scene. Emergency medical services will operate as a Branch within the ICS structure and will make medical decisions in cooperation with the IC. Patient care must never be delayed due to a jurisdictional dispute.
4. **Training.** Each agency within the System is responsible for assuring designated personnel receive the appropriate ICS training published by the Federal Emergency Management Agency Emergency Management Institute or an equivalent course. All medical personnel should be familiar with ICS and mass casualty response plans.
5. **Emergency Medical Services Operation.** At any scene requiring a unified command structure, EMS personnel will provide care according to medical protocols and within their scope of medical training and qualifications.
 - 5.1. The Fire Department Incident Commander is in command of the incident and the scene. In the event that a FWFD ambulance paramedic is the first to arrive at a scene, that individual will act as the IC until relieved by the Fire Department IC.
 - 5.2. The first FWFD ambulance personnel on-scene will be responsible for patient treatment and transport.
 - 5.3. The FWFD Paramedic, along with a Firefighter, will be in charge of the Triage, Treatment, and Transport areas (T-3).
 - 5.3.1. The FWFD Basic provider, along with a Firefighter, will triage all patients to the designated areas within the T-3 by utilizing the START system.
 - 5.4. The Fire Department personnel on-scene will be responsible for:
 - 5.4.1. Initial triage of victims & Strike Teams to extricate victims to the casualty collection points.
 - 5.5. Requests for additional resources shall be directed to the Incident Commander.
 - 5.5.1. When emergency helicopter service is needed, the Incident Commander is responsible for securing an appropriate landing site and for all safety procedures.
 - 5.5.2. The Appropriate destination-facility decisions will be made with consultation between the FWFD Paramedic and helicopter personnel, taking into consideration patient and/or family wishes when appropriate.
6. **Patient hand-offs**
 - 6.1. See *Transition of Care* policy
 - 6.2. In the event of disagreement in patient care, On-Line Medical Control will be contacted immediately for appropriate orders. All incidents of this nature will be forwarded to the System Medical Director for review.

Incident Disposition and Cancellation

1. **Purpose.** This policy establishes criteria for various dispositions for First Responders and FWFD ambulances, including cancellation.
2. **Scope.** This policy applies to all System agencies.
3. **Disposition reasons for EMS-related calls for service.**
 - 3.1. **First Responder disposition of calls.**
 - 3.1.1. **Assist a Citizen:** Upon completion of a clinical evaluation, the First Responder determines that a person needs assistance unrelated to an acute or deteriorating medical condition and there is no need for an ambulance. Appropriate documentation should be completed by the First Responder.
 - 3.1.2. **No Patient Found:** Upon arrival and after every reasonable effort to find the patient and potential errors have been ruled out, and no patient found. This includes calls to a false/non-existent location.
 - 3.1.3. **Dead on Scene:** Upon arrival, First Responders have identified that a patient is dead as described in the appropriate protocol. Appropriate documentation should be completed by the First Responder.
 - 3.1.4. **Against Medical Advice (AMA):** Anytime a patient or their parent/guardian demonstrates capacity and communicates a refusal of treatment or transport, the First Responder is to complete the appropriate documentation as required by FWOMD.
 - 3.1.5. **Refusal Without Demonstration of Capacity:** Anytime a patient or their parent/guardian communicates a refusal of treatment, or transport, and is unable to demonstrate capacity, the First Responder is to complete the appropriate documentation as required by FWOMD.
 - 3.1.6. **Release at Scene (RAS):** Anytime an individual meets the definition within the RAS protocol, The First Responder will complete the RAS documentation as required by FWOMD.
 - 3.1.7. **Treat-in-place Alternative:** Anytime a patient is treated without transport utilizing any currently implemented treat-in-place alternative. (Telehealth or protocol)
 - 3.1.8. **Care transferred to FWFD personnel** (or agencies responding for mutual aid).
 - 3.2. **FWFD Ambulance disposition of calls.**
 - 3.2.1. **Assist a Citizen:** Upon completion of a clinical evaluation, the FWFD personnel determine that a person needs assistance unrelated to an acute or deteriorating medical condition and there is no need for ambulance treatment and/or transport. Appropriate documentation should be completed by the FWFD personnel.
 - 3.2.2. **No Patient Found:** Upon arrival and after every reasonable effort to find the patient and potential errors have been ruled out, no patient can be found. This includes calls to a false/non-existent location.
 - 3.2.3. **Dead on Scene:** Upon arrival, FWFD personnel have identified that a patient is dead as described in the appropriate protocol. Appropriate documentation should be completed by FWFD personnel.
 - 3.2.4. **Against Medical Advice (AMA):** Anytime a patient or their parent/guardian demonstrates capacity and communicates a refusal of treatment or transport, the First Responder is to complete the appropriate documentation as required by FWOMD.

Incident Disposition and Cancellation

- 3.2.5. **Refusal Without Demonstration of Capacity:** Anytime a patient or their parent/guardian communicates a refusal of treatment, or transport, and is unable to demonstrate capacity, the First Responder is to complete the appropriate documentation as required by FWOMD.
- 3.2.6. **Release at Scene (RAS):** Anytime an individual meets the definition within the RAS protocol, FWFD personnel will complete the RAS documentation as required by FWOMD.
- 3.2.7. **Transfer of care:** When care is transferred from one FWFD provider to another (for example, due to an equipment failure and change to a new ambulance, multiple patients on scene with additional transporting resources, care assumed by Mobile Health Paramedic (MHP) provider or Critical Care Paramedic (CCP). The first on-scene FWFD personnel will document their care, then transfer the chart electronically to the next care provider.
- 3.2.8. **Transport to ED:** Identified patient is transported to the emergency department.
- 3.2.9. **Telehealth – Treatment in Place:** Identified patient has accepted telehealth visit and agreed to treatment on-scene with referral to primary care physician, or a scheduled in-home urgent care visit, or a scheduled in-home visit by crisis outreach team.
- 3.2.10. **Telehealth – Alternate Destination Transport:** Identified patient has accepted telehealth visit and agreed to transport to MHMR clinic or Urgent Care.
- 3.2.11. **MIH Call Complete:** This disposition is to only be used by MHP and CCP providers with patients enrolled in MIH programs. In conjunction with FWOMD, FWFD will create more descriptive codes, as needed, to properly identify specific programs.

Medical Professional On-Scene

1. Purpose. Medical professionals at the scene of an emergency may provide assistance to pre-hospital care personnel and should be treated with professional courtesy.
2. Scope. This policy applies to FWOMD-credentialed providers
3. Physician On-Scene, Not Requested by EMS
 - 3.1. Prior to arrival of FWOMD credentialed providers
 - 3.1.1. An on-scene physician who is caring for a patient may retain responsibility for patient care, provided that physician accepts full legal and medical responsibility.
 - 3.1.2. The on-scene physician will be placed in contact with On-Line Medical Control (OLMC), who may authorize that physician to issue orders to FWOMD credentialed providers. Once authorized by OLMC, the on-scene physician must accompany the patient to the hospital.
 - 3.2. After arrival of FWOMD credentialed providers
 - 3.2.1. A physician arriving after care has been initiated by the prehospital team will be placed in contact with OLMC before becoming involved in patient care.
 - 3.2.2. OLMC, the prehospital care team, and the on-scene physician will work collaboratively if granted permission by OLMC.
4. Physician On-Scene, Requested by EMS
 - 4.1. When a Specialty Care Physician is requested to the scene (e.g., Amputation Team) or is part of an approved specialty transport team (e.g., ECMO)
 - 4.1.1. EMS clinicians are authorized to follow orders given by the on-scene physician within the scope of their credential level.
 - 4.1.1.1. Contact OLMC should the on-scene physician issue orders outside the scope of credential level
 - 4.1.1.1.1. Authorized exceptions that do not need OLMC contact:
 - The administration of blood products, provided and ordered by the on-scene physician
 - Dosing of protocolized medications outside protocol parameters.
5. Responding to Physician's Offices:
 - 5.1. The FWOMD credentialed providers will comply with medical treatment requests the physician makes within his/her office as long as the orders are within the provider's scope of credentialing, and FWOMD protocols. Any orders that are in conflict with above should be discussed with OLMC.
 - 5.2. If the physician gives orders that are to be carried out during transport and are outside protocol, the paramedic will discuss these orders with OLMC once in the ambulance to assure that OLMC agrees with the orders and that the orders comply with the protocols of the System.
6. Poison Control
 - 6.1. Poison Control Center Specialists are authorized to direct medical care related to the medical toxicology and/or hazardous material exposure aspects of patient care if contacted for direction limited by credentialed scope and protocols. Care may be limited by supply and medication available for treatment.
7. Care established by other medical professionals
 - 7.1. Orders by nurses, nurse practitioners, physician assistants, and other State-certified providers are not applicable to System providers.
 - 7.1.1. If on arrival of FWOMD credentialed personnel, the patient is under the direct care of another medical professional, and if the patient and medical professional desire to continue as such, provide care in parallel with the medical professional and within the treatment protocol; if care

Medical Professional On-Scene

beyond

the credentialed scope of practice is requested, contact OLMC (e.g., OB – FHT monitoring)

7.1.2.A medical professional arriving after care has been initiated by the prehospital team will be placed in contact with OLMC before becoming involved in patient care.

8. Critical Care Ground and Air Medical Transport Teams

8.1. The patient will remain in the care of the transport team. FWOMD credentialed providers may assist in patient care at the request of the transport team as long as the care is within the credentialed scope and protocol.

9. Services and Equipment.

9.1. If approved by OLMC, the services, and equipment of the emergency vehicle will be made available to the on-scene physician or medical professional.

Medical Treatment of an Employee

1. **Purpose.** This policy describes the clinical practice of treating ill or injured employees of the Fort Worth Regional EMS System
2. **Scope.** This procedure applies to all credentialed providers who are rendering patient care to an ill or injured employee of the EMS System.
3. **Overview.** If an agency's employee is either ill or injured, that person should be treated as a "patient" and all the FWOMD protocols, procedures, and policies apply to care for that individual. An employee requiring medical care must have a patient care record completed whether or not they are transported to a hospital or if they are released by other means (AMA, RAS, etc.). A credentialed provider may not administer any type of medical treatment to another employee without properly following FWOMD protocols, procedures, and policies.
4. **Process.**
 - 4.1. If an agency's employee is ill or injured, proper medical attention should be activated and initiated. The 911 system should be activated if necessary.
 - 4.2. If the agency's employee refuses transport, then the proper AMA protocol should be followed. An incident must be created, and the proper patient care record documented fully.
 - 4.3. Any deviation from this process is prohibited by the System Medical Director and may lead to disciplinary action by the agency, state, and federal oversight authorities.
 - 4.4. Personnel should refer to agency-specific standard operating procedures for any agency-specific requirements of notification or referral.

Medication Storage

1. Purpose. The Drug Enforcement Administration, and the Texas Department of State Health Services (DSHS) require the System Medical Director to assure that all medications purchased under his/her license are stored and secured according to laws and regulations.
2. Scope. This policy applies to medications required on ambulances, first responder vehicles, special teams, and other response-capable Fort Worth Regional EMS System (System) vehicles.
3. Procedure
 - 3.1. Storage of Medications in the Field.
 - 3.1.1. Schedule II - IV Medications will be secured by field personnel while on duty either:
 - 3.1.1.1. on the person of the Paramedic that accepted receipt of the medications and is assigned to the apparatus, or
 - 3.1.1.2. in a locked container on the apparatus, where the only person with the key or combination is the Paramedic that accepted receipt of the medications and is assigned to the apparatus, or
 - 3.1.1.3. during EMS standby services, in a locked container in a designated first aid room where the only person with the key or combination is the Paramedic assigned to the room.
 - 3.1.2. When the crew is not physically inside the unit, all other medications and equipment will be secured on the apparatus by locking all exterior doors or compartments.
 - 3.1.3. The Paramedic that accepted receipt of the medications on Special Teams, such as the Bike Team, Mounted EMS Team, other Ad Hoc teams, or other response capable System vehicles, will secure all Scheduled medications on their person.
 - 3.2. Securing of ALS medications on a BLS resource
 - 3.2.1. Agencies will have a policy/procedure addressing the securing of ALS medications on a unit when being utilized as a BLS resource.
4. Reconciliation.
 - 4.1. All System agencies that carry controlled substances must have a reconciliation policy and procedure in place. FWOMD may conduct reconciliation record audits to assure compliance with this policy.
5. Drug Adulteration.
 - 5.1. All medicines stored in the field must be stored according to current DSHS rules and regulations. This includes all manufacturer temperature recommendations. Proper temperature monitoring and storage techniques should be maintained by each System agency.

Patient Destination

1. **Purpose.** The purpose of this policy is to establish patient destination guidelines.
2. **Scope.** This policy includes all patient transports within the jurisdiction of the Fort Worth Regional EMS System (System).
3. **Selection of a Destination Facility.** The selection of a destination facility must balance the goal of delivering the highest quality patient care with respecting the individual patient's rights and desires to make an informed choice. To accomplish this, patients will be transported to the closest, most appropriate facility using the following criteria in the order listed.
 - 3.1. Once it has been determined that a patient has decisional capacity, and if medically appropriate, they shall be transported to the hospital of their request.
 - 3.2. If the patient is unable to communicate, the patient is to be taken to the hospital of immediate family request, as medically appropriate
 - 3.3. If the family's facility preference is not known, the patient is to be taken to the closest, most appropriate facility.
 - 3.4. Special patient needs may dictate transport to a hospital that may not be the closest but is the most appropriate facility for that patient's medical care needs (i.e., burns, major trauma, stroke, STEMI). See **Designated Specialty Receiving Facilities** (below).
 - 3.5. If a patient calls for EMS while within 250 yards of a full-service hospital's campus, the patient shall be transported to that hospital's Emergency Department unless dictated as in 3.4.
 - 3.6. If a patient has been seen and discharged from an Emergency Department of a full-service hospital within 24-hours, the patient shall be transported back to that Emergency Department unless an exception exists as outlined in 3.4.
 - 3.7. Cardiopulmonary Arrest patients, if transported, should be transported to the closest full-service hospital.
 - 3.8. Credentialed providers shall not encourage patients to utilize one facility over another.
4. **Resolving Conflicts.** The following guidelines are to be used if the decision to transport the patient to the closest appropriate or other facility results in a conflict with the patient or family of the patient.
 - 4.1. In all cases, the patient or family are to be assisted to make an informed decision. As long as patients have decisional capacity, their informed decision will be honored. The patient's present medical condition and the reasons for transport to the closest appropriate medical facility should be discussed with the patient or family if the patient lacks capacity. If the patient or patient's family, as allowed in 3.1 or 3.2 above, insists on transport to another facility (other than a recommended facility based on patient condition or clinical need), their informed decision will be honored as described in this policy.

Patient Destination

5. **Age-Specific Transport Guidelines.** Any unresponsive patient with secondary sex characteristics shall be treated as an adult patient and transported to an adult-care facility. The following table establishes the age-related guidelines for selecting adult or pediatric destination facilities while recognizing the rules set forth in sections 3 and 4 (above).

	Adult Care Facility	Cook Children's
Medical/Trauma Emergencies	≥ 15 Years	< 15 Years *
Psychiatric Emergencies	≥ 13 Years	< 13 Years
* Under certain circumstances, individual patients who are 15-years old or older and who have established relationships with pediatric specialists may be transported to a pediatric care facility. If in doubt, consult with OLMC. * Patients who are exhibiting both an acute medical and psychiatric emergency (e.g., overdose with AMS) should be transported using the Medical/Trauma Emergency criteria		

6. **Emancipated Minors.** Current laws dictate who may be declared an emancipated minor.
7. **Police Custody.** A patient who is under the custody of a police officer and who is being transported to a hospital for assessment/treatment, including those under an application for detention, may be transported to any hospital that is selected by the police officer as long as medically appropriate and as meets the age requirements in this policy.
8. **Correctional Facility Patients.** Patients being transported from correctional facilities are to be transported as follows:
 - 8.1. Most federal correctional facilities have agreements with local hospitals. Patients should be transported to facilities in accordance with such agreements. FWFD paramedics should ask an appropriate official who is responsible for the patient to select the destination facility.
 - 8.2. Other jails or detention facilities – patients are transported to facilities selected by the police officer responsible for the patient.
9. **Designated Specialty Receiving Facilities.** A list of approved Specialty Receiving Facilities is available on each tablet, on the intranet, and in the protocol app.
 - 9.1. **Trauma** - Patients who meet American College of Surgeons trauma activation criteria should be transported to an FWOMD-approved trauma facility.
 - 9.2. **Burn**- Patients with significant 2nd or 3rd-degree burns, as detailed within the Burn protocol, should be transported to an FWOMD-approved Burn center.
 - 9.3. **Cardiac** - Patients experiencing ST-elevation myocardial infarction should be transported to an FWOMD-approved PCI-capable facility.
 - 9.4. **Stroke** - Patients experiencing acute stroke symptoms should be transported to an FWOMD-approved stroke facility. A decision tool for transport to Primary vs. Comprehensive Stroke Center is defined in the Stroke Protocol.
 - 9.5. **Obstetrics** – gravid patients > 20-weeks' gestation should be transported to an FWOMD-approved facility with OB capabilities.
 - 9.6. **Sexual Assault** – patients with suspected or verbalized complaints of sexual assault should be transported to an FWOMD-approved facility with SANE capabilities.
 - 9.7. Designation of Specialty Receiving Facilities will occur based on the below criteria:

Patient Destination

- 9.7.1. **Trauma** – facilities that are approved by the Texas Department of State Health Services as a Level I, II, III, or IV trauma facility; or are in pursuit of such designation
 - 9.7.2. **Burn** – facilities that are verified by the American Burn Association; or are in pursuit of such designation
 - 9.7.3. **Cardiac** – facilities that perform 24/7 percutaneous coronary intervention (PCI) for STEMI-patients and are accredited, or in pursuit of accreditation, by the Joint Commission, American Heart Association, or the American College of Cardiology
 - 9.7.4. **Stroke** – facilities that are designated by the Texas Department of State Health Services as a Primary or Comprehensive Stroke Center
 - 9.7.5. **Obstetrics** – facilities that have a 24/7 Labor & Delivery unit
 - 9.7.6. **Sexual Assault** – facilities that have formalized Sexual Assault Nurse Examiners (SANE), and necessary equipment, available 24/7
10. **Registries and Collaborative Data Sharing.** The Medical Control Advisory Board (MCAB) has further approved that all hospitals that wish to participate as Designated Specialty Receiving Facilities will participate in the appropriate registries (e.g., trauma, stroke) and will share outcome information with the FWOMD so as to determine the appropriateness of care.
11. **Non-traditional Emergency Care Facilities.** A non-traditional emergency care facility is a facility that is structurally separate from a hospital (that may be affiliated or unaffiliated with a Hospital network) and which receives an individual and provides emergency care. These facilities are not considered full-service hospitals. Currently approved Non-traditional Emergency Care Facilities are available on the Specialty Receiving Facilities List
12. **Definitions of Hospital Divert Status**
- 12.1. **Full Divert** – A hospital is CLOSED to ALL patients, including walk-in and EMS traffic.
 - 12.1.1. Ambulance-only divert (where the facility remains open to walk-in traffic) is NOT permitted
 - 12.1.2. When a facility formally declares an *Internal Disaster* and has closed to any new patients (EMS or walk-ins), they will be placed on Full Divert.
 - 12.1.3. Examples of causes of Internal Disasters include, but are not limited to:
 - 12.1.3.1. Structural damage to the facility, e.g., fire, explosion, flood, etc.
 - 12.1.3.2. HazMat incidents
 - 12.1.3.3. Hostage/Bomb Threat/Active Shooter situations
 - 12.2. **Specialty Divert** - When a specific resource (e.g., all radiology, cardiac catheterization lab, etc.) is temporarily unavailable, leading to an inability to care for a specialized patient population
 - 12.2.1. **Trauma Divert**
 - 12.2.1.1. Trauma Divert may occur when a designated trauma facility no longer meets the requirements of a trauma center, e.g., no available OR/ICU bed, surgeon unavailable, etc.
 - 12.2.1.2. Trauma divert may only be initiated with the agreement of the facility's on-duty Emergency Physician and Trauma Surgeon
 - 12.2.1.3. Before a Level 1 or 2 Trauma facility will be placed on Trauma Divert, the Emergency Physician or Trauma Surgeon must first get approval from the other Level 1 or 2 trauma facility who will be responsible for receiving incoming trauma patients. The facility requesting divert must contact the Fort Worth Fire Alarm Office (FAO), who will then independently verify with the open facility before placing the requesting hospital on divert.
 - 12.2.1.4. If all designated Trauma Centers simultaneously require Trauma Divert status, Trauma Divert status shall be removed system-wide. During such times, the FAO will aid with the appropriate distribution of trauma patients.
 - 12.2.2. **Cardiac Divert**
 - 12.2.2.1. Cardiac Divert may occur when a designated Cardiac facility no longer meets the

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requirements of a PCI center, e.g., no available cath lab, Interventional Cardiologist unavailable, etc.

12.2.3. Stroke Divert

- 12.2.3.1. Stroke Divert may occur when a designated Stroke facility no longer meets the requirements of a Primary or Comprehensive Stroke center, e.g., no available CT scanner, etc.

13. **Outpatient Hemodialysis Facilities** - During a Presidential and/or Texas Governor declared disaster, individuals receiving dialysis for the management of their End Stage Renal Disease (ESRD) may be taken to outpatient hemodialysis treatment facilities, if appropriate. Patients will be evaluated for any significant exacerbation of their ESRD symptoms and for any other acute medical conditions to ensure an appropriate destination for treatment. Patients requesting transport for dialysis, AND who are asymptomatic or have mild complaints consistent with their typical pre-dialysis symptoms (e.g., weight gain, edema, shortness of breath, fatigue, nausea/vomiting), may be transported to an outpatient dialysis facility.

14. **Divert Process** – The following process shall be followed for all changes to Divert status (Full or Specialty):

- 14.1. The Administrator on Call (AOC) for the facility requesting divert will notify the FAO of the type and expected duration of diverting and the names and direct phone numbers of the facility's on-duty Emergency Physician and AOC.
- 14.2. **For Specialty Divert**, FAO will notify the System Medical Director, Shift Commander, and Field Crews of facility divert status and timeframe.
- 14.3. **For Full Divert**, the below steps will be followed:
 - 14.3.1. The Communications Center will dispatch an EMS Supervisor to the facility to meet with and offer assistance to the facility AOC and on-duty Emergency Physician.
 - 14.3.2. After this meeting, the EMS Supervisor shall initiate a conference call with the AOC, Shift Commander, and the System Medical Director
 - 14.3.2.1. The ultimate responsibility of approving a divert status lies with the System Medical Director.
 - 14.3.2.2. Once the conference call has been completed, the Shift Commander will notify the FAO to page on-duty field providers and EMS Supervisors regarding the hospital facility's divert status.
 - 14.3.3. The facility must also update and notify local (e.g., EMResources/NCTTRAC, Emergency Operations Center) and state authorities (e.g., DSHS).
 - 14.3.4. The facility's status shall be verified with the facility's AOC at least every 2-hours by an EMS Supervisor.
 - 14.3.5. The Shift Commander, System Medical Director, and Facility AOC shall confer by conference call and review hospital divert status every six hours.

15. After-Action Review

- 15.1. Following any Full Divert activation, an after-action review will be held within 72-hours to include the following stakeholders:
 - 15.1.1. Hospital CEO, CMO, or COO
 - 15.1.2. Fire Chief or designee
 - 15.1.3. System Medical Director

16. System-wide Disasters and Patient Overload

- 16.1. In rare circumstances, such as prolonged public health emergencies, multiple System hospitals may be overwhelmed by large patient volumes in their Emergency Departments.
- 16.2. In these instances, a distributed patient allocation process may benefit the hospitals and patients of the System,

Patient Destination

16.3. The decision to activate a distributed patient allocation process will be made by discussion amongst the service area full-service hospital administrators

16.3.1. .

16.3.2. Decisions regarding this process will be communicated to the facilities Medical Control Advisory Board representatives

Protocol Maintenance

1. **Purpose.** The protocols, procedures and policies (PP&P) of the Fort Worth Office of the Medical Director (FWOMD) are based on current scientific data, evidence-based best-practices, and standards of care, where these are available. All PP&P are reviewed and approved by the Medical Control Advisory Board (MCAB), which may include board-certified physicians representing a variety of specialties – e.g., emergency medicine, cardiology, pulmonology, public health, trauma surgery, psychiatry and critical care. This policy provides guidance on how these documents will be reviewed and revised to incorporate current best-practice and scientific advances in clinical care
2. **Scope.** This policy applies to FWOMD.
3. **Procedure.**
 - 3.1. **Periodic Review:**
 - 3.1.1. Current protocols related to all aspects of patient care, including specialty programs, will be reviewed by FWOMD at a minimum every 3-years.
 - 3.1.2. Revisions may be made in whole or in part and will be submitted to MCAB for review and approval.
 - 3.2. **Approval of revisions, notification to affected personnel and necessary training:**
 - 3.2.1. Once MCAB approves any revisions to current PP&P, FWOMD will replace the existing electronic file with the revised document.
 - 3.2.2. Members of the Fort Worth Regional EMS System (System) will be notified of any changes and will be provided electronic copies of the revised document.
 - 3.2.3. Any required training for approved changes will be developed by FWOMD in collaboration EMS System agencies.
 - 3.3. **Immediate Revision:**
 - 3.3.1. Revisions to PP&P may be implemented by the System Medical Director prior to the next regularly scheduled MCAB meeting and submitted to MCAB at the next regularly scheduled meeting.
 - 3.4. **Biennial Protocol Competency:**
 - 3.4.1. To ensure maintenance of clinical competency, System credentialed providers may be tested in part or in whole, biennially with any protocol update or revision.
 - 3.5. **Eligibility to Request Review:**
 - 3.5.1. Members of the EMS System, receiving hospital, or other facility may request a review of PP&P by FWOMD.

Safe Haven – Baby Moses

1. **Purpose.** As a Fort Worth Regional EMS System first responder agency that is recognized by the Texas Department of State Health Services under Chapter 773 of the Health and Safety Code as a First Responder Organization, in-service fire apparatus, or any FWFD ambulance, or fire station may be considered a “Safe Haven” for voluntary drop-off of children who appear to be 60-days old or younger in accordance with Texas Family Code, this policy defines the procedure for the care of an infant left at a recognized location.
2. **Scope.** This policy applies to all EMS System providers.
3. **Procedure.**
 - 3.1. **Assessment and Care**
 - 3.1.1. Perform initial assessment:
 - 3.1.1.1. Complete physical exam
 - 3.1.1.2. Gather complete family medical history
 - 3.1.1.3. Gather complete patient medical history
 - 3.1.1.4. Provide care:
 - 3.2. Provide care as indicated in accordance with FWOMD protocol
 - 3.3. **Transport**
 - 3.3.1. The newborn is to be transported to the closest full-service pediatric facility for further evaluation and treatment.
 - 3.4. **Notification**
 - 3.4.1. Notification is to be made to the Texas Department of Family and Protective Services regarding the surrendered newborn and destination of transport.

Supplies and Equipment

1. **Purpose.** TAC Rule 157.11 requires the Medical Director to set standards for patient care. Standards are to include vehicles and onboard equipment. This policy establishes the standards for Medication, Equipment, Devices, and Supplies (M.E.D.S.)
2. **Scope.** This policy applies to Fort Worth Regional EMS System (System) ambulances, first responder vehicles, and special teams.
3. **Procedure.** All vehicles will be equipped per the approved inventory list. Proposed changes in the inventory are to be submitted to the FWOMD for approval.
 - 3.1. **Brand Specific Items:** In certain cases the OMD may specify a particular brand of M.E.D.S. The decision to specify a particular brand will be based on the evaluation of available products and through the participation of representatives from agencies that will use the item.
 - 3.2. **Approved Inventory:** Each ambulance and FRO primary apparatus utilized in first response and transport shall carry at minimum the equipment and drug inventory listed on the applicable minimum inventory equipment and drug list signed by the System Medical Director.
 - 3.3. **Evaluation of New M.E.D.S.** This procedure is to assure that all new M.E.D.S is introduced into the EMS System with the System Medical Director's approval.
 - 3.3.1. The EMS System agency may research and suggest new M.E.D.S.
 - 3.3.2. The EMS System agency and the System Medical Director agree to perform a field trial (if necessary) on the specific M.E.D.S.
 - 3.3.3. The recommendation is brought to the System Medical Director for approval.
 - 3.3.4. The System Medical Director accepts or rejects the proposal.
 - 3.3.5. If the trial proposal is accepted, the System agency's designated personnel will perform a clinical field trial.
 - 3.3.6. If the trial proposal is rejected the item will be dropped from consideration but may be reviewed again later by the System Medical Director if deemed necessary.
 - 3.3.7. Once a clinical field trial is completed a representative of the EMS System agency will present all available data to the System Medical Director for review.
 - 3.3.8. The System Medical Director will approve or reject the implementation of the new item based on the following in collaboration with agency leadership:
 - 3.3.8.1. Logistics, training requirements, implementation constraints,
4. **Implementation of New Equipment**
 - 4.1. If approved by System Medical Director and System agency or FRO's municipality:
 - 4.1.1. The new equipment will be ordered by the agency in a timely fashion.
 - 4.1.2. The agency in collaboration with FWOMD may perform all the necessary training of field personnel.
 - 4.1.3. The FWOMD will compose the applicable protocol and/or procedure for the new M.E.D.S.
 - 4.1.4. After the FWOMD has deemed that the proper training has been completed, the new equipment will be implemented and added to the minimum inventory list.
 - 4.2. If rejected by the System Medical Director the item will be dropped from consideration; however, may be reviewed again at a later time if deemed necessary.
5. **Expiration of medications and supplies**
 - 5.1. Expiration dates should be checked monthly, and items replaced as they expire.
6. For the Fort Worth Regional EMS System, FWOMD will manage all the minimum inventory lists with DSHS

System Quality Improvement

1. **Purpose.** This policy is established to implement a systematic approach for benchmarking and measuring clinical quality using standardized measurement strategies that prioritize patient-centric care and focus on achieving desired outcomes.
2. **Scope.** This policy applies to the Fort Worth Regional EMS System
3. **Clinical Benchmarks**
 - 3.1. The clinical benchmarks for Whole System Quality will be based on the following sources:
 - AHA Mission Lifeline
 - AHA Telecommunicator CPR Performance Measures
 - National EMS Quality Alliance
 - CARES – Cardiac Arrest Registry to Enhance Survival
 - 3.2. Benchmarks for clinical quality will align with national performance measures whenever they are available or follow the goals set forth by the American Heart Association (AHA).
 - 3.3. See Appendix A for measure definitions
4. **Quality Improvement**
 - 4.1. When clinical performance falls below national benchmarks or AHA goals, the "Model for Improvement" will be used as the primary methodology for quality improvement initiatives.
 - 4.2. The quality improvement process will include the following key elements.
 - Identification of performance gaps
 - Formation of multidisciplinary teams
 - Drafting of project charters for each improvement initiative
 - Establishment of outcome, process, and balancing measures to assess the impact of changes
 - Testing and implementation of change theories using the Plan-Do-Study-Act (PDSA) methodology.
5. **Implementation of Quality Improvement Initiatives**
 - 5.1. Identification of Performance Gaps:
 - Regularly monitor and analyze clinical performance data to identify areas where performance falls below national benchmarks or AHA goals.
 - 5.2. Formation of a Multidisciplinary Team:
 - 5.2.1. Establish multidisciplinary teams consisting of healthcare professionals, administrators, and other relevant stakeholders to lead improvement initiatives.
 - 5.3. Drafting of Project Charters:
 - 5.3.1. Develop project charters for each improvement initiative, outlining the objectives, scope, resources, and timeline for the project.
 - 5.4. Establishment of Measures:
 - 5.4.1. Define outcome measures that represent the desired improvements in clinical quality.
 - 5.4.2. Define process measures that track the changes made to achieve these improvements.
 - 5.4.3. Define balancing measures that assess any unintended consequences of improvement efforts.
 - 5.5. Testing and Implementation of Change Theories:
 - 5.5.1. Utilize the PDSA methodology to systematically test and implement changes aimed at achieving the desired outcomes.

System Quality Improvement

5.6. Monitoring and Sustaining Improvements:

- 5.6.1. Continuously monitor the impact of implemented changes and adjust as necessary to sustain improvements.

6. Compliance and Accountability

- 6.1. All personnel within the organization are responsible for adhering to this policy and participating in quality improvement initiatives.
- 6.2. The Fort Worth Office of the Medical Director will oversee and coordinate the implementation of this policy, monitor progress, and report on quality improvement efforts to senior leadership.

7. Review and Revision

- 7.1. This policy will be periodically reviewed and revised as needed to ensure its effectiveness in promoting clinical quality and achieving desired patient outcomes.

8. Communication

- 8.1. This policy will be communicated to all relevant staff members and stakeholders within the organization. Training and educational resources will be provided as necessary to facilitate understanding and compliance.

System Quality Improvement – Video Laryngoscopy

1. **Purpose:** The purpose of this policy is to establish guidelines for the review, retention, and deletion of video laryngoscopy data obtained from a video laryngoscopy device in the Fort Worth Regional EMS System, for quality assurance (“QA”) and quality improvement (“QI”) activities.
2. **Scope:** This policy applies to all Video Laryngoscopy video files that have been retained by the Office of the Medical Director (FWOMD) for QA/QI purposes.
3. **Upload Process:** All video laryngoscopy intubations performed in the EMS System will have the accompanying video file uploaded for a quality review prior to the end of shift as outlined below:
 - 3.1. Video laryngoscopy files will be uploaded to the UEScope app on designated devices.
4. **Review:** Video Laryngoscopy videos will be reviewed and may be used for quality assurance purposes outlined below. The video should not be used for any other purpose other than those outlined in this policy. The use of these videos should be limited to:
 - 4.1. **Case Reviews:** Video files may be used to review intubation performance during Quality Assurance case reviews with providers. This confidential review will consist of FWOMD Quality staff and only those providers that were present and involved with the intubation on the respective case. Full, unedited intubation videos will not be shared with any providers that were not involved with direct patient care, more specifically patient intubation.
 - 4.2. **Intubation Training:** Video files may be retained for system training purposes but must be edited to redact all protected health information (PHI) and/or crew member identity.
 - 4.3. **Quality Improvement Activities:** Videos may be reviewed by FWOMD staff to identify system training objectives, research initiatives, performance trends, or any other purposes deemed necessary for quality improvement.
5. **Retention:** Video Laryngoscopy data will be retained for a 90-day period to allow for review and identification of videos that may be retained for training purposes. Videos that are retained for training purposes must be edited to redact all PHI and/or crew member identity.
6. **Deletion:** After 90 days all videos that are not retained for quality assurance purposes shall be destroyed.

Transition of Care

1. Purpose. To minimize the potential for medical error, to ensure continuity of care, and enhance safety during transitions of care.
2. Scope. This policy applies to all FWOMD-credentialed providers.
3. Inclusion criteria
 - 3.1. Patient handoffs in a health care facility from a health care practitioner (Ex. Physician, Physician Assistant, Advanced Practice Registered Nurse - CRNA, NP, Certified Nurse Midwife).
 - 3.2. Handoffs between EMS crews and FROs at same credential level.
4. Exclusion Criteria
 - 4.1. Transitions from non-clinician level staff (RN, LPN, CNA, tech, doula, etc.), non-medical persons (bystanders, family).
 - 4.1.1. Note: EMS System clinicians should, however, politely, and attentively obtain relevant information from these care givers and thank them for their assistance.
 - 4.2. For physicians not in a healthcare setting with an established patient care relationship, follow *Medical Professionals on Scene*.
5. Definitions:
 - 5.1. Sending clinician: the clinician/team responsible for care before hand-off.
 - 5.2. Receiving clinician: the clinician/team responsible for care after hand-off.
6. Transition of Care
 - 6.1. Assume patient care and medical decision making will be directed by the sending clinician until they verbally transfer care to the receiving clinician. Understandably, they may not always verbally communicate transfer of care, assuming it is implied. To minimize the chances for misunderstanding, confirm that the clinician is transferring care and understands that the receiving clinician is now in charge of patient care and will be operating under their protocols.
 - 6.1.1. If there is no on-scene sending clinician physically present in the room with the patient, make every effort to contact them if they are on-location.
 - 6.1.2. Promptly contact OLPG for assistance if there is any conflict between sending and receiving clinicians.
 - 6.2. Prior to handoff: receiving clinicians may assist, within their credentialed scope, with appropriate care prior to formal transfer of care and at the direction/request of the sending clinician.
 - 6.3. After formal transfer of care: sending clinicians may assist, within their credentialed scope, with appropriate care after formal transfer of care and at the direction/request of the receiving clinician.
7. Document estimated time of transfer of care in the ePCR.

Upgrading Ambulance Response

1. **Purpose.** This policy establishes the circumstances under which Fort Worth Regional EMS System first responder personnel may request a FWFD ambulance response upgrade, the process for upgrading a response, and related QA activities.
2. **Scope.** This policy applies to First Responder personnel and affects response priority upgrades. The call would be upgraded based on the EMD criteria.
3. **Procedure.** Certain conditions may become apparent during initial contact with a patient that may not have been identifiable by an EMD, or that had a delayed onset, and that may warrant a response upgrade by FWFD ambulance.
 - 3.1. If a first responder arrives at the patient's side and identifies any of the following findings, conditions, or situations, a response upgrade to Priority 1 is warranted:
 - 3.2. **Airway:**
 - 3.2.1. There is complete airway obstruction; or
 - 3.2.2. The patient's airway cannot be maintained.
 - 3.3. **Breathing:**
 - 3.3.1. The patient has severe difficulty breathing;
 - 3.3.2. The patient cannot be ventilated.
 - 3.4. **Circulation:**
 - 3.4.1. An unanticipated cardiac arrest occurs or has occurred;
 - 3.4.2. Uncontrollable bleeding is present; or
 - 3.4.3. Severe loss of blood has occurred.
 - 3.4.4. **Altered Level of Consciousness:**
 - 3.4.4.1. The patient becomes unresponsive; or
 - 3.4.4.2. Status seizures.
 - 3.4.5. An upgrade to a Priority 2 may be requested if the first responder finds the patient's clinical condition to be urgent.
- 3.5. **Requesting a Response Upgrade.** The first responder shall request a response upgrade by contacting their respective dispatch center and asking them to contact the Fort Worth Fire Alarm Office (FAO) for the purpose of upgrading a response priority. The reason for the upgrade is required when making such a request. The FAO will upgrade the response based on current EMD criteria.
- 3.6. **Audit of Upgrade Requests.** FWFD and each First Responder agency that has requested a response upgrade during the month shall conduct a 100% QA review of upgrade requests. The QA review shall meet the following requirements:
 - 3.6.1. A cooperative review shall be conducted each month by FAO quality assurance personnel, the First Responder designee, FWOMD representative, and other personnel who may be needed;
 - 3.6.2. Together, they shall Review the initial dispatch and the request for the upgrade;
 - 3.6.3. Review of the first responder patient care report and the ambulance patient care report;
 - 3.6.4. A QA report shall be provided to the System Medical Director and shall include the total number of upgrade requests, the number of appropriate requests, and a qualitative summary of possible improvements to the process.

Walk-In Patients

1. **Purpose.** The purpose of this policy is to establish a uniform method of managing a person's arrival at fire or EMS stations requesting (explicit or implied) medical assistance.
2. **Scope.** This policy applies to all Fort Worth Regional EMS System agencies and their personnel.
3. Compliance with Safe Haven Law(s), see *Safe Haven – Baby Moses*
4. **Procedure.** When a person arrives at a fire or EMS station requesting medical assistance or who is in obvious medical distress, personnel should:
 - 4.1. Perform initial assessments and administer indicated care in accordance with FWOMD protocol;
 - 4.2. Make indicated notifications as required by agency policy; and
 - 4.3. Request a FWFD ambulance.

System Performance Committee Recommended Measures and Goals

Cardiac Arrest

CA 01: Percentage of OHCA Cases Correctly Identified by PSAP That Were Recognizable

Description: Telecommunicator recognized OHCA / total OHCA (confirmed by EMS impression)

Goal: 95% (AHA)

CA 02: Median time between 9-1-1 call and OHCA recognition

Description: Median amount of time in seconds between 9-1-1 call connected and OHCA recognition.

Goal: < 90 seconds (AHA)

CA 03: Percentage of Telecommunicator-Recognized OHCA Cases Receiving T-CPR

Description: Number of telecommunicator-recognized OHCA cases receiving T-CPR / number of QI-reviewed EMS-confirmed OHCA with recognition noted.

Goal: 75% (AHA)

CA 04: Median time between 9-1-1 Access to tCPR hands-on-chest time for OHCA cases

Description: Median amount of time in seconds between 9-1-1 call connected and first chest compression directed by telecommunicator.

Goal: <150 seconds (AHA)

CA 05: Utstein Survival %

Description: Patients experiencing non-traumatic, bystander-witnessed out-of-hospital cardiac arrest (OHCA) presenting with a shockable rhythm that are discharged from the hospital alive.

Goal: >30.7% (National Average)

CA 06: Utstein Survival with Good Neurological Function

Description: Patients experiencing non-traumatic, bystander-witnessed out-of-hospital cardiac arrest (OHCA) presenting with a shockable rhythm that are discharged from the hospital alive with good neurological function.

Goal: > 27.5% (National Average)

Airway Management

Airway 01: First Pass Intubation Success without Hypotension or Hypoxia

Description: The percentage of non-cardiac arrest intubations with first pass success without hypotension (SBP $\geq$ 90) or hypoxia ($\geq$ 90) during the peri-intubation period (+/- 5 minutes from procedure time).

Goal: > National Average (when available)

Airway 02: Adequate Oxygen Saturation Achieved Before Intubation Procedure

Description: The percentage of intubation procedures in which adequate patient oxygen levels were achieved and maintained for 3 minutes prior to the intubation procedure.

Goal: > National Average (when available)

Airway 03: Waveform Capnography Airway Device Monitoring

Description: The percentage of advanced airway procedures in which waveform capnography is used for tube placement confirmation and monitoring

Goal: >National Average (when available)

Airway 04: Airway Composite (Defect-Free Care)

Description: The percentage of responses during which adequate oxygen levels ($\geq$ 94%) are achieved and maintained for 3 minutes prior to intubation procedure, endotracheal intubation placement is successful on first attempt without hypotension (SBP $\geq$ 90) or hypoxia ($<$ 90%) during the peri-intubation period, and waveform capnography is used for verification and monitoring.

Goal: >National Average (when available)

Airway 05: Unrecognized Failed Airway

Description: The percentage of patients for whom EtCO₂ is NOT present at the end of the event AND for whom adjudication did not reveal a plausible explanation (ex. gradual loss of EtCO₂ in cardiac arrest)

Goal: >National Average (when available)

STEMI

STEMI 02: Aspirin Administration for STEMI

Description: The percentage of EMS patients aged 18 years and older transported from the scene with Aspirin administration for suspected heart attack.

Goal: ≥75% (AHA)

STEMI 03: 12-lead ECG Performed Within 10 minutes for STEMI Patients

Description: The percentage of EMS patients aged 18 years and older transported from the scene with chest pain or a suspected MI for whom a 12-Lead ECG was performed ≤ 10 minutes of first medical contact.

Goal: ≥75% (AHA)

STEMI 04: STEMI Alert Within 10 Minutes in STEMI Patients

Description: The percentage of EMS patients aged 18 years and older transported from the scene with a STEMI positive ECG for whom pre-arrival notification was activated ≤ 10 minutes of positive ECG.

Goal: ≥75% (AHA)

Stroke

Stroke 01: Evaluation of Blood Glucose for Patients with Suspected Stroke

Description: The percentage of EMS patients aged 18 years and older transported from the scene with suspected stroke for whom blood glucose was evaluated during the EMS encounter.

Goal: ≥75% (AHA)

Stroke 02: Stroke Screen Performed and Documented

Description: The percentage of EMS patients aged 18 years and older transported from the scene with a suspected stroke for whom a stroke screen was performed and documented during the EMS encounter.

Goal: ≥75% (AHA)

Stroke 03: Stroke Alert for Suspected Stroke

Description: The percentage of EMS patients aged 18 years and older transported from the scene with a primary or secondary impression of stroke whom a pre-arrival alert for stroke was activated during the EMS encounter.

Goal: ≥75% (AHA)

Stroke 04: Documentation of Last Known Well for Patients with Suspected Stroke

Description: The percentage of EMS patients aged 18 years and older transported from the scene with suspected stroke for whom Last Known Well was documented during the EMS encounter.

Goal: ≥75% (AHA)

NEMSQA

Asthma 01: Administration of a Beta Agonist for Asthma

Description: The percentage of EMS responses originating from a 911 request for patients with a diagnosis of asthma who had an aerosolized beta agonist administered.

Goal: >51% (National Average)

Hypoglycemia 01: Treatment Administered for Hypoglycemia

Description: The percentage of EMS responses originating from a 911 request for patients with symptomatic hypoglycemia who receive treatment to correct their hypoglycemia.

Goal: > 43% (National Average)

Respiratory 01: Respiratory Assessment

Description: The percentage of EMS responses originating from a 911 request for patients with primary or secondary impression of respiratory distress who had a respiratory assessment.

Goal: >92% (National Average)

Seizure 02: Patients with Status Epilepticus Receiving Intervention

Description: The percentage of EMS responses originating from a 911 request for patients with status epilepticus who received benzodiazepine during the EMS response.

Goal: >28% (National Average)

Trauma 01: Pain Assessment of Injured Patients

Description: The percentage of EMS responses originating from a 911 request for patients with injury who were assessed for pain.

Goal: >69% (National Average)

Trauma 03: Effectiveness of Pain Management for Injured Patients

Description: The percentage of EMS transports originating from a 911 request for patients whose pain score was lowered during the EMS encounter.

Goal: >18% (National Average)

Appendix

CPR WORKSHEET

PATIENT INFORMATION

NAME: _____ HISTORY: _____

DOB: _____

ON SCENE TIME: _____ CPR START TIME: _____ MEDICATIONS: _____

BYSTANDER WITNESSED: Y / N

BYSTANDER CPR: Y / N BYSTANDER AED: Y / N ALLERGIES: _____

BASIC PROTOCOL

TIME	PROCEDURE	SUCCESSFUL?	PERFORMED BY / NOTES
	CPR—MANUAL	Y / N	
	ATTACH PADS IN A/L POSITION	Y / N	
	AIRQ-3	Y / N	
	DEFIBRILLATION	Y / N	
	MCD AFTER 15 MIN MANUAL CPR	Y / N	
	DUAL SEQUENTIAL EXTERNAL DEFIBRILLATION (DSED)	Y / N	
		Y / N	
		Y / N	

ALS PROTOCOL

TIME	PROCEDURE	SUCCESSFUL?	PERFORMED BY / NOTES
	IV / IO ACCESS	Y / N	
	EPI	Y / N	
	EPI INFUSION	Y / N	
	BICARB	Y / N	
		Y / N	
		Y / N	
		Y / N	
		Y / N	

ADVANCED PROTOCOL

TIME	PROCEDURE	SUCCESSFUL?	PERFORMED BY / NOTES
	ESMOLOL	Y / N	
	NOREPI (LEVO)	Y / N	
		Y / N	
		Y / N	
		Y / N	
		Y / N	
		Y / N	

CODE COMMANDER TAC SHEET

1

2

3

4

CPR

Airway / Meds

Mechanical Compressions

ROSC

POSITION 1 & 2

POSITION 3 & 4

POSITIONS 1, 2, & 3

INTERVENTION PARAMEDIC

2 min. continuous CPR

IMMEDIATE SGA

OPTIONAL AFTER 15 MIN MANUAL CPR

STAY IN PLACE 10 MIN

A/L PAD PLACEMENT

DO NOT BAG DURING COMPRESSIONS

- ☐ Hit Analyze on monitor & PAUSE compressions
- ☐ Manual CPR at 30:2
 - 30 compressions
 - 2 ventilations
- ☐ Pulse/rhythm check every 2 min. (10sMAX)
- ☐ Pause compressions when prompted by AED

- ☐ EtCo2 goal = ≥ 20 mmHg
 - Turn Co2 on, on monitor
 - Titrate compressions to achieve
- ☐ 4 phase waveform for each breath
- ☐ ETI only after failed SGA

1. Power ON
2. Role assignments
3. 2 step placement

- ☐ Set BP every 2 min.
- ☐ Optimize Airway
 - EtCo2 34-45 mmHg
- Obtain a clear 12 lead
 - ☐ Transmit
 - ☐ PCI alert IF STEMI
- ☐ Gain 2nd IV/IO access

RE-CHECK PLACEMENT AFTER PATIENT MOVEMENT EVERY TIME

PHASE 1

- After pulse/rhythm check
- ☐ Lift / roll patient
 - ☐ Place back plate
 - ☐ Continue compressions

POST-ROSC MEDS

PERSISTENT VF/VT

SHOCKABLE

PHASE 2

- Dual Sequential External Defibrillation
- ☐ 2nd pads in A/P position
 - Do not use 2nd puck
 - ☐ 1 provider operates both monitors
 - ☐ Deliver shocks 1 second apart
 - ☐ Contact OLMC for ECPR consideration after 3rd shock

- ☐ Epi - 1mg 1:10,000
- Amio
 - ☐ 300mg after 2nd shock
 - ☐ 150 after 3rd shock
- Esmolol - after 4th shock
 - ☐ 0.5 mg/kg bolus
 - ☐ 0.05 mg/kg/min infusion
 Only while in shockable rhythm

- After pulse/rhythm check
- ☐ Attach arms to backplate
 - ☐ Engage piston
 - ☐ Press play

- ☐ Epi infusion
 - Titrate if already in place
- ☐ Levo infusion
 - If no Epi in place
- ☐ Optimize hemodynamics
 - MAP ≥ 65
- ☐ New BP every 2 min

MONITOR WATCHER

NON SHOCKABLE

POST MCD PLACEMENT

- ☐ Eyes on monitor at all times
- ☐ Announce START/STOP CPR
- ☐ Depth = ≥ 2 inches
- ☐ Rate = 100-120 bpm
- ☐ Mark pulse points

- ☐ Epi - 1mg 1:10,000
- ☐ Epi Infusion
 - 2mg of 1:10,000 in 250 NS @ 67 mcg/min
- ☐ If unwitnessed give Bicarb
- ☐ If PEA give fluid bolus

- ☐ Attach neck strap
- ☐ Sharpie the chest
- ☐ Mark pulse points

MCD Watcher Manages Device

TERM OF RESUS

- ☐ Contact OLMC
 - EtCo2 < 10 @ 10 min
 - EtCo2 ≥ 10 but <20 @ 20 min
 - EtCo2 ≥ 20 @ 30 min

PLAN IN PLACE BEFORE PATIENT MOVEMENT

TRANSPORT

- ☐ Reassess airway
- ☐ Reassess vitals
 - BP every 2 min
- ☐ Prepared for re-arrest
- ☐ MCD + Fire Riders
- ☐ Spare MCD battery

Clinical Opiate Withdrawal Scale (COWS)

Resting Pulse Rate: <i>(Measured after patient is sitting or lying for 1 min)</i>	GI upset: <i>(Over last 30 min)</i>
0 - HR 80 or below 1 - HR 81 to 100 2 - HR 101 to 120 4 - HR > 120	0 - No GI symptoms 1 - Stomach cramps 2 - Nausea or loose stool 3 - Vomiting or diarrhea 5 - Multiple episodes of diarrhea or vomiting
Sweating: <i>(Over last 30 min and not due to room/environment temp or patient activity)</i>	Tremor: <i>(Observation of outstretched hands)</i>
0 - No report of chills or flushing 1 - Subjective report of chills or flushing 2 - Flushed or observable moistness on face 3 - Beads of sweat on brow or face 4 - Sweat streaming off face	0 - No tremor 1 - Tremor can be felt, but not observed 2 - Slight tremor observable 4 - Gross tremor or muscle twitching
Restlessness: <i>(Observation during assessment)</i>	Yawning: <i>(Observation during assessment)</i>
0 - Able to sit still 1 - Reports difficulty sitting still, but is able to do so 3 - Frequent shifting or extraneous movements of legs/arms 5 - Unable to sit still for more than a few seconds	0 - No yawning 1 - Yawning 1x or 2x during assessment 2 - Yawning 3 or more during assessment 4 - Yawning several times/minute
Pupil size:	Anxiety or Irritability:
0 - Pupils pinned or normal size for room light 1 - Pupils possibly larger than normal for room light 2 - Pupils moderately dilated 5 - Pupils so dilated that only the rim of the iris is visible	0 - None 1 - Reports increasing irritability or anxiousness 2 - Obviously irritable or anxious 4 - So irritable or anxious that participation in the assessment is difficult
Bone or Joint Aches: <i>(If pain previously, only score the additional component attributed to opiate withdrawal)</i>	Gooseflesh Skin:
0 - Not present 1 - Mild diffuse discomfort 2 - Patient reports severe diffuse aching of joints/muscles 4 - Patient is rubbing joints or muscles and is unable to sit	0 - Skin is smooth 3 - Piloerection of skin can be felt or hairs standing up on arms 5 - Prominent piloerection
Runny Nose or Tearing: <i>(Not accounted for by cold symptoms or allergies)</i>	Total score (sum of all 11 items): 5 to 12 = Mild 13 to 24 = Moderate 25 to 36 = Moderately Severe > 36 = Severe Withdrawal
0 - Not present 1 - Nasal stuffiness or unusually moist eyes 2 - Nose running or tearing 4 - Nose constantly running or tears streaming down cheeks	

Esmolol Dosing Chart

(Pre-mix concentration 2,500 mg / 250 mL = 10 mg/mL)

LBS	KGS	Bolus		Infusion Rate (mg/min)
		mg	mL	
88 LBS	40 KG	20	2	Calculated by pump
110 LBS	50 KG	25	2.5	
132 LBS	60 KG	30	3	
154 LBS	70 KG	35	3.5	
176 LBS	80 KG	40	4	
220 LBS	100+ KG	50	5	

DSI/Intubation Checklist

PATIENT

☐ Plan

Primary: ETT

Backup: BVM, SGA

COCV: Cric

- Designate Roles

☐ Pre-Ox

- HFNC @ max
- ETSN
- HOB 30 deg
- PEEP w/ BVM
- OPA/NPA
- Ventilate PRN

☐ Monitor

- ECG
- BP q 2 min
- SpO2 opposite BP cuff
- EtCO2

PREP

☐ Kit Dump

- Blades
- ETT
- Syringes
- Tamer
- Bougie curved
- Backups
- Suction tested
- VL tested

☐ Medications

- Ketamine given
- Paralytic ready

☐ Goals

- O2 $\geq 94\%$ x **3 min**
- SBP ≥ 100

**IF GOALS NOT MET
DO NOT DSI.
Consider RSA.**

PERFORM

☐ Push

- Push paralytic
- 90 second countdown
- Trauma: Open C-collar

☐ Perform Intubation

**Bail Out Criteria:
SpO2 $\leq 94\%$**

☐ Post Intubation

- EtCO2 ≥ 5
- Auscultate
- Sedation

DSI/RSA Dosing Chart

LBS	KGS	Ketamine (2 mg/kg, 50 mg/mL)		Rocuronium (1.5 mg/kg, 10 mg/mL)	
		mg	mL	mg	mL
88 LBS	40 KG	80	1.6	60	6
110 LBS	50 KG	100	2	80	8
132 LBS	60 KG	120	2.4	90	9
154 LBS	70 KG	140	2.8	100	10
176 LBS	80 KG	160	3.2	120	12
198 LBS	90 KG	180	3.6	140	14
220+ LBS	100+ KG	200	4	150	15
Ketamine for Post-Airway Sedation/Analgesia (Maintain RASS -5)					
Repeat above dose immediately after invasive airway secured THEN					
Bolus: May repeat 2 mg/kg q 15 min or more frequently PRN					
OR					
Infusion: 200 mg in 100 mL NS, start @ 1 mg/min, titrate PRN by 1 mg/min					

MECHANICAL COMPRESSION DEVICE CHECKLIST

PRE-APPLICATION TIMEOUT

- **SIZE** - is the patient too big / small?
- **TURN ON** - ensure the device powers on and battery charge is good
- **ABORT** - when to stop application / resume manual CPR
- **ROLES** - role assignments / providers in place
- **STRAP** - no neck strap = no application

S-T-A-R-S

2 PHASE APPLICATION

PHASE 1

1. After full 2 minute CPR cycle, pause CPR for rhythm check, manage rhythm
2. ****BEGIN 10 SECOND COUNTDOWN****
3. Providers lift patient by shoulders / roll patient to the side
4. Place back plate under patient ensuring attachment points are visible
5. ****RESUME MANUAL CPR****

IF UNABLE TO COMPLETE IN 10 SECONDS - ABORT APPLICATION

****At 8 seconds prepare to ABORT and resume manual compressions for a full 2 minute cycle****

PHASE 2

1. After full 2 minute CPR cycle, pause CPR for rhythm check, manage rhythm
2. ****BEGIN 10 SECOND COUNTDOWN****
3. Apply device arms to back plate and lock in place
 - **LUCAS** - swing arm over and clamp on both sides
 - **DEFIBTECH** - clamp on both sides and insert piston arm
4. Engage piston
 - **LUCAS** - pull piston down
 - **DEFIBTECH** - press button to lower piston
5. Press play on device

IF UNABLE TO COMPLETE IN 10 SECONDS - ABORT APPLICATION

****At 8 seconds prepare to ABORT and resume manual compressions for a full 2 minute cycle****

POST APPLICATION

- Apply neck straps and arm straps
- Mark sharpie around piston / puck
- Keep hands and eyes on device watching for movement

PHASE 1

STEP
1-2



STEP
3-4



STEP
5



PHASE 2

STEP
1-3



STEP
4



STEP
5



Richmond Agitation-Sedation Scale (RASS)

Score	Term	Description
+4	Combative/Violent	Overtly combative or violent and an immediate and significant danger to self and clinician
+3	Very Agitated	Aggressive, non-combative
+2	Agitated	Frequent, non-purposeful movements that impair assessment/monitoring
+1	Restless	Anxious or apprehensive, movements not aggressive or vigorous
0	Alert & Calm	Spontaneously pays attention to clinician
-1	Drowsy	Not fully alert, sustained (≥ 10 sec) awakening with eye contact to voice
-2	Light Sedation	Awakens briefly (< 10 sec) with eye contact to voice
-3	Moderate Sedation	Movement or eye opening to voice (but no eye contact)
-4	Deep Sedation	No response to voice, but movement or eye opening to physical stimulation
-5	Unarousable	No response to voice or physical stimulation

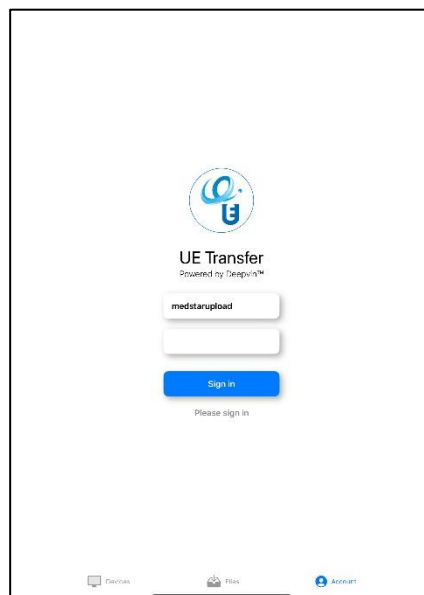
UE Transfer iOS App to DeepVin Cloud Transfer Instructions

Walkthrough Video Link: <https://youtu.be/ilInw7RsKhc>

1. Select the UE Transfer iOS application.



2. Enter the universal uploader account credentials on the UE Transfer app's home screen and tap sign in.
 - a. Username: VLupload
 - b. Password: 911grove



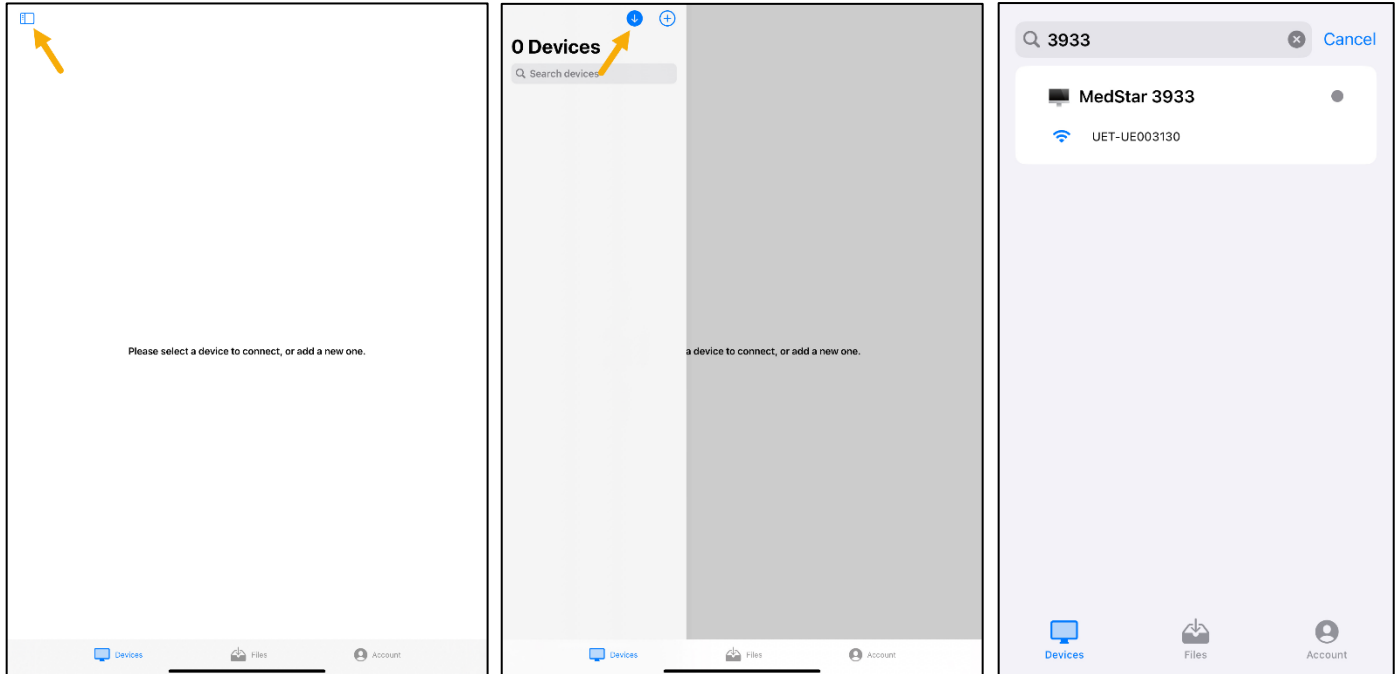
3. Find your device's asset ID # on the back of the UEScope device. If using an FRO device, it will be identified by the unit number, although the serial number may be used as a backup.



4. Device Selection

- Tap device list in upper left corner
- If the device list is not already populated, click the blue down arrow to download the system's device list.
- Type in the search bar your device's asset ID #. Tap on your device.

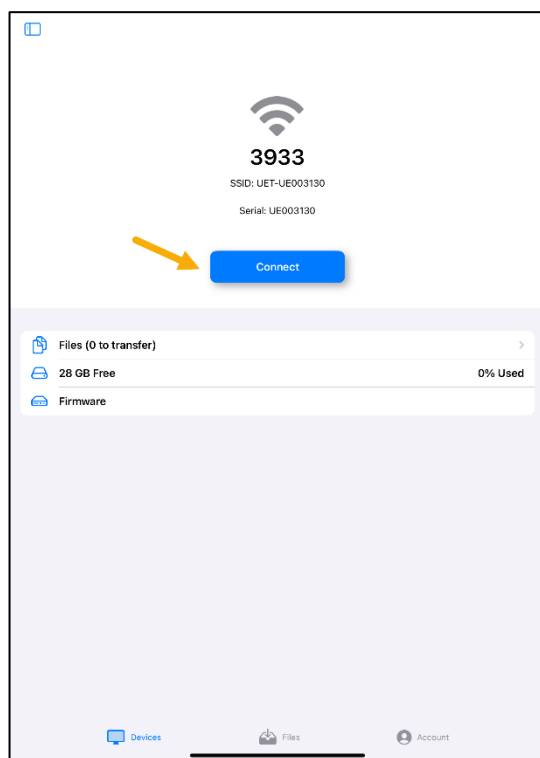
If your device is not listed in the system's device list, see page 7-8 for troubleshooting steps and how to manually add the device.



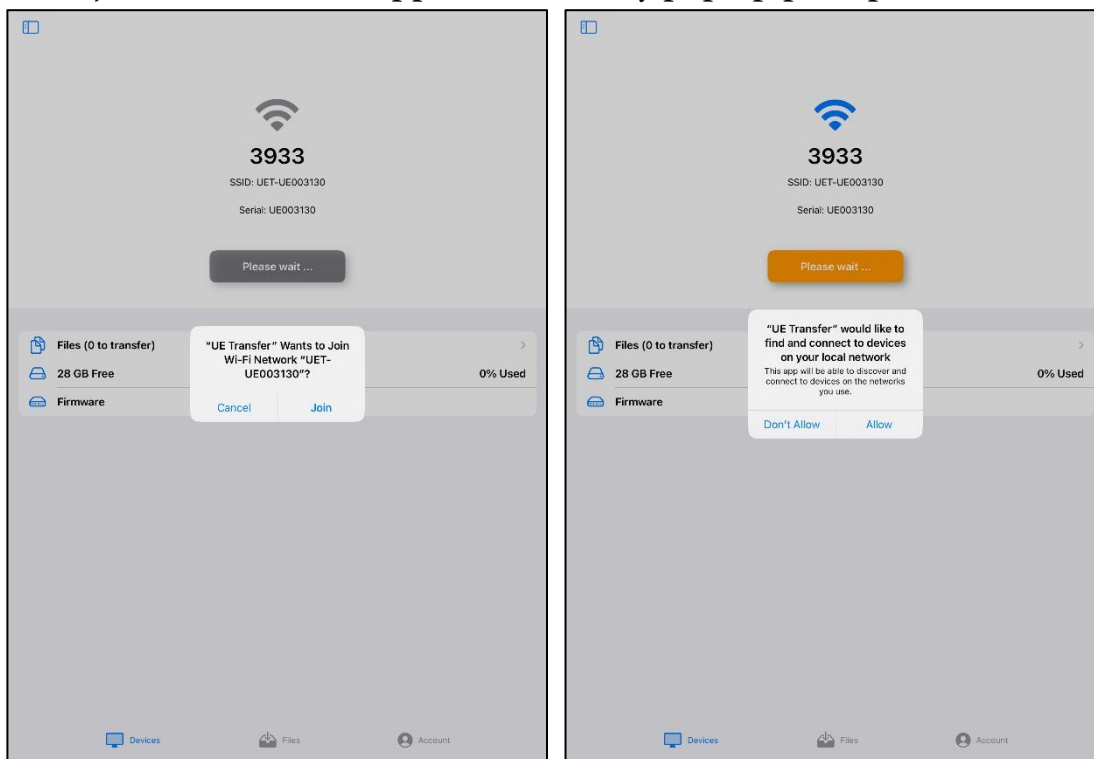
5. Ensure the UEScope device is powered on.



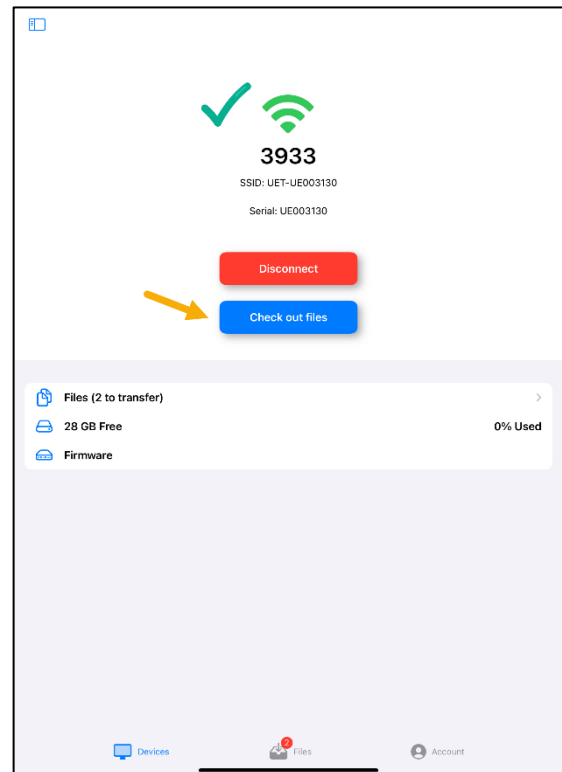
6. Click connect to begin connecting to the UEScope device.



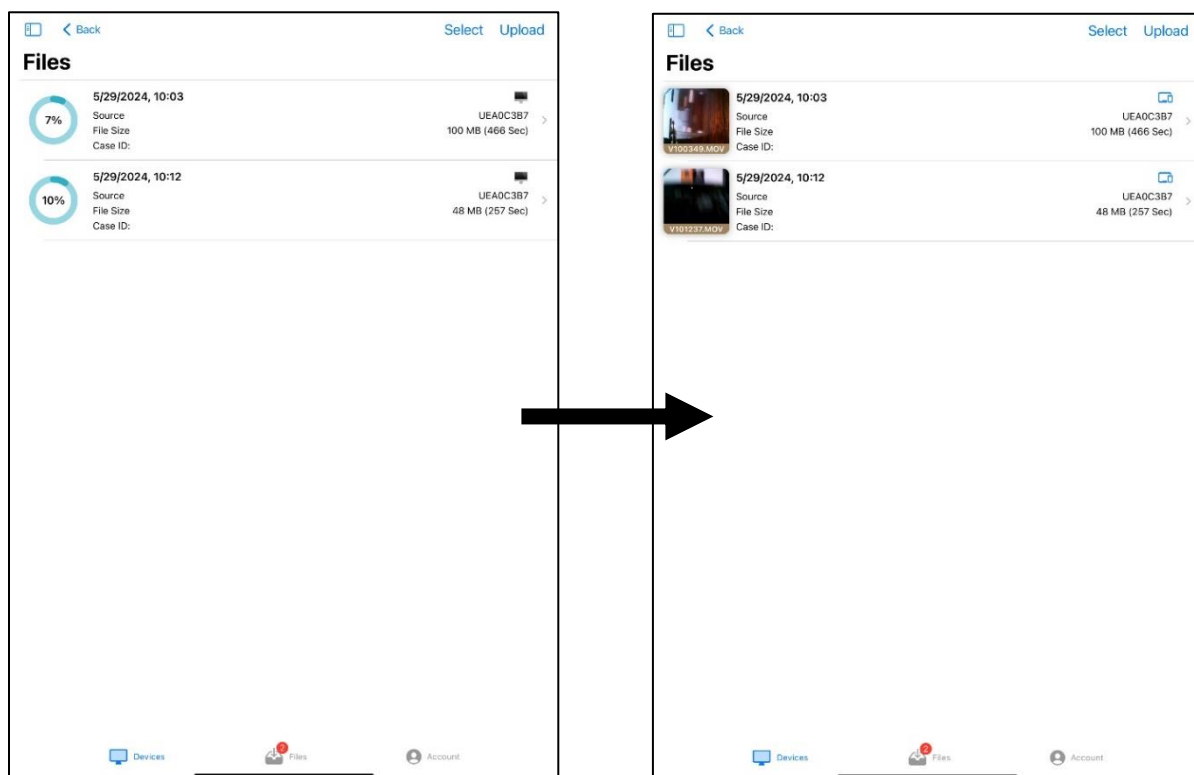
7. Click join/allow for the Apple iOS security pop up prompts.



8. Once the device is connected, the Wi-Fi symbol will turn green. Files will automatically start uploading to the UE Transfer iOS application. Tap “Check Out Files” to track upload progress to the app.

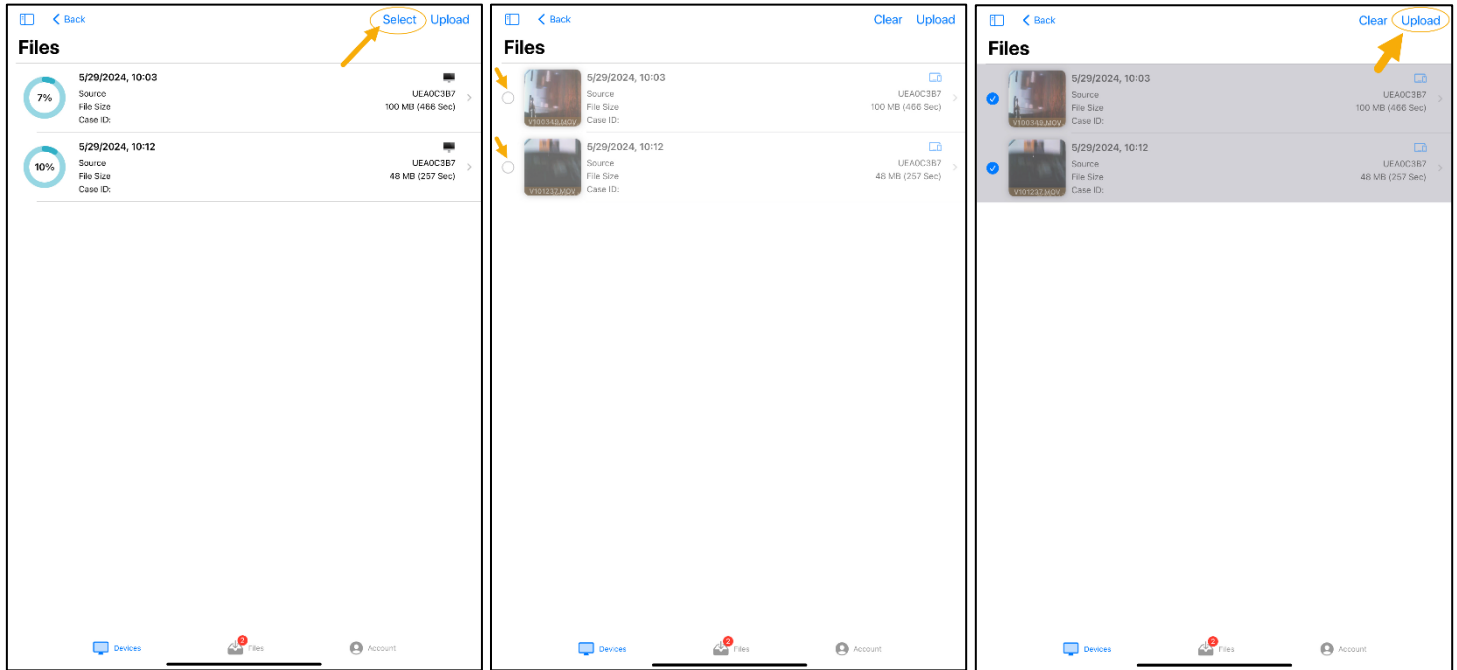


9. Wait for all video files to be completely downloaded to the UE Transfer App. This may take a few minutes for longer or multiple videos. **DO NOT** minimize the app or multi-task on the iPad while files are being uploaded. **IMPORTANT: These videos are only local copies on the iOS app and are deleted at the end of the session, you must continue with the full upload process to the DeepVin Cloud for them to be retained.**

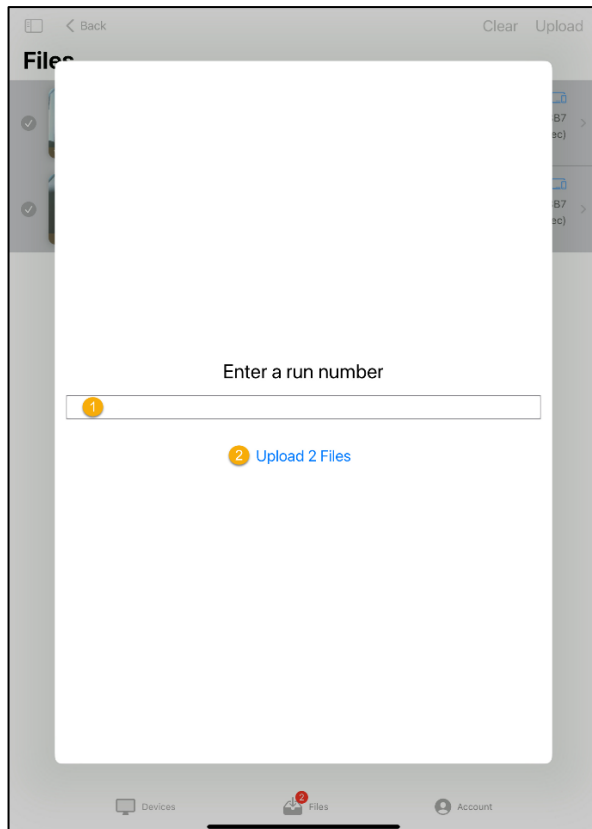


10. Uploading

- To upload all the videos listed - Tap “Upload”
- To individually select videos for upload – Tap “Select”, then select all files you want to upload, and then tap “Upload”.



- Type the Response Number that the intubation was performed during (DO NOT LEAVE BLANK). Then tap the blue “Upload Files” to begin uploading.



12. The upload process to the DeepVin Video Cloud takes a few moments. As files that are uploading will have a spinning loading icon over them and will disappear once successfully uploaded. **Be patient, this may take some time (~3-5 min for a 10 min file) when using mobile Wi-Fi.** You may navigate away from the app to perform other tasks, but do not “force quit” the app. If you are uploading videos for multiple responses, repeat steps 9-11 for each individual response.



Troubleshooting for Common Problems:

If unable to find your device or upload a video AFTER attempting the troubleshooting steps below:

MedStar Devices

- Turn the UEScope device into logistics
- Email SelfReport with response number, device asset ID #, and serial number (or a photo of the back of the device)

FRO Devices

- Have FRO crew notify their supervisor (e.g., FWFD Medic 1)
- EMS crew should email SelfReport with response number, device asset ID #, and serial number (or a photo of the back of the device)

1) Upload is timing out or never finishes

- a. Most common cause is a loss of the iPad internet connection during the upload.
- b. If possible, ensure you are near the Wi-Fi source and not changing locations. Re-establish Wi-Fi connection and then click Upload again (enter response number if necessary) and wait for the files to upload.
- c. If still unable to successfully upload, wait until you return to deployment center or station and make one final attempt to upload on a different Wi-Fi connection.

2) Device Unable to Connect

- a. Ensure you are selecting the correct device ID
- b. Verify the UEScope device is turned on and fully booted
- c. Click connect again
 - i. Ensure you are selecting join and allow in the iOS prompts
- d. Attempt manual connection with the device (see next page)

3) Device Not Found in the List

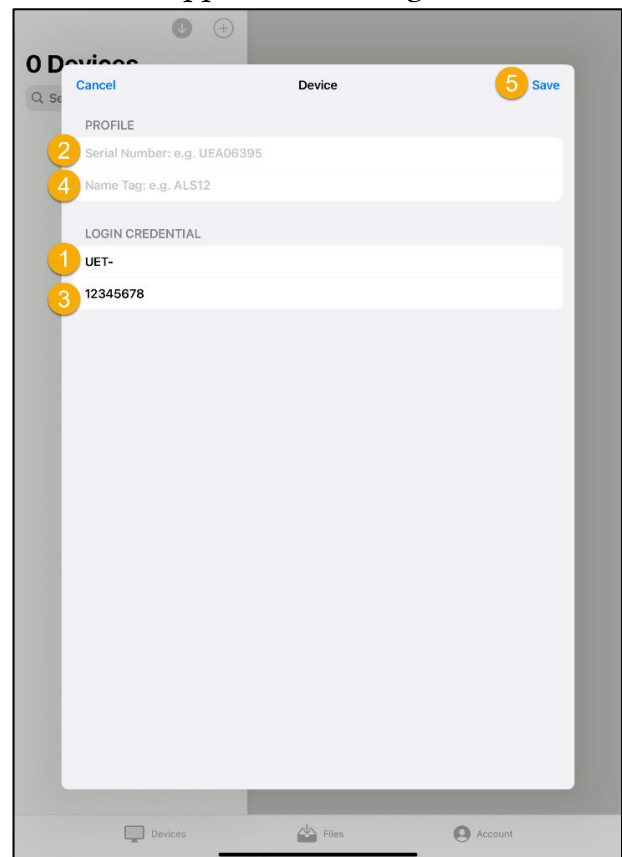
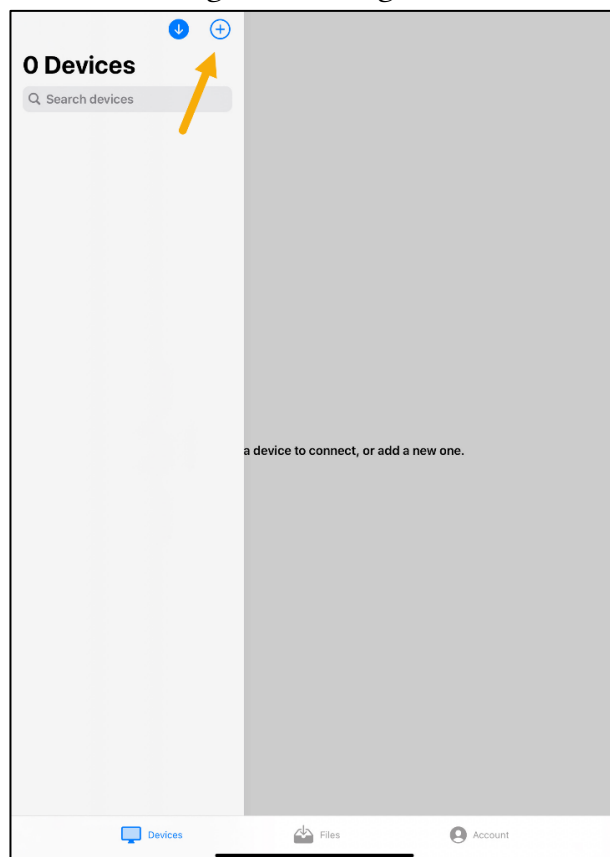
- a. Click the blue down arrow to refresh the system's device list.
- b. If device ID is not found:
 - i. If an EMS device, ensure you are using 4-digit asset ID # and NOT the eight digit white RFID tag.
 - ii. Search via serial number (see next page for photos)
- c. Attempt manual connection with the device (see next page)

Manual Connection Steps

- Find the device's serial number on the back of the device or in the Wi-Fi tab of the settings menu on the UEScope.



- Tap add device and enter the login credentials and profile details, and then click save
 - Login Credentials*
 - UET- is prefilled, enter serial number (NOT the 4-digit MedStar Asset ID) listed on the back of the device.
 - Password should be auto filled, and should always be: 12345678
 - Profile*
 - Enter Serial # again
 - Name Tag is the 4-digit Asset ID or Department & Apparatus Call Sign



- Email SelfReport that device was unlisted (include device ID & serial #).